STRATEGIC ENVIRONMENTAL ASSESSMENT OF THE HIGHLANDS AND ISLANDS REGIONAL TRANSPORT STRATEGY

Post-adoption statement

Report

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1. THE STRATEGIC ENVIRONMENTAL ASSESSMENT PROCESS

Summary of the RTS and SEA

1.1 The Transport (Scotland) Act 2005 gave legal status to Regional Transport Partnerships (RTPs) in Scotland. One duty of these RTPs has been to prepare a statutory Regional Transport Strategy (RTS). During 2006 - 2007, the Highlands and Islands Transport Partnership (HITRANS) prepared an RTS, which was submitted to Scottish Ministers in March 2007 for approval, and resubmitted in May 2008 following the change in government in Scotland taking on board its new focus and identified purpose. The RTS was approved by the Minister for Transport, Infrastructure and Climate Change in July 2008.

1.2 The RTS sets out the framework by which HITRANS will encourage future investment in order to maintain and improve all of the region's transport networks and services. It also demonstrates how the RTP has applied national transport policy and supports delivery of Government's Purpose at a regional level, and therefore supports the co-ordination and implementation of transport policy throughout Scotland and beyond.

1.3 The Highlands and Islands RTS has been subject to a process of Strategic Environmental Assessment, as required under the Environmental Assessment (Scotland) Act 2005. This has included the following activities:

- taking account of the views of the Scottish Environment Protection Agency (SEPA), Scottish Natural Heritage (SNH) and the Scottish Ministers (Historic Scotland) regarding the scope and level of detail that was appropriate for the Environmental Report;
- preparing an Environmental Report on the likely significant effects on the environment of the draft RTS which included consideration of:
  - the baseline data relating to the current state of the environment;
  - links between the RTS and other relevant strategies, policies, plans, programmes and environmental protection objectives;
  - existing environmental problems affecting the area covered by the RTS;
  - the RTS's likely significant effects on the environment (positive and negative);
  - measures envisaged for the prevention, reduction and offsetting of any significant adverse effects;
  - an outline of the reasons for selecting the alternatives chosen;
  - monitoring measures to ensure that any unforeseen environmental effects will be identified allowing for appropriate remedial action to be taken.
- consulting on the Environmental Report;
- taking into account the Environmental Report and the results of the consultation in making the final decision regarding the RTS; and
- committing to monitoring the significant environmental effects of the implementation of the RTS. This will also identify any unforeseen adverse significant environmental effects and to enable the appropriate remedial action to be taken.

Evolution of the Regional Transport Strategy

1.4 The development of the RTS commenced in early 2006 with a number of workshop meetings with key stakeholders in order to discuss and agree the issues that this strategy needed to address. The SEA process also commenced at the beginning of the strategy development process and was undertaken in parallel to the development of the strategy.

1.5 The strategy's overarching policy is to develop a fit for purpose multi-modal transport system. It comprises a package of policies and measures under a number of horizontal themes which apply across the region and a package of priorities for investment to improve the transport network across all modes. In addition to these policies, a range of proposals were developed to deliver these priorities. These proposals are contained within the Proposed Delivery Plan.

1.6 All elements of the strategy, and the actions contained in the Proposed Delivery Plan were assessed through the SEA process. This identified any environmental constraints associated with the proposals and contributed to the sifting and development of the actions contained within the strategy.

1.7 The RTS, including the Proposed Delivery Plan was submitted to Scottish Ministers in March 2007. Since the original submission of the strategy and prior to its approval, the RTPs were requested by Scottish Ministers to remove the delivery plans from the RTS leaving just the strategy element. It is the strategy element of the RTS that has been approved by Scottish Minsters and officially adopted by HITRANS and to which this Post Adoption Statement applies.

1.8 However, the SEA of this strategy goes further than an assessment of the policies in the adopted strategy alone and assessed all elements of the delivery plan. This assessment should therefore be consulted when progressing any of these actions in the future.

Objectives and content of this post-adoption statement

1.9 This post-adoption statement sets out how the findings of the SEA process have been taken into account in the development of the final RTS. This document includes the following information:

- how environmental problems relevant to the RTS, identified at the Scoping stage have been taken into account in the development of the strategy;
- results of consultation on the Draft RTS and Environmental Report and how these comments have been taken into account in the development of the final RTS;
- reasons for choosing the strategy as adopted, in the light of other reasonable alternatives; and
- measures that are to be taken to monitor significant environmental effects of the implementation of the strategy.

2. HOW ENVIRONMENTAL CONSIDERATIONS HAVE BEEN TAKEN INTO ACCOUNT

Environmental problems relevant to the RTS

2.1 At each stage of the process, the SEA looks at the likely environmental effects on the following, depending on the information available: noise, greenhouse gas emissions; local air quality; water; geology; soils; biodiversity; landscape, cultural heritage; and health; and the interrelationship between all these factors.

2.2 The most pertinent issues identified were those of conservation and biodiversity. There are a large number of natural heritage conservation designations, which should be respected.

2.3 Table 2.1 below shows how these issues, along with others, were integrated into the RTS.

TABLE 2.1 ENVIRONMENTAL PROBLEMS RELEVANT TO THE RTS AND IDENTIFIED IN THE ENVIRONMENTAL REPORT

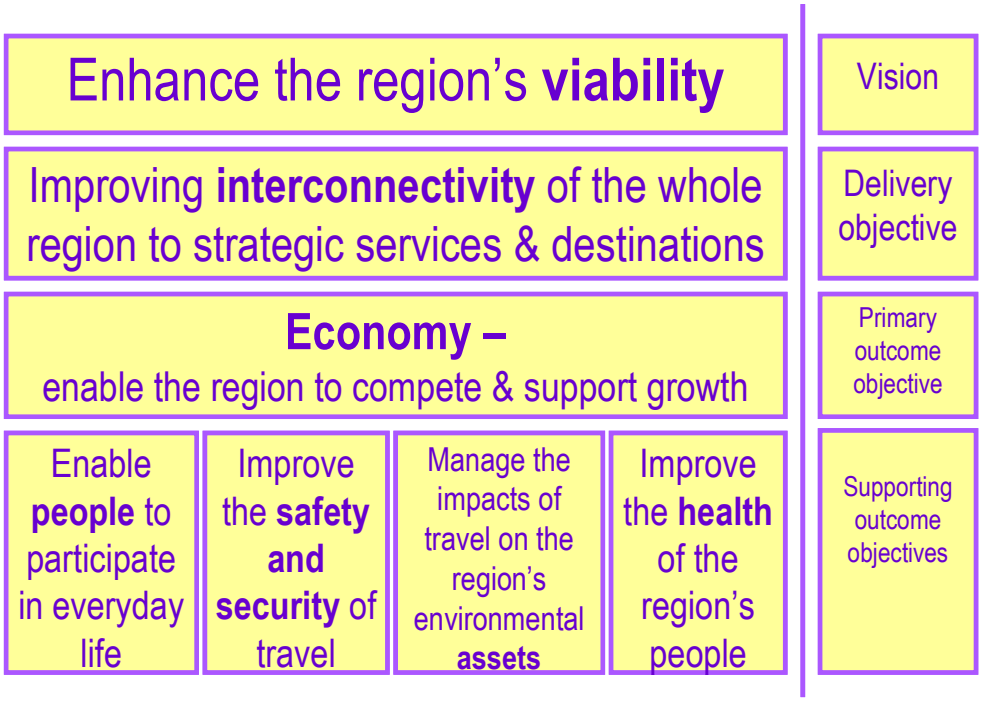
Environmental considerations and findings from Environmental Report	How these issues were addressed in the development of the RTS
Noise – the main source of ambient noise pollution in the UK is from road traffic. Noise is not only a disturbance but also poses a threat to human health. On the whole within the HITRANS area however, although road noise may cause community annoyance in built up areas, they do not exceed levels that are harmful to human health and well-being.	Policies aimed at encouraging public transport, and active travel through cycling and walking in particular are the subject of specific sub-strategies within the RTS, all aimed at reducing the negative effects of car travel (including noise and emissions) particularly in urban centres around the region. The RTS Monitoring Framework provides specific mechanisms for the monitoring of Nitrogen dioxide (NO2) and Particulate (PM10) levels. The monitoring chapter of the SEA also provides details on targets.
Greenhouse gas emissions – CO_2 is emitted by road vehicles through the consumption of carbon based fuels and is the principal greenhouse gas responsible for climate change. If traffic volumes continue to increase, CO_2 concentrations are also likely to continue to rise.	
Air quality is generally very good and no Air Quality Management Areas have been declared. There are however some areas, where air quality could deteriorate and exceed targets in the future due to increases in road traffic.	
Water, geology and soils – Only 1% of the region's rivers are in 'poor' condition and only 1% of coastal waters are 'unsatisfactory'. There is a diverse variety of soil types around the region.	Environmental criteria were a key part of the prioritisation process, in particular any potential impact on SSSIs, Nature Parks, SCAs, SPAs, Wetland Areas or Historic Gardens and Designed Landscapes. As a result of this process, a number of options on the network and in the horizontal themes were dropped, refined or packaged with other options. Moreover, Appropriate Assessment of the
Biodiversity – Due to the extent of the region that is covered by protected areas, many of the options developed in the strategy are likely to have some impact on a protected area or species.	

Environmental considerations and findings from Environmental Report	How these issues were addressed in the development of the RTS
Landscape and visual amenity - Landscape and townscape is at risk from change of character by new developments.	RTS has been carried out as a result of consultation with SEA Consultation Authorities. This process has identified specific mitigation measures to avoid/reduce potential adverse impacts on Natura sites from all RTS options assessed.
Cultural heritage – Potential risk of damage to or loss of heritage resources and sites of archaeological importance.	
Health and other social impacts - Although the health of the region is generally good, there are low levels of physical activity among the population.	Policies aimed at encouraging public transport, and active travel through cycling and walking in particular are the subject of specific sub-strategies within the RTS, all aimed at reducing the negative effects of car travel (including noise and emissions) particularly in urban centres around the region. Policies to promote Active Travel (cycling and walking) will contribute to increases in physical activity which is health-promoting. Policies to improve the public and community transport networks will contribute to improving accessibility to health and other key services for those who do not have access to a car.

RTS Objectives and Sub-Strategies (or Horizontal Themes)

2.4 In addition to the points raised in the table above, it should be pointed out that two of the key objectives of the RTS were developed to address environmental and health related issues, as shown in the following figure.

FIGURE 2-1 STRATEGY VISION AND OBJECTIVES



2.5 These objectives are:

- Manage the impacts of travel on the region's environmental assets
- Improve the health of the region's people

2.6 Underneath the overarching RTS policy of ***developing a fit for purpose, multi-modal transport system with associated infrastructure***, a package of sub-strategies and their related policies and measures has been developed by HITRANS and their partners.

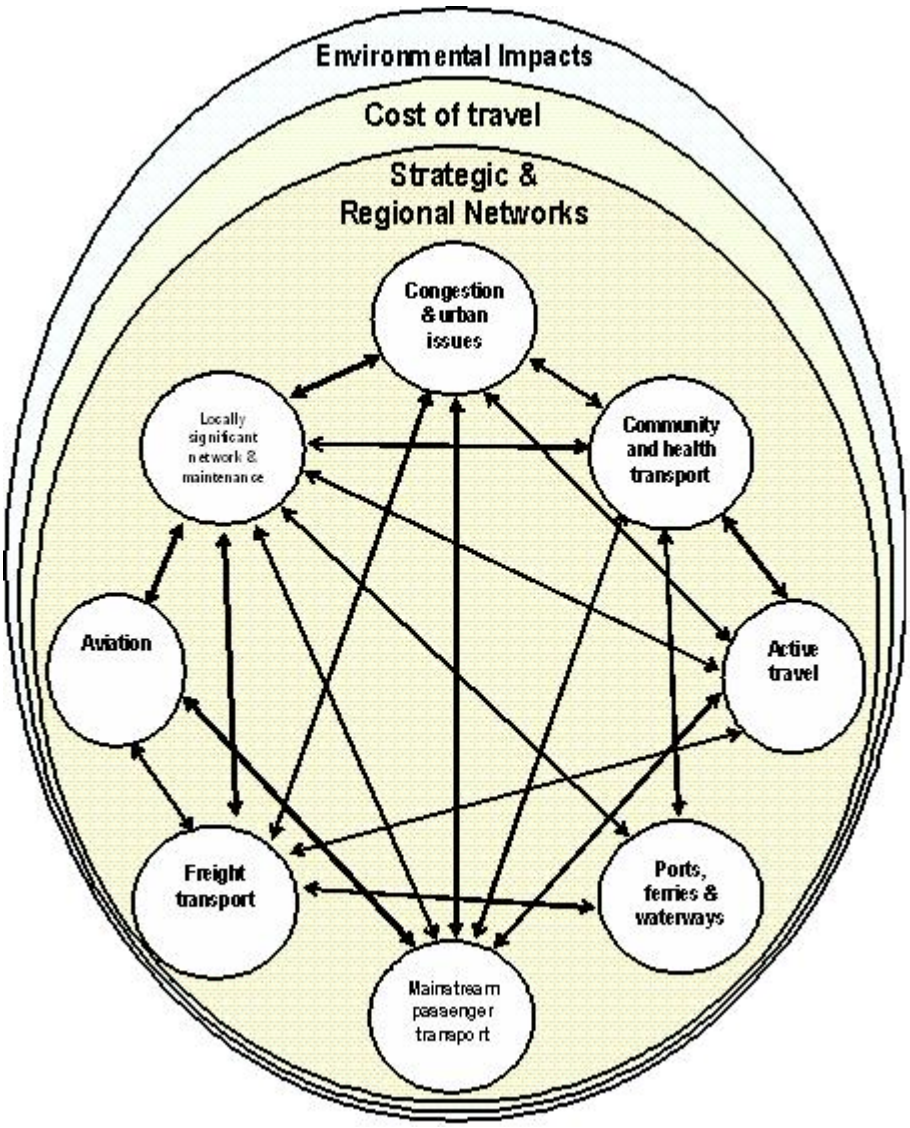
2.7 These key policy areas, which form the core of the Strategy, are as follows:

- Horizontal themes which apply across the region:
  - Active travel.
  - Aviation and the region's air network.
  - Community and health passenger transport.
  - Congestion and urban issues.
  - Freight transport.
  - Locally significant network and maintenance of the region's roads.
  - Mainstream passenger transport.
  - Ports, ferries and waterway transport.
  - Cost of transport and travel.
  - Environmental impacts.
- The strategic and regional network.

2.8 The Horizontal Themes relate to cross-cutting issues, that are best progressed at a strategic, region-wide level, particularly where benefits arise from integration and uniformity. Horizontal issues relate to the entire population of the region and / or are relevant to certain groups which share travel patterns / needs and socio-economic / socio-demographic characteristics.

2.9 In direct response to consultation on the Draft RTS and the Environmental Report, the Horizontal Sub-Strategy area of Environmental Impacts was specifically introduced to the final RTS, and is viewed as an overarching theme as the following diagram shows. The key objective of the Environmental Impacts theme is ***to develop ways to mitigate the climate change impact of socially and economically necessary travel across the region.***

FIGURE 2-2 RELATIONSHIPS BETWEEN HORIZONTAL THEMES IN THE STRATEGY



Appropriate Assessment

2.10 A major response by HITRANS to issues raised by SEA Consultation Authorities was to carry out Appropriate Assessment of all proposed options within the RTS that potentially impacted directly or indirectly on Natura sites, specifically Special Areas of Conservation, Special Protection Areas and Ramsar (Wetland) sites. This process has been reported upon separately, and the full report is appended to this Post Adoption Statement (Appendix A).

2.11 Overall, the Appropriate Assessment process concluded that:

- the proposed interventions within the RTS considered in this assessment would not adversely affect the integrity of the European sites in question;
- the assessment identifies mitigation measures to avoid / reduce possible effects so that the integrity of the sites is not adversely affected;
- project specific potential adverse impacts have been identified but have been

considered to be capable of being satisfactorily mitigated through the detailed design and implementation of best management practices during construction.

2.12 Without prejudice to the appraisal that has been carried out HITRANS believes that more detailed assessments will be required under Regulation 48[1], if and when any of the interventions are taken forward. As such (subject to Regulation 49[1]) an intervention would only be allowed to proceed if it was ascertained that there would be no adverse affect on the integrity of the site.

2.13 Project based appropriate assessments, and where necessary Environmental Impact Assessments, are the next stage to provide this more detailed approach as and when interventions progress, and these will be informed by detailed baseline ecological data. Through an iterative process these assessments should inform the final design of any scheme and its associated construction techniques.

Consultation

2.14 The draft Regional Transport Strategy was published for comment during February and March 2006. The SEA Environmental Report was published for public consultation alongside the Draft HITRANS RTS. The consultation involved running focussed workshops with key stakeholders across the region. The Draft RTS and Environmental Report were submitted to the statutory SEA consultees through the SEA Gateway.

2.15 Comments on the Environmental Report were received from the three statutory SEA consultation bodies (Historic Scotland, SEPA and SNH). In addition, SNH commented on the Draft HITRANS RTS itself. No comments directly relating to the Environmental Report were received from other stakeholders or members of the public.

Summary of key points made by Consultation Authorities

2.16 In general, the Consultation Authorities did not raise any major concerns relating to the Environmental Report or the SEA process as applied to the HITRANS RTS. Some key issues were raised, specifically relating to:

- a concern with the overall assessment in that "*there will be some negative impacts on the environment"* is perhaps an over simplification. The assessment demonstrates that there will be a range of impacts on the environment, both positive and negative, however, if human and other social impacts are excluded then none of the proposals result in a significant positive impact on the environment but a number do result in a significant negative impact (it is agreed that there will be increased accessibility and connectivity); and
- how any negative impacts will be mitigated.

2.17 A summary of the key points raised in the consultation responses is provided in the sections below.

[1] The Conservation (Natural Habitats, & c.) Regulations 1994 (as amended) (the Habitats Regulations)

Relationship with other plans and programmes

2.18 The consultation authorities were satisfied with the additional policies reviewed however SEPA would have liked to see the Area Waste Plans reviewed as well. Following comments at the Scoping stage, it was decided that the Area Waste Plans were not relevant to a strategic level transport strategy such as this, and this was highlighted in the response to consultation comments in Annex A of the Environmental Report.

Baseline environment

2.19 The consultation authorities were generally satisfied with the level of detail provided in the baseline section, however SEPA notes that the Indicative River and Coastal Flood Map (Scotland) has now become available and should be used to inform the final strategy. This interactive map had not been published at the time of writing the Environmental Report but has since been consulted. The strategic nature of the RTS means that this issue is more relevant and applicable when proposals are being developed and taken forward at the detailed level.

2.20 SEPA suggested that the RTS should aim wherever possible to develop on vacant and derelict land rather than on Greenfield sites, and that transportation infrastructure may be ideal development for such land. This will be considered by HITRANS and partners on a site- or proposal-specific basis. The nature of the RTS, a strategic transport planning document, means that this issue is more relevant and applicable when proposals are being developed and taken forward at the detailed level.

Environmental appraisal of alternatives

2.21 The consultation authorities are satisfied with the assessment of high level alternatives. SEPA did however query the assessment of alternatives shown in Tables 4.1 and 4.2 and state that further clarification / justification of this process may be required. Further details of the full option development and sifting process are provided in Chapter 4 of the final RTS.

2.22 *The 'without plan scenario'* - SEPA noted that in this section they would expect to see an assessment of the likely evolution of the wider environment without the implementation of the RTS. The Environmental Report focuses on the likely impacts resulting from population evolution. It is however noted that this assessment is carried out in Annex B but perhaps greater consistency in the presentation of this information would have been beneficial. This has been noted for future reference.

Assessment of Environmental effects

2.23 It was noted that greater description of the RTS component proposals would have enabled a better understanding of the possible effects. Due to the high level nature of the strategy however, this was not possible.

2.24 SEPA noted that all physical developments, such as road works, are likely to have at least a short term negative impact against water, geology and soils and that, depending on the extent of development, proposals which result in long term modifications to the water environment could be considered as significant. SEPA lists a number of

schemes which they would expect to have a significant impact on water, geology and soils:

- Modern 2-track standard Inverness – Glasgow;
- Dual carriageway options between Inverness and Perth;
- Variations of the above option including schemes to provide dual carriageway sections;
- Dual carriageway options on A96;
- Variations of the above options, including schemes to provide dual carriageway sections; and
- Fixed links on the sounds (Western Isles spinal route).

2.25 It was also identified that all such schemes could have knock-on impacts on biodiversity. SEPA was satisfied with the assessments made in relation to local air quality, greenhouse gas emissions and noise. This re-assessment was taken into consideration in the development of the final strategy. These items have all now been removed from the final adopted strategy although do remain in the Proposed Delivery Plan as key to achieving the objectives of the strategy.

2.26 In terms of Natura sites, SNH commented that it will be important to ensure that any adverse effects on these areas are identified before particular projects become 'locked in' to the strategy. Habitats Regulations require that there are no adverse effects on the integrity of such sites. Appropriate Assessment has been carried out for all schemes likely to impact upon Natura sites.

2.27 Historic Scotland noted that the assessment in Annex C tended to focus on the positive impacts of the historic environment through reductions in traffic. This assessment could identify more clearly the schemes that are likely to adversely impact the historic environment. Due to the high level nature of the strategy it was not possible in most cases to pin point exact locations of policies / proposals. It was therefore difficult to clearly identify schemes that would likely have an adverse impact. In instances where there was uncertainty of the assessment, this was noted and the assessment highlights that in a number of cases, more detailed Environmental Impact Assessments will be required at the project stage.

Mitigation and monitoring

2.28 SEPA note that it would have been helpful to set out all mitigation measures in a way that clearly identifies the measures that are required, when they would be required and who will be required to implement them. They suggest that this is included in the post-adoption statement and provided a suggested format for presenting this information. Historic Scotland also noted that it was not clear how the mitigation measures proposed would be implemented and suggested some additional mitigation measures for the historic environment as follows:

- The inclusion of a policy commitment in the RTS to ensure that proposal / project level mitigation measures are taken forward as the strategy is implemented.
- The inclusion of more specific mitigation measures for proposals / projects taken forward through the RTS e.g.

- any schemes with the potential to affect scheduled ancient monuments and / or their settings, listed buildings and their settings and gardens and designed landscapes and their settings should be subject to formal screening to determine whether an EIA is required.
- as part of the planning application process the Council should consider whether or not the scheme requires consultation under the General Development Procedure Order (GDPO).

2.29 These comments have been noted, however with the removal of the delivery plan from the strategy, there is uncertainty over who will be responsible for delivering the actions contained within it and when they are likely to be delivered. It is however agreed that more detailed screening of impacts will be required for many proposals at the project stage in order to more clearly identify potential impacts.

2.30 Some suggested alterations to the indicators were suggested by SEPA in order to make them more effective. These have been taken on board and are reflected in the updated table in Chapter 4 of this statement.

2.31 SEPA commented that one way that HITRANS may wish to consider addressing mitigation would be by including specific environmental policies in the strategy. Doing this, would clearly demonstrate how environmental considerations have been taken into account and integrated into the RTS. Historic Scotland also suggested that mitigation could be achieved through inclusion of environmental protection policies in the RTS.

2.32 These comments have been taken on board in the final strategy through the introduction of a Horizontal Theme specifically addressing environmental impacts. Environmental considerations are also integrated into the objectives for the strategy and into the option development and sifting process (see Chapter 4 of the RTS).

2.33 Appropriate Assessment has also been carried out with specific details of mitigation measures to reduce or avoid potential negative impacts from RTS options, to which HITRANS is committed. The Environmental Impacts theme introduced to the final RTS also commits HITRANS to Appropriate Assessment as schemes progress and mitigation of adverse impacts.

Consultation responses

2.34 SEPA welcomed the way in which the Consultation Authorities responses were taken into consideration when developing the Environmental Report and considers this to be good practice.

3. CONSIDERATION OF ALTERNATIVES

3.1 The SEA Act requires the environmental effects of 'reasonable alternatives' to be identified described and evaluated. The Act also states that the Post-Adoption Statement should include 'the reasons for choosing the plan or programme as adopted, in light of the other reasonable alternatives considered'.

3.2 The strategic alternatives for the HITRANS RTS emerged from an appreciation of the Scottish Transport Appraisal Guidance (STAG) requirement to consider the full range of options, from do minimum through to all possible interventions, and an understanding of the problems, constraints and opportunities which are centred around economic growth, population change, accessibility, congestion and environmental impacts. A range of high level alternative strategy options were developed based on a focus on addressing each of the key issues. The strategy alternatives were:

- **Do nothing / do minimum:** whereby current programmes and investment would be ongoing, yet there would be no further or targeted intervention in the transport system for the Highlands and Islands.
- **Passenger transport focus:** whereby public transport, community transport and active travel modes are the focus, thereby securing capital and revenue support for these means of travel, with targets to reduce the reliance on the car and to reduce the amount of travel undertaken in the region.
- **Underpin economic competitiveness for peripheral areas:** whereby connectivity improvements to peripheral areas would be targeted, thereby securing support for ongoing revenue subsidy of thin routes, with targets to reduce costs and improve journey time, integration and reliability.
- **Underpin economic growth for focussed development areas:** whereby the focus would be on the key growth areas, especially around the Inner Moray Firth.
- **Improve accessibility for the socially excluded:** focussing on access to key services, with a concentration on access for the socially excluded (those on low wages, the young, the elderly and those without access to a car). This would also include tackling road safety implications of disadvantage.
- **Minimise environmental impact:** by focussing on measures to reduce greenhouse gases, reduce vehicular mileage, increasing walking and cycling, achieving modal shift and minimising aviation requirements. This would thus include a focus on improving the health outcomes of the region's people, by increasing active travel and reducing environmental emissions.
- **Do all:** addressing the five preceding scenarios, which will constitute a high investment scenario.

Preferred option

3.3 The preferred option consists of a complimentary mix of scenarios two, three, four, five and six. These options were deemed to have a positive impact on the objectives of the strategy and are strongly complimentary. This preferred option, which included a range of policies and actions to be delivered, was appraised against the SEA objectives in the Environmental Report.

3.4 Chapter 4 of the Environmental Report details the assessment of the seven options listed above and the selection of the preferred option. The final RTS also provides full

details of the key strategy elements and the process by which they were derived.

3.5 The most significant change to the strategy since this assessment was undertaken has been the removal of the delivery plan from the strategy. This does not change the results of the assessment as no significant new elements have been added to the strategy.

3.6 It is however HITRANS view that although the delivery plan has been removed from the strategy, the actions contained within it are still considered necessary to meet the objectives of the strategy.

4. MONITORING

4.1 The Environmental Report contained a monitoring framework which set out proposals for monitoring the environmental impacts of the RTS. The consultation authorities provided some comments on the proposed monitoring framework. These comments have been taken into account and a final monitoring framework is detailed below.

Monitoring framework

4.2 Monitoring the environmental effects of the RTS is an essential stage in the SEA process. The information gathered as a result of monitoring will enable HITRANS to check the environmental impacts of the strategy, measure the success of the mitigation measures, identify any unforeseen effects, take remedial action and fill any gaps in baseline data.

4.3 Table 4.1 below identifies the objectives, indicators and baseline data for each of the SEA topics.

TABLE 4.1 SEA OBJECTIVES AND INDICATORS

SEA topic	Objective	Indicator	Baseline
Noise	To ensure existing levels of annoyance from noise caused by traffic do not significantly increase.	Prediction of road traffic noise at key locations on the road network.	Data unavailable at present
Air quality	To keep air quality of a good standard and below National Air Quality Standards in all areas	**NO_2:** Annual mean **PM_{10}:** Annual mean Source: Local Authority Air Quality Monitoring Reports	No air quality management areas No exceedences of air quality objectives for Nitrogen Dioxide and Particulates
Greenhouse gas emissions	To help tackle climate change by reducing the increase in CO_2 emissions from transport during the life of the plan, and helping to meet targets to nationally reduce overall emissions of greenhouse gases by 12.5% by 2008-12 in comparison with a 1990 baseline.	Predicted emissions of CO_2 from transport.	The Scottish Executive estimates that transport accounted for 12% of Scottish CO_2 emissions in 2000. Approximately 144 kilotonnes of Carbon Dioxide was emitted from road transport in Midlothian in 2003.
Biodiversity	To avoid damage to designated wildlife / biodiversity sites and protected species.	Number of designated sites affected in RTS strategies.	Ramsar sites: 2 (504ha) SPAs: 2 (504ha) SACs: 1 (53ha) SSSIs: 15 (1,205ha) Nature Reserve: 1 Wildlife sites: 52 Woodland Trust sites: 2

SEA topic	Objective	Indicator	Baseline
Cultural heritage	To preserve historic buildings, archaeological sites and their settings and other culturally and historically important features.	Number of listed buildings, scheduled monuments, Historic Gardens and Designed Landscapes affected in LTS strategies (supported by brief description of effect)	Conservation sites: 20 (3 are nationally important) Listed buildings: 714 Nationally important historic gardens and designed landscapes: 12 Scheduled Ancient Monuments: 79
Water	To limit water pollution from the transport network to levels that do not damage natural systems.	The quality of river, coastal and estuary waters as monitored by SEPA. Flooding events resulting from surcharged transport drainage systems.	58 stretches of freshwater (193km) 21% classified as A1 (Excellent)
Soils	To limit contamination of soils from the transport network and infrastructure development to levels that do not damage natural systems. To safeguard soil quality and quantity	Number of brownfield sites remediated as a result of their use for transport schemes.	317 hectares of vacant or derelict land (108 sites) 55 hectares of contaminated land across Edinburgh and the Lothians
Landscape	To retain, protect and enhance landscape character, local distinctiveness and scenic value.	Number of landscape character types Areas protected for their international, national or local landscape importance.	4 Landscape character types 225.1km^2 of Areas of Great Landscape Value (63.4% of Midlothian's total land area)
Health	To create conditions to improve the health of the areas population.	Air quality indicators (respiratory health) The proportion of the population feeling in 'good health'.	69% of the population in 'good health' 19.2% of the population have a long-term limiting illness.

4.4 HITRANS have also developed a monitoring framework for the strategy itself and this incorporates monitoring of environmental impacts.

APPENDIX A

APPROPRIATE ASSESSMENT OF THE HITRANS RTS

HI TRANS

THE HIGHLANDS AND ISLANDS TRANSPORT PARTNERSHIP

Highland and Islands Regional Transport Partnership

Appropriate Assessment in support of the HITRANS Regional Transport Strategy

October 2008

natural CAPITAL

Final Report

Highlands and Islands
Regional Transport Partnership

Information for an Appropriate Assessment in Support of the HITRANS Regional Transport Strategy

October 2008

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Final Report

Highlands and Islands
Regional Transport Partnership

Information for an Appropriate Assessment in Support of the HITRANS Regional Transport Strategy

For and on behalf of
Natural Capital Ltd.

Approved by: Dr Phil Say

Signed:

Position: Director

Date: 15.10.2008

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1 INTRODUCTION

1.1 GENERAL BACKGROUND TO APPROPRIATE ASSESSMENT

The UK is bound by the terms of the EC Birds and Habitats Directives[1] and the Ramsar Convention[2]. In the UK the European Directives have been transposed into domestic legislation through the Conservation (Natural Habitats &c.) Regulations 1994[3] (as amended) (the Habitats Regulations) which provide for the protection of what are termed 'European sites'. These sites include Special Areas of Conservation (SACs) designated under the Habitats Directive and Special Protection Areas (SPAs) classified under the Birds Directive.

The network of sites across the European Community is known as Natura 2000. Once established, the onus in on Member States to protect and restore the sites included in the network in accordance with the Habitat Directive's Article 6.

Article 6(3) of the European Habitats Directive requires Appropriate Assessment of plans that are likely to have a significant effect on SPAs or SACs.

> *"Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives…."*

Article 6(4) of the Habitats Directive goes on to discuss the alternative solutions, the test of 'imperative reasons of overriding public interest,' (IROPI) and compensatory measures:

> *"If, in spite of a negative assessment of the implications for the site and in the absence of alternative solutions, a plan or project must nevertheless be carried out for imperative reasons of overriding public interest, including those of social or economic nature, the Member State shall take all compensatory measures necessary to ensure that the overall coherence of Natura 2000 is protected. It shall inform the Commission of the compensatory measures adopted.*
>
> *Where the site concerned hosts a priority natural habitat type and/or a priority species, the only considerations which may be raised are those relating to human health or public safety, to beneficial consequences of primary importance for the environment or, further to an opinion from the Commission, to other imperative reasons of overriding public interest*."

The Habitats Directive applies the precautionary principle to SPAs and SACs. Plans and projects can only be permitted after having ascertained that there will be no adverse effect on the integrity of the site(s) in question and avoiding damage, deterioration and significant disturbance to the qualifying features. Plans and projects that will have an adverse affect on the integrity of a site may still be permitted if there are no alternatives to them and the IROPI test (see above)

[1] Council Directive on the conservation of wild birds of 2nd April 1979 (79/409/EEC) and Council Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora of 21st May 1992
[2] Convention on wetlands of international importance especially as waterfowl habitat, Ramsar, Iran 2nd Feb 1971
[3] Statutory Instrument 1994/2716 which came into force on 30 October 1994

substantiates that they should go ahead. In such cases, compensation will be necessary to ensure the overall coherence of Natura 2000 is protected.

Ramsar sites (so named following the Convention on Wetlands of International Importance, held in Ramsar, Iran, 1971) are wetland sites of international importance. They are protected for their important habitats, in particular for water birds. For those sites that qualify for designation only under the Ramsar Convention (and not as SAC or SPA) the Scottish Executive has chosen as a matter of policy to apply the same considerations to their protection as if they were classified as SPAs[4].

1.2 CONTEXT FOR THE HITRANS RTS

1.2.1 Background

In October 2005, the European Court of Justice ruled that all land-use plans should be subject to an 'Appropriate Assessment' of their implications for European sites. In addition as a matter of policy, the Government has chosen to apply the procedures on Ramsar sites and potential SPAs even though these are not classified as European sites as a matter of law.

HITRANS has produced a Regional Transport Strategy (RTS) setting out a vision and programme for improving the Region's transport infrastructure, services and other facilities, over the 15 years to 2022. It has undertaken a Strategic Environmental Assessment (SEA) of this strategy.

Following consultation on the SEA and the draft RTS, Scottish Natural Heritage (SNH) emphasised that care would be needed in demonstrating that the stringent requirements of the European Directives that apply to Natura sites are being met. SNH was concerned that the stated aim of 'minimising impacts' may not be sufficient to satisfy these requirements. In response to this HITRANS and its consultants (Steer Davies Gleave – SDG) have stated that 'If a Natura site is likely to be impacted upon, this will be highlighted'.

1.2.2 Screening

Following on from the SEA, further screening work was carried out by SDG to look specifically at European sites that could possibly be affected by any of the proposed interventions contained within the RTS delivery plan. This process was initially done at a very high level, identifying all European sites within the vicinity of any of the proposed schemes. This included for example all European sites located in the vicinity of the A9 north in relation to action '*S9b: A9 north – bypass settlements on route'*.

This process identified a large number of European and Ramsar sites within the HITRANS region that could potentially be affected by one or more of the proposed interventions. Once these sites had been identified, a more detailed screening process was carried out to ascertain in as much detail as possible, the specific nature and location of the interventions proposed. This was done in conjunction with HITRANS and its partners who were able to provide further detail on the interventions. This process enabled some interventions to be screened out of the

[4] Scottish Executive (2000) Nature conservation: Implementation in Scotland of EC Directive on the conservation of natural habitats and of wild flora and fauna and the conservation of wild birds ('The Habitats and Birds Directives'). Revised guidance updating Scottish Office Circular no. 6/1995

AA process since it was determined that the nature and location of the intervention would not have an impact on the qualifying features of any European sites.

During this process, a meeting was held between SDG, HITRANS, SEPA and SNH in order to discuss the nature of the Appropriate Assessment and level of detail required for a strategic plan such as the RTS. SNH was also provided with a list of all the sites and interventions proposed for Appropriate Assessment and given the opportunity to comment on these.

The results of the screening process and the decision to screen in / out different interventions from the Appropriate Assessment is presented in *Annex 1*.

At the time of this screening exercise the Scottish Executive was reviewing its position with regard to the requirement for an Appropriate Assessment to be carried out on all RTSs within Scotland. Following consultation with SNH it was decided that where reference was made to interventions within an RTS that could affect a European site (even if these were yet to be progressed and there were no detailed designs), then an Appropriate Assessment would be needed with reference to the intervention and site(s) possibly affected. It would not be adequate to refer to later project-specific Appropriate Assessments.

Natural Capital was invited by SDG on behalf of HITRANS to undertake the necessary research and provide the information so that HITRANS could, as the competent authority, carry out the Appropriate Assessment. The scope of the assessment (established following the review by the Scottish Executive and advice from SNH) was to concentrate on an assessment of those interventions highlighted in the SEA (and further considered within the screening process reported in *Annex 1*) where it was considered possible that they could have an effect on the integrity of a European site.

The purpose of this Appropriate Assessment is, therefore, to assess the impacts of the proposed interventions against the conservation objectives and qualifying features of the relevant European sites. The assessment should determine whether the interventions would adversely affect the integrity of any site in terms of its nature conservation objectives. If any negative effects remain after mitigation has been identified, then other options should be examined to determine whether these, in turn, would have an adverse effect on the integrity of the European site.

1.3 GUIDANCE

Guidance on the content and scope of this report has been taken from consultation with SNH and publications as follows:

- Scottish Executive (2000) Nature conservation: Implementation in Scotland of EC Directive on the conservation of natural habitats and of wild flora and fauna and the conservation of wild birds ('The Habitats and Birds Directives'). Revised guidance updating Scottish Office Circular no. 6/1995.
- European Commission (2001) Assessment of plans and projects significantly affecting Natura 2000 sites: methodological guidance on the provision of Article 6(3) and (4) of the Habitats Directive 92/43/EEC.
- European Commission. Managing Natura 2000 sites. The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.
- Scottish Executive (2006) Assessing Development Plans in Terms of the Need for Appropriate Assessment, Interim guidance.

1.4 APPROACH TO ASSESSMENT OF ADVERSE IMPACT ON INTEGRITY

This assessment is at a strategy level with no detail of the proposed interventions. The approach taken is to predict the potential impacts as far as is possible and identify any limitations. This then flags up what will be needed by way of mitigation, and will ultimately direct any tender briefs for further work or project based AA, should the intervention be taken forward in the Delivery Plan for the RTS.

The integrity of a site is defined as ' *the coherence of its ecological structure and function, across its whole area, that enables it to sustain the habitat, complex of habitats and/or the levels of populations of the species for which it was classified*'.

The potential impacts of each intervention have been assessed in the context of the ecological needs of the qualifying species/habitat, the current baseline and the relationship of these to the conservation objectives. Due to the high-level nature of the assessment there is no attempt at this stage to categorise impacts into those considered to be "negligible" and those more significant. All are being viewed as having the potential for adverse impact on site integrity and there is therefore an assessment of the required mitigation and the remaining residual effect.

The results of the assessment are summarised in *Table 1.*

2 ASSESSMENT OF THE RTS INTERVENTIONS

The assessment is set out in *Table 1* below and includes the following information:

- The intervention in question
- The European site potentially affected with qualifying features and conservation objectives listed
- The assessment of possible impacts
- The potential mitigation
- The residual effects
- The implications for the site

Table 1 Appropriate Assessment of RTS Interventions that could Impact on European Sites

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
Scheme S1b: A82 corridor– Ballachulish to Fort William Route enhancements				
Onich to North Ballachulish Woods (SAC) **Qualifying Features** • Alkaline fens • Old sessile oak woods with *Ilex* and *Blechnum* • *Tileo-Acerion* forests of slopes, screes and ravines **Habitat Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is	**Hydrological and Associated Water Pollution Risks** • Pollution of associated burns, springs, seepages and wetland areas (chemical and particulate – suspended solids and turbidity) caused by construction activities. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion. • Contamination from waste materials	**Hydrological and Associated Water Pollution Risks** • Contractors required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures. • Oil and fuel storage facilities and	**Hydrological and Associated Water Pollution Risks** • The listed mitigation measures would protect water quality (against chemical/oil and suspended solids/sediment contamination) so safeguarding	**Hydrological and Associated Water Pollution Risks** • No long-term adverse effects predicted on water quality. • No corresponding damage to hydrological processes and associated habitats predicted.

[5] The information available for the Appropriate Assessment is necessarily high-level at this stage because the intervention has not yet been defined in terms of location, design etc. Therefore the appraisal considers all features and conservation objectives at a strategic level.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: ○ Extent of the habitat on site ○ Distribution of the habitat within site ○ Structure and function of the habitat ○ Processes supporting the habitat ○ Distribution of typical species of the habitat ○ Viability of typical species as components of the habitat ○ No significant disturbance of typical species of the habitat	**General Ecology - including Qualifying Feature Habitat** • Destruction of habitats caused by construction activities with resultant habitat loss. • Impacts on adjacent habitats caused by construction activities. • Severance of wildlife corridors and connected habitats. • Disturbance of species frequenting areas where construction taking place (e.g. noise and physical activity). **Ecology – Associated Fauna (birds and animals)** • Habitat destruction. • Severance of routes between feeding and sheltering habitat. • Disturbance to habitat and damage to food supplies. • Impacts of possible pollution as described above either directly on the species (direct toxicity) or indirectly on the food supply (ingestion and bioaccumulation). • Noise and disturbance during construction.	small static plant to be well managed to minimise the risk of leaks to soil and groundwater. • Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment (including springs, seepages and wetland areas) during construction. • Contingency plans to be developed for implementation in the case of any spillage. • Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags *etc*) to be stored on site and site staff briefed on how to use them in case of spillage. • Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills. • All earth bunds and spoil storage areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance. • All feasible wastes to be recovered and reused within the works where possible. • The application of full environmental management systems and planning for the	important springs, seepages and wetland areas associated with qualifying features. **Ecology - General** • The listed mitigation would prevent impacts on qualifying feature habitat and help to minimise impacts on non-qualifying habitats in general. • Some temporary disturbance to non-qualifying habitat during construction but good site practices would again keep this to a minimum and would not extend beyond time scale of construction period. • Use of best practice in restoration should compensate for	**Ecology - General** • If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat. • Some loss of non-qualifying feature habitat would be likely but mitigation should keep this to an absolute minimum. • The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration thus improving general conservation status and providing general ecological benefits.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		systems and planning for the whole works. **General Ecology - including Qualifying Feature Habitat** • Ecological survey and use of existing studies/surveys to inform final design of route enhancements and construction methods. • Qualifying feature habitat would be avoided thus, in this case, preventing encroachment into old sessile oakwoods. • Contractor would be briefed to avoid unnecessary incursion into habitats adjacent to the works. • Construction methods would seek to minimise impacts in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration of disturbed areas. • Loss of non-qualifying habitat restricted to the minimum necessary for the works. • Construction area would be fenced during the construction period to contain site activities. • All areas affected by the construction works would be carefully restored at the end of the works. • The seedbank within the topsoil would be stripped from areas to be affected and replaced on the	some of the loss of non-qualifying habitat.	

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		site at the end of the works to aid vegetation growth. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents that could affect neighbouring habitats. • Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works.		
Scheme S1c: A82 corridor – Tarbet to Ballachulish strategy (road improvement to Tarbet to Inverannan & route enhancement Tyndrum to Ballachulish.				
Rannoch Moor (SAC) **Qualifying Features** • Blanket bogs • Depressions on peat substrates of the *Rhynchosporion* • European dry heaths • Otter (*Lutra lutra*) • Freshwater pearl mussel (*Margaritifera margaritifera*) • Natural dystrophic lakes and ponds • Northern Atlantic wet heaths with *Erica tetralix* • Oligotrophic to mesotrophic standing waters with vegetation of the *Littorelletea uniflorae* and/or of the *Isoëto-Nanojuncetea* • Transition mires and quaking bogs **Habitat Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring	**Hydrological and Associated Water Pollution Risks** • Changes to surface water morphology through realignment, culverting etc of watercourses and alterations to the beds of watercourses and drains. • Changes to drainage characteristics, aquatic habitats and hydrology in the locality of the site through physical works. • Changes to the hydrogeology/hydrology of the area through physical works. • Pollution of associated streams, springs, seepages and wetland areas (chemical and particulate – suspended solids and turbidity) caused by construction activities. • Pollution caused by oil and fuel spills and leakages.	**Hydrological and Associated Water Pollution Risks** • All detailed drainage measures would be designed to benefit nature conservation where this is practical and feasible taking account of the future maintenance requirements. The contractor would be required to follow best practice guidance. • All existing crossed watercourses would be culverted or bridged at their current location to maintain the existing flow path. Culverts would be provided under the road at each location and would be of adequate size for predicted flows and to minimise the risk of blockage. • The detailed drainage design	**Hydrological and Associated Water Pollution Risks** • The listed mitigation measures would help to protect hydrological regime and also water quality (against chemical/oil and suspended solids/sediment contamination) so safeguarding important springs, seepages and wetland areas associated with	**Hydrological and Associated Water Pollution Risks** • No long-term adverse effects predicted on water quality. • No corresponding damage to hydrological processes and associated habitats predicted. **Ecology - General** • If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat. • Some loss of non-

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: ○ Extent of the habitat on site ○ Distribution of the habitat within site ○ Structure and function of the habitat ○ Processes supporting the habitat ○ Distribution of typical species of the habitat ○ Viability of typical species as components of the habitat ○ No significant disturbance of typical species of the habitat **Species Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and	• Pollution from run-off and erosion. • Contamination from waste materials. **General Ecology - including Qualifying Feature Habitat** • Destruction of habitats caused by construction activities with resultant habitat loss. • Impacts on adjacent habitats caused by construction activities. • Loss of hydrological continuity through peat with subsequent effects on habitats. • Severance of wildlife corridors and connected habitats. • Disturbance of species frequenting areas where construction taking place (e.g. noise and physical activity). **Ecology – Associated Fauna (birds and animals)** • Habitat destruction. • Severance of routes between feeding and sheltering habitat. • Disturbance to habitat and damage to food supplies. • Impacts of possible pollution as described above either directly on the species (direct toxicity) or indirectly on the food supply (ingestion and bioaccumulation). • Noise and disturbance during construction. **Ecology - Otter**	would ensure that there is not an increased risk of flooding of areas in proximity to the works as a result of the scheme. • Contractors would be required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures. • Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and groundwater. • Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment (including springs, seepages and wetland areas) during construction. • Contingency plans to be developed for implementation in the case of any spillage. • Oil pollution prevention equipment to be stored on site and site staff briefed on how to use them in case of spillage. • Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills.	qualifying features. **Ecology - General** • The listed mitigation would prevent impacts on qualifying feature habitat and help to minimise impacts on non-qualifying habitats, associated species and food supplies. • Some temporary disturbance to non-qualifying feature habitat during construction but good site practices would again keep this to a minimum and would not extend beyond time scale of construction period. • Use of best practice in restoration should compensate for some of the habitat loss.	qualifying feature habitat would be likely but mitigation should keep this to an absolute minimum. • The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration thus improving general conservation status and providing general ecological benefits.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site

features; and
 	
• To ensure for the qualifying species that the following are maintained in the long term:
  • Population of the species as a viable component of the site
  • Distribution of the species within site
  • Distribution and extent of habitats supporting the species
  • Structure, function and supporting processes of habitats supporting the species
  • No significant disturbance of the species
  • Distribution and viability of freshwater pearl mussel host species
Structure, function and supporting processes of habitats supporting freshwater pearl mussel host species
 	
Rannoch Moor (Ramsar)
Qualifying Features
• Blanket bogs
 	
Conservation Objectives
• Not available
 	
Glen Coe (SAC)
Qualifying Features
	• Habitat destruction.
	• Severance of routes between feeding and sheltering habitat.
	• Removal of safe passage up and down stream.
	• Destruction of holts and couches.
	• Disturbance to habitat and damage to food supplies.
	• Impacts of possible pollution as described above either directly on the otter (direct toxicity) or indirectly on the food supply (ingestion and bioaccumulation).
	• Noise and disturbance during construction.
		• All earth bunds and spoil storage areas well managed to minimise runoff and erosion.
		• Any surface water drainage features affected by the proposals made good.
		• Any new culverts to be sensitively designed following best practice guidance.
		• All feasible wastes to be recovered and reused within the works where possible.
		• The application of full environmental management systems and planning for the whole works.
		
		General Ecology - including Qualifying Feature Habitat
		• Ecological survey and use of existing studies/surveys to inform final design of route enhancements and construction methods.
		• Avoidance of qualifying feature habitat.
		• Construction methods would seek to minimise impacts in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration of disturbed areas.
		• Non-qualifying feature habitat loss would be restricted to the minimum necessary for the works.
			Ecology - Otter
			• The listed mitigation would protect otter habitat and ensure safe passage and freedom of movement.
			• No significant adverse residual effects would be predicted.
			
			Ecology – Freshwater pearl mussel
			
			• The listed mitigation would protect freshwater pearl mussel habitat.
			• Any route enhancements involving structures would be designed to avoid mussel beds.
			• Hydrological and water pollution control measures would prevent adverse effects on water quality which in	

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
• Acidic scree • Alpine and subalpine calcareous grasslands • Alpine and subalpine heaths • Base-rich fens • Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels • Dry heaths • High-altitude plant communities associated with areas of water seepage • Montane acid grasslands • Mountain willow scrub • Plants in crevices on acid rocks • Plants in crevices on base-rich rocks • Species-rich grassland with mat-grass in upland areas • Tall herb communities **Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: o Extent of the habitat on site o Distribution of the habitat within site		• The detailed design would ensure the integrity of the peat system is maintained. • Construction area would be fenced during the construction period to contain site activities. • All areas affected by the construction works would be carefully restored at the end of the works. • The seedbank within the topsoil, together with associated peat and vegetation would be stripped from areas to be affected and replaced on the site at the end of the works to aid vegetation growth. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents that could affect neighbouring habitats. • Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works. **Ecology - Otters** • Access to an updated otter survey for area where road widening, construction of new junctions and associated works likely to be located to inform final design. • Identification of holts, couches	quality which in turn would protect freshwater pearl mussel.	

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
○ Structure and function of the habitat ○ Processes supporting the habitat ○ Distribution of typical species of the habitat ○ Viability of typical species as components of the habitat ○ No significant disturbance of typical species of the habitat		and other potential shelters at earliest stages of design process to enable avoidance where possible. • Locating construction site compounds away from potential otter habitat. • Avoidance of night working in areas where otter active. • Use of fencing to exclude otters from site works areas and provide safe passage. • Ensure that preferred otter paths not obstructed. • Culverts would be designed to facilitate otter passage with inclusion of ledges in accordance with best practice. • Reinstatement of natural habitat to provide adequate cover for otter movements. **Ecology – freshwater pearl mussel** • Identification of mussel beds at earliest stages of the design process to ensure that any structures and associated construction processes avoid adverse impacts. • Hydrological and water pollution mitigation measures listed above will protect the freshwater pearl mussel from negative impacts on its aquatic environment.		

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
Scheme S1d: A82 corridor - Pinch points / junction improvements Fort William to Inverness				

River Moriston at Invermoriston (SAC)
Qualifying Features
• Atlantic Salmon (*Salmo salar*)
• Freshwater pearl mussel (*Margaritifera margaritifera*)
 	
Conservation Objectives
• To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and
• To ensure for the qualifying habitats that the following are maintained in the long term:
  ○ Population of the species, including range of genetic types for salmon, as a viable component of the site
  ○ Distribution of the species within the site
  ○ Distribution and extent of habitats supporting the species
  ○ No significant disturbance of the species
	River Moriston - Water Pollution Risks
	• Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities.
	• Pollution caused by oil and fuel spills and leakages.
	• Pollution from run-off and erosion.
	• Pollution associated with concrete structures (if bridge constructed).
	• Contamination from waste materials.
	
	Ecology – General and Passage of Qualifying Fish Species
	• Destruction of habitats caused by construction activities with resultant habitat loss.
	• Smothering and coating of river substrate (sand and gravels) with solids and polluting materials.
	• Impacts on adjacent habitats caused by construction activities.
	• Severance of wildlife corridors and connected habitats.
	• Disturbance of species (salmon) frequenting areas or passing through where construction taking place (e.g. physical activities and activities causing pollution).
	• Destruction of and/or disturbance to freshwater pearl mussel habitat.
	• Toxicity effects of associated water pollution on freshwater pearl
		River Moriston - Water Pollution Risks
		• Contractors required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures.
		• Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks and spills to surface water, soil and groundwater.
		• Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction.
		• Contingency plans to be developed for implementation in the case of any spillage.
		• Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags etc) to be stored on site and site staff briefed on how to use them in case of spillage.
		• Plant and vehicles used for the works maintained on impermeable surfaces to contain
			Water Pollution
			• The listed mitigation measures would protect water quality (against chemical/oil and suspended solids/sediment contamination) so safeguarding key qualifying features (salmon and freshwater pearl mussel and their respective habitats).
			
			Ecology - General
			• The listed mitigation would prevent impacts on qualifying features and their habitat and would minimise impacts on non-qualifying feature habitats in general and the passage of qualifying fish species.
			• Some temporary
				Water Pollution
				• No long-term adverse effects predicted on water quality.
				• No corresponding damage to river processes and associated habitats predicted.
				
				Ecology - General
				• If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat.
				• The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration thus improving general conservation status and providing general ecological benefits.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
○ Distribution and viability of freshwater pearl mussel host species ○ Structure, function, and supporting processes of habitats supporting freshwater pearl mussel host species	mussel either direct or indirect via food chain.	oil spills. • All earth bunds and spoil storage areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance. • Concrete additives to be added to all concrete placed underwater to limit separation and concrete release into the water (in case of bridge construction). • All feasible wastes to be recovered and reused within the works where possible. • The application of full environmental management systems and planning for the whole works. **Ecology – General, in relation to Qualifying Species and Passage of Qualifying Fish Species** • Ecological survey and use of existing studies/surveys to inform final design and construction methods. • Construction would also seek to minimise nature conservation impacts in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration of	disturbance during construction but good site practices would again keep this to a minimum. **Ecology – Freshwater pearl mussel** • The listed mitigation would protect freshwater pearl mussel habitat. • Any route enhancements involving structures would be designed to avoid mussel beds. • Hydrological and water pollution control measures would prevent adverse effects on water quality which in turn would protect freshwater pearl mussel.	

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		construction areas. • Habitat loss restricted to the minimum necessary for the works. • Construction area fenced during construction period to contain site activities. • All areas affected construction would be carefully restored at the end of the works. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents that could affect neighbouring habitats. • Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works. **Ecology – Freshwater Pearl Mussel** • Construction of the proposals would seek to prevent impacts on freshwater pearl mussel and its habitat. • Identification of mussel beds at earliest stages of the design process to ensure that any structures and associated construction processes avoid adverse impacts. • Hydrological and water pollution mitigation measures listed above will protect the freshwater pearl		

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		mussel from negative impacts on its aquatic environment.		
Scheme S1e: A82 corridor - A82 to A9 / A96 link road				
Moray Firth (Marine SAC) **Qualifying Features** • Subtidal sandbanks • Bottlenose dolphin (*Tursiops truncates*) **Habitat Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: ○ Extent of the habitat on site ○ Distribution of the habitat within site ○ Structure and function of the habitat ○ Processes supporting the habitat ○ Distribution of typical species of the habitat ○ Viability of typical species as components of the habitat	**River Ness - Water Pollution Risks** • Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion. • Pollution associated with concrete structures (if bridge constructed). • Contamination from waste materials. **Marine and Coastal Water Pollution** • Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities and reaching vulnerable sandbanks and coastal areas within SAC. • Effects of sediments and other materials transported into sensitive marine areas. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion. • Contamination from waste materials **Ecology – General and in relation to Qualifying Species** • Destruction of habitats caused by construction activities with	**Water Pollution – River, Marine and Coastal** • Contractors required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures. • Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and groundwater. • Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction. • Contingency plans to be developed for implementation in the case of any spillage. • Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags *etc*) to be stored on site and site staff briefed on how to use them in case of spillage. • Plant and vehicles used for the works maintained on	**Water Pollution** • The listed mitigation measures would protect water quality (against chemical/oil and suspended solids/sediment contamination). **Ecology - General** • The listed mitigation would prevent impacts on qualifying feature habitat and would help to minimise impacts on non-qualifying feature habitats in general and on the important sandbanks. • Some temporary disturbance in some areas during construction but good site practices would	**Water Pollution** • No long-term adverse effects predicted on water quality. • No corresponding damage to estuarine processes and associated habitats predicted. **Ecology - General** • If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat. • Some loss of non-qualifying feature habitat would be likely but mitigation should keep this to an absolute minimum. • The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration, in particular with regard

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
○ No significant disturbance of typical species of the habitat **Species Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying species that the following are established then maintained in the long term: • Population of the species as a viable component of the site • Distribution of the species within site • Distribution and extent of habitats supporting the species • Structure, function and supporting processes of habitats supporting the species. • No significant disturbance of the species **Inner Moray Firth (SPA)**	resultant habitat loss. • Impacts on adjacent habitats caused by construction activities. • Severance of wildlife corridors and connected habitats. • Disturbance of species frequenting areas where construction taking place (e.g. noise and physical activity). • Destruction of feeding and roosting sites of bird species, which are SPA Qualifying Features. • Disturbance to feeding and roosting sites. • Water pollution impacts on substrates and food sources for waders and wildfowl.	impermeable surfaces to contain oil spills. • All earth bunds and spoil storage areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance. • Concrete additives to be added to all concrete placed underwater to limit separation and concrete release into the water. • All feasible wastes to be recovered and reused within the works where possible. • The application of full environmental management systems and planning for the whole works. **Ecology - General** • Ecological survey and use of existing studies/surveys to inform final design and construction methods. • Crucial feeding and roosting sites avoided and afforded protection from construction impacts. • Construction of the proposals would seek to minimise nature conservation impacts in areas not required for construction and maximise opportunities to enhance local biodiversity on	again keep this to a minimum. • With avoidance of damage or disturbance to key feeding and roosting sites no significant adverse residual effects predicted.	to activities associated with the River Ness. This could provide opportunities to improve the conservation status in areas around the road works.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
Qualifying Features • Bar-tailed godwit (*Limosa lapponica*) • Common tern (*Sterna hirundo*) • Cormorant (*Phalacrocorax carbo*) • Curlew (*Numenius arquata*) • Goldeneye (*Bucephala clangula*) • Goosander (*Mergus merganser*) • Greylag goose (*Anser anser*) • Osprey (*Pandion haliaetus*) • Oystercatcher (*Haematopus ostralegus*)* Red-breasted merganser (*Mergus serrator*) • Redshank (*Tringa etanus*) • Scaup (*Aythya marila*) • Teal (Anas crecca) • Wigeon (*Anas penelo*) • Waterfowl assemblage **Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: o Population of the species as a viable component of the site o Distribution of the species within the site o Distribution and		restoration of construction areas. • Non-qualifying feature habitat loss restricted to the minimum necessary for the works. • Construction area would be fenced during the construction period to contain the site activities. • All areas affected by the construction works would be carefully restored at the end of the works. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents. • Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works.		

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
extent of habitats supporting the species o Structure, function and supporting processes of habitats supporting the species o No significant disturbance of the species **Inner Moray Firth (Ramsar)** **Qualifying Features** • Outstanding examples of wetland habitats • Regularly supporting over 20,000 waterfowl • Regularly supporting internationally important wintering bird populations **Conservation Objectives** • None available				
Scheme S9d: A9 road north – route action plan to provide climbing lanes				
East Caithness Cliffs (SAC) **Qualifying Features** • Vegetated sea cliffs **Conservation Objectives** • To avoid deterioration of the qualifying habitat thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the	**East Caithness Cliffs (SAC)** – no direct or indirect impacts predicted for this SAC as it is too far away from any proposed work. **Marine and Coastal Water Pollution** • Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities associated with new climbing lanes, and reaching vulnerable	**Water Pollution – River, Marine and Coastal** • Contractors required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent	**Water Pollution** • The listed mitigation measures would protect water quality (against chemical/oil and suspended solids/sediment contamination).	**Water Pollution** • No long-term adverse effects predicted on water quality. • No corresponding damage to estuarine processes and associated habitats predicted. **Ecology - General**

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site

qualifying features; and
 	
• To ensure for the qualifying habitat that the following are maintained in the long term:
  • Extent of the habitat on site
  • Distribution of the habitat within site
  • Structure and function of the habitat
  • Processes supporting the habitat
  • Distribution of typical species of the habitat
  • Viability of typical species as components of the habitat
  • No significant disturbance of typical species of the habitat
 	
East Caithness Cliffs (SPA) Qualifying Species
• Cormorant (*Phalacrocorax carbo)*
• Fulmar (*Fulmarus glacialis)*
• Great black-backed gull (*Larus marinus)*
• Guillemot (*Uria aalge)*
• Herring gull (*Larus argentatus)*
• Kittiwake (*Rissa tridactyla)*
• Peregrine (*Falco peregrinus*)
• Razorbill (A*lca torda)*
	sandbanks and coastal areas within Ramsar site.
	• Effects of sediments and other materials transported into sensitive marine areas.
	• Pollution caused by oil and fuel spills and leakages.
	• Pollution from run-off and erosion.
	• Contamination from waste materials
	
	Ecology – General and in relation to Qualifying Species
	• Destruction of habitats caused by construction activities with resultant habitat loss.
	• Impacts on adjacent habitats caused by construction activities.
	• Disturbance of species frequenting areas where construction taking place (e.g. noise and physical activity).
	• Destruction of feeding and roosting sites of bird species, which are Ramsar, site Qualifying Features.
	• Disturbance to feeding and roosting sites.
	• Water pollution impacts on substrates and food sources for waders and wildfowl.
		pollution control measures.
		• Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and groundwater.
		• Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction.
		• Contingency plans to be developed for implementation in the case of any spillage.
		• Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags *etc*) to be stored on site and site staff briefed on how to use them in case of spillage.
		• Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills.
		• All earth bunds and spoil storage areas well managed to minimise runoff and erosion.
		• Any surface water drainage features affected by the proposals made good.
		• Any new culverts to be sensitively designed following best practice guidance.
		• All feasible wastes to be recovered and reused within the works where possible.
		• The application of full environmental management
			Ecology - General
			• The listed mitigation would prevent impacts on qualifying feature habitat and would help to minimise impacts on non-qualifying feature habitats in general and on the important sandbanks.
			• Some temporary disturbance in some areas to non-qualifying feature habitat during construction but good site practices would again keep this to a minimum.
			• With avoidance of damage or disturbance to key feeding and roosting sites no significant adverse residual effects predicted.
				• If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat.
				• Some loss of non-qualifying feature habitat would be likely but mitigation should keep this to an absolute minimum.
				• The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration, in particular with regard to activities associated with the additional climbing lanes. This could provide opportunities to improve the conservation status in areas around the road curtilages.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site

• Shag (*Phalacrocorax aristotelis)*
• Seabird assemblage
 	
Conservation Objectives
• To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and;
• To ensure for the qualifying species that the following are maintained in the long term:
  • Population of the species as a viable component of the site
  • Distribution of the species within site
  • Distribution and extent of habitats supporting the species
  • Structure, function and supporting processes of habitats supporting the species
  • No significant disturbance of the species
 	
Cromarty Firth (SPA)
Qualifying Species
 	
• Bar-tailed godwit (*Limosa lapponica)*
• Common tern (*Sterna hirundo)*
		systems and planning for the whole works.
		
		Ecology - General
		• Ecological survey and use of existing studies/surveys to inform final design and construction methods.
		• Crucial feeding and roosting sites avoided and afforded protection from construction impacts.
		• Construction of the proposals would seek to minimise nature conservation impacts in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration of construction areas.
		• Habitat loss restricted to the minimum necessary for the works.
		• Construction area would be fenced during the construction period to contain the site activities.
		• All areas affected by the construction works would be carefully restored at the end of the works.
		• Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents.
		• Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the		

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site

• Curlew (*Numenius arquata)*
• Dunlin (*Calidris alpina alpina*)
• Greylag goose (*Anser anser)*
• Knot (*Calidris canutus)*
• Osprey (*Pandion haliaetus)*
• Oystercatcher (*Haematopus ostralegus*)*
• Pintail (*Anas acuta*)
• Red-breasted merganser (*Mergus serrator)*
• Redshank (*Tringa totanus)*
• Scaup (*Aythya marila)*
• Whooper swan (*Cygnus cygnus)*
• Wigeon (*Anas penelope)*
• Waterfowl assemblage
 	
Conservation Objectives
• To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and
 	
• To ensure for the qualifying species that the following are maintained in the long term:
  • Population of the species as a viable component of the site
  • Distribution of the species within site
		works.		

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
• Distribution and extent of habitats supporting the species • Structure, function and supporting processes of habitats supporting the species • No significant disturbance of the species **Cromarty Firth (Ramsar)** **Qualifying Features** • Outstanding examples of wetland habitats • Regularly supporting over 20,000 waterfowl • Regularly supporting internationally important wintering bird populations **Conservation Objectives** • None available				
Scheme S2a: Highland mainline – journey time and frequency improvements				
River Spey SAC **Qualifying Features** • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* • Freshwater pearl mussel (*Margaritifera margaritifera*) • Sea lamprey (*Petromyzon marinus*) • Atlantic salmon (*Salmo salar*) • Otter (*Lutra lutra*) **Conservation Objectives** • To avoid deterioration of the	**Hydrological and Associated Water Pollution Risks** • Changes to surface water morphology through construction of embankments, culverting etc of watercourses and alterations to the beds of watercourses and drains. • Changes to drainage characteristics, aquatic habitats and hydrology in the locality of the site through physical works. • Changes to the	**Hydrological and Associated Water Pollution Risks** • All detailed drainage measures would be designed to benefit nature conservation where this is practical and feasible taking account of the future maintenance requirements. The contractor would be required to follow best practice guidance. • All existing crossed watercourses would be culverted	**Hydrological and Associated Water Pollution Risks** • The listed mitigation measures would help to protect the hydrological regime and also water quality (against chemical/oil and	**Hydrological and Associated Water Pollution Risks** • No long-term adverse effects predicted on water quality. • No corresponding damage to hydrological processes and associated habitats predicted.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: o Extent of the habitat on site o Distribution of the habitat within site o Structure and function of the habitat o Processes supporting the habitat o Distribution of typical species of the habitat o Viability of typical species as components of the habitat o No significant disturbance of typical species of the habitat **Insh Marshes (SAC)** **Qualifying Features** • Alder woodland on floodplains • Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels • Very wet mires often identified by an unstable `quaking` surface **Habitat Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an	hydrogeology/hydrology of the area through physical works. • Pollution of associated streams, springs, seepages and wetland areas (chemical and particulate – suspended solids and turbidity) caused by construction activities. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion. • Contamination from waste materials. **General Ecology - including Qualifying Feature Habitat** • Destruction of habitats caused by construction activities with resultant habitat loss. • Impacts on adjacent habitats caused by construction activities. • Severance of wildlife corridors and connected habitats. • Disturbance of species frequenting areas where construction taking place (e.g. noise and physical activity). • Impacts of possible pollution as described above on important plant species (direct toxicity). • Noise and disturbance during construction.	or bridged at their current location to maintain the existing flow path. Culverts would be provided under the embankment at each location and would be of adequate size for predicted flows and to minimise the risk of blockage. • The detailed drainage design would ensure that there is not an increased risk of flooding of areas in proximity to the works as a result of the scheme. • Contractors would be required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures. • Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and groundwater. • Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment (including springs, seepages and wetland areas) during construction. • Contingency plans to be developed for implementation in the case of any spillage	suspended solids/sediment contamination) so safeguarding important springs, seepages and wetland areas associated with qualifying features. **Ecology - General** • The listed mitigation would prevent impacts on qualifying feature habitat and would help to minimise impacts on non-qualifying feature habitats in general. • Some temporary disturbance to non-qualifying feature habitat during construction but good site practices would again keep this to a minimum and would not extend beyond time scale of construction	**Ecology - General** • If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat. • Some loss of non-qualifying feature habitat would be likely but mitigation should keep this to an absolute minimum. • The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration. This could provide opportunities to improve habitats and conservation status along railway embankments.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: o Extent of the habitat on site o Distribution of the habitat within site o Structure and function of the habitat o Processes supporting the habitat o Distribution of typical species of the habitat o Viability of typical species as components of the habitat o No significant disturbance of typical species of the habitat **Species Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and		the case of any spillage. • Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags *etc*) to be stored on site and site staff briefed on how to use them in case of spillage. • Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills. • All earth bunds and spoil storage areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance. • All feasible wastes to be recovered and reused within the works where possible. • The application of full environmental management systems and planning for the whole works. **General Ecology - including Qualifying Feature Habitat** • Ecological survey and use of existing studies/surveys to inform final design of loop with additional railway tracking, and construction methods. • Construction methods would seek to minimise impacts in	period. • Use of best practice in restoration should compensate for some of the non-qualifying feature habitat loss. **Ecology - Otter** • The listed mitigation would protect otter habitat and ensure safe passage and freedom of movement. • No significant adverse residual effects would be predicted. **Ecology – Freshwater pearl mussel** • The listed mitigation would protect freshwater pearl mussel habitat. • Any route enhancements involving structures would	

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site

• To ensure for the qualifying species that the following are maintained in the long term:
  • Population of the species as a viable component of the site
  • Distribution of the species within site
  • Distribution and extent of habitats supporting the species
  • Structure, function and supporting processes of habitats supporting the species
  • No significant disturbance of the species
		areas not required for construction and maximise opportunities to enhance local biodiversity on restoration of disturbed areas.
		• Habitat loss restricted to the minimum necessary for the works.
		• Construction area would be fenced during the construction period to contain site activities.
		• All areas affected by the construction works would be carefully restored at the end of the works.
		• Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents that could affect neighbouring habitats.
		• Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works.
		
		Ecology - Otters
		• Access to an updated otter survey for area where road widening and associated works likely to be located to inform final design.
		• Identification of holts, couches and other potential shelters at earliest stages of design process to enable avoidance of such
			be designed to avoid mussel beds.
			• Hydrological and water pollution control measures would prevent adverse effects on water quality which in turn would protect freshwater pearl mussel.	

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		areas where possible. • Locating construction site compounds away from potential otter habitat. • Avoidance of night working in areas where otter active. • Use of fencing to exclude otters from site works areas and provide safe passage. • Ensure that preferred otter paths not obstructed. • Reinstatement of natural habitat to provide adequate cover for otter movements. **Ecology – Freshwater Pearl Mussel** • Construction of the proposals would seek to prevent impacts on freshwater pearl mussel and its habitat. • Identification of mussel beds at earliest stages of the design process to ensure that any structures and associated construction processes avoid adverse impacts. • Hydrological and water pollution mitigation measures listed above will protect the freshwater pearl mussel from negative impacts on its aquatic environment.		
Scheme S5: Inverness – Aberdeen rail line				
Lower River Spey – Spey Bay (SAC) Qualifying Features	**Water Pollution Risks** • Pollution (chemical and particulate	**Water Pollution – River, Marine and Coastal**	**Water Pollution** • The listed	**Water Pollution** • No long-term adverse

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
• Alder woodland on floodplains • Coastal shingle vegetation outside the reach of waves **Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: o Extent of the habitat on site o Distribution of the habitat within site o Structure and function of the habitat o Processes supporting the habitat o Distribution of typical species of the habitat o Viability of typical species as components of the habitat o No significant disturbance of typical species of the habitat **Inner Moray Firth SPA** **Qualifying Features** • Bar-tailed godwit (Limosa lapponica)	– suspended solids and turbidity) caused by construction activities. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion. • Pollution associated with concrete structures (if bridge constructed at Forres). • Contamination from waste materials. **Marine and Coastal Water Pollution – Inner Moray Firth SPA** • Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities and reaching vulnerable sandbanks and coastal areas within SAC. • Effects of sediments and other materials transported into sensitive marine areas. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion. • Contamination from waste materials **Ecology – General and in relation to Qualifying Species** • Destruction of habitats caused by construction activities and river engineering works with resultant habitat loss. • Impacts on adjacent habitats caused by construction activities. • Disturbance of species frequenting	• Contractors required to identify appropriate control measures (including best practice guidance for construction and river engineering works) to minimise the risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures. • Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and groundwater. • Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction. • Contingency plans to be developed for implementation in the case of any spillage. • Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags *etc*) to be stored on site and site staff briefed on how to use them in case of spillage. • Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills. • All earth bunds and spoil storage areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the	mitigation measures would protect water quality against chemical/oil and suspended solids/sediment contamination. **Ecology - General** • The listed mitigation would prevent impacts on qualifying feature habitat and would help to minimise impacts on non-qualifying feature habitats in general and on the important sandbanks and bird feeding areas. • Some temporary disturbance in some areas during construction but good site practices would again keep this to a minimum. • With avoidance of damage or disturbance to key feeding and	effects predicted on water quality. • No corresponding damage to estuarine processes and associated habitats predicted. **Ecology - General** • If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat. • Some loss of non-qualifying feature habitat would be likely but mitigation should keep this to an absolute minimum. • The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration, in particular with regard to activities associated with the River Spey. This could provide opportunities to improve the conservation status in riparian areas around any possible bridge

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
lapponica) • Common tern (*Sterna hirundo*) • Cormorant (*Phalacrocorax carbo*) • Curlew (*Numenius arquata*) • Goldeneye (*Bucephala clangula*) • Goosander (*Mergus merganser*) • Greylag goose (*Anser anser*) • Osprey (*Pandion haliaetus*) • Oystercatcher (*Haematopus ostralegus*)* Red-breasted merganser (*Mergus serrator*) • Redshank (*Tringa etanus*) • Scaup (*Aythya marila*) • Teal (Anas crecca) • Wigeon (*Anas penelo*) • Waterfowl assemblage **Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and; • To ensure for the qualifying habitats that the following are maintained in the long term: o Population of the species as a viable component of the site o Distribution of the species within the site o Distribution and extent of habitats supporting the species o Structure, function and supporting	areas where construction taking place (e.g. noise and physical activity). • Destruction of feeding and roosting sites of bird species that are SPA Qualifying Features. • Disturbance to feeding and roosting sites. • Water pollution impacts on substrates and food sources for waders and wildfowl.	features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance. • Concrete additives to be added to all concrete placed underwater to limit separation and concrete release into the water. • All feasible wastes to be recovered and reused within the works where possible. • The application of full environmental management systems and planning for the whole works. **Ecology - General** • Ecological survey and use of existing studies/surveys to inform final design and construction methods. • Crucial feeding and roosting sites avoided and afforded protection from construction impacts. • Construction of the proposals would seek to minimise nature conservation impacts in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration of construction areas. • Habitat loss restricted to the minimum necessary for the works. • Construction area would be fenced during the construction	roosting sites no significant adverse residual effects predicted.	any possible bridge and road works.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
processes of habitats supporting the species o No significant disturbance of the species		period to contain the site activities. • All areas affected by the construction works would be carefully restored at the end of the works. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents. • Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works.		
Scheme S6a: A96 corridor – Dual Carriageway Inverness – Airport				
Moray Firth (Marine SAC) **Qualifying Features** • Bottlenose dolphins, *Tursiops truncatus* • Subtidal sandbanks (slightly covered by seawater all the time) **Habitat Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term:	**Marine and Coastal Water Pollution** Risks of the following to the SAC: • Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion. • Impacts from elevated sediment and solids levels affecting turbidity and sedimentation rates. • Contamination from waste materials **Ecology – in relation to Qualifying Species** • Destruction of sandbank habitats	**Water Pollution – River, Marine and Coastal** • Contractors required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures. • Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and groundwater. • Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the	**Water Pollution** • The listed mitigation measures would protect water quality against chemical/oil and suspended solids/sediment contamination. **Ecology - General** • The listed mitigation would prevent impacts on qualifying feature habitat and would help to minimise	**Water Pollution** • No long-term adverse effects predicted on water quality. • No corresponding damage to estuarine processes and associated habitats predicted. **Ecology - General** • If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat. • Some loss of non-qualifying feature

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
○ Extent of the habitat on site ○ Distribution of the habitat within site ○ Structure and function of the habitat ○ Processes supporting the habitat ○ Distribution of typical species of the habitat ○ Viability of typical species as components of the habitat ○ No significant disturbance of typical species of the habitat **Species Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying species that the following are established then maintained in the long term: • Population of the species as a viable component of the site	caused by pollution and altered sedimentation from construction activities with resultant habitat loss. • Water pollution impacts directly (through toxicity) or indirectly on substrates and food sources for dolphins. • Construction related effluent together with pollution caused by oil/fuel spills and hazardous waste materials have the potential to cause deterioration of dolphin populations through impairment of their reproductive or immune systems, carcinogenic effects, increased risk of disease, or through toxic impacts on prey species. This would be through the effects of toxic effluents and / or nutrient enrichment, which may cause subsequent changes in community structure.	site polluting the aquatic environment during construction. • Contingency plans to be developed for implementation in the case of any spillage. • Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags *etc*) to be stored on site and site staff briefed on how to use them in case of spillage. • Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills. • All earth bunds and spoil storage areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance. • All feasible wastes to be recovered and reused within the works where possible. • The application of full environmental management systems and planning for the whole works. **Ecology - General** • Construction of the proposals would seek to avoid possible effects on dolphins in the SAC and minimise nature	impacts on non-qualifying feature habitats in general and on the important sandbanks and associated substrates and food sources for dolphins. • Some temporary disturbance in some areas during construction but good site practices would again keep this to a minimum. • With avoidance of qualifying feature habitat, water pollution impacts and contamination from hazardous materials, no adverse residual effects predicted.	habitat would be likely but mitigation should keep this to an absolute minimum. • The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration of non-qualifying feature habitat areas, where this is appropriate, thus improving general conservation status and providing general ecological benefits.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
• Distribution of the species within site • Distribution and extent of habitats supporting the species • Structure, function and supporting processes of habitats supporting the species • No significant disturbance of the species		conservation impacts in the widest sense. • As a matter of principle habitat loss would be restricted to the minimum necessary for the works. • Construction area would be fenced during the construction period to contain the site activities. • All areas affected by the construction works would be carefully restored at the end of the works. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents. • Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works.		
Scheme S6c: A96 corridor – Elgin Bypass				
Loch Spynie (SPA) **Qualifying Features** • Greylag goose **Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring the integrity of the site is maintained; and	**Ecology – Qualifying bird species that frequent or move in and around SPA into surrounding farmland** • Damage and disturbance to feeding and roosting sites. • Destruction of feeding and roosting sites. • Water pollution impacts on substrates and food sources for geese and any accompanying	**Water Pollution - Indirect** • Contractors required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution (sediments, oils, chemicals, waste materials) during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and	**Water Pollution - Indirect** • The listed mitigation measures would protect against chemical/oil and suspended solids/sediment contamination.	**Water Pollution - Indirect** • No long-term adverse effects predicted on water quality. • No corresponding damage to associated habitats predicted. **Ecology** • Minimal implications

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
• To ensure for the qualifying species that the following are maintained: o Population of the species as a viable component of the site o Distribution of the species within the site o Distribution and extent of habitats supporting the species o Structure, function and supporting processes of habitats supporting the species o No significant disturbance of the species o Moray and Nairn Coast (Ramsar)	waders and wildfowl in feeding areas.	permanent pollution control measures including accidental leaks and spills. • All earth bunds and spoil storage areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance. • All feasible wastes to be recovered and reused within the works where possible. • The application of full environmental management systems and planning for the whole works. **Ecology – General and with regard to Qualifying Features** • Ecological survey and use of existing studies/surveys to inform final routing, design and construction methods. • Avoidance of critical feeding and roosting sites. • Construction of the proposals would seek to minimise nature conservation impacts (in particular disturbance) in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration of construction areas. • Habitat loss restricted to the	**Ecology** • The listed mitigation would help to minimise impacts on potential feeding areas and habitats of qualifying bird species. • With avoidance of damage or disturbance to key feeding and roosting sites no significant adverse residual effects predicted.	anticipated for the integrity of the SPA with rigorous application of avoidance and other mitigation measures.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		minimum necessary for the works. • Construction area would be fenced during the construction period to contain the site activities. • All areas affected by the construction works would be carefully restored at the end of the works. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents, which could affect neighbouring habitats. • Requirements in the construction contract would ensure that disturbance to wildlife and in particular qualifying bird species is kept to the minimum necessary for the works.		
Scheme S9a: A9 (north) – Berriedale Braes Crossings				
Berriedale and Langwell Waters (SAC) **Qualifying Features** • Atlantic Salmon **Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation	**Berriedale and Langwell Waters - Water Pollution Risks** • Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion. • Pollution associated with concrete structures (if bridge crossings constructed). • Contamination from waste	**Berriedale and Langwell Waters - Water Pollution Risks** • Contractors required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures.	**Water Pollution** • The listed mitigation measures would protect water quality (against chemical/oil and suspended solids/sediment contamination) so safeguarding key qualifying	**Water Pollution** • No long-term adverse effects predicted on water quality. • No corresponding damage to river processes and associated habitats predicted. **Ecology - General**

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: ○ Population of the species, including range of genetic types of salmon, as a viable component of the site ○ Distribution of the species within the site ○ Distribution and extent of habitats supporting the species ○ Structure, function and supporting processes of habitats supporting the species ○ No significant disturbance of the species	materials. **Ecology – General and Passage of Qualifying Fish Species** • Destruction of habitats caused by construction activities with resultant habitat loss. • Smothering and coating of river substrate (sand and gravels) with solids and polluting materials. • Impacts on adjacent habitats caused by construction activities. • Severance of wildlife corridors and connected habitats. • Disturbance of species (salmon) frequenting areas or passing through where construction taking place (e.g. physical activities and activities causing pollution). • Toxicity effects of associated water pollution on food sources and food chain.	• Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks and spills to surface water, soil and groundwater. • Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction. • Contingency plans to be developed for implementation in the case of any spillage. • Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags etc) to be stored on site and site staff briefed on how to use them in case of spillage. • Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills. • All earth bunds and spoil storage areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance. • Concrete additives to be added to all concrete placed underwater to limit separation and concrete release into the water (in case of bridge construction).	features (salmon and its respective habitat). **Ecology - General** • The listed mitigation would help to prevent impacts on qualifying feature habitat and would minimise impacts on non-qualifying feature habitats in general and passage of qualifying fish species. • Some temporary disturbance during construction but good site practices would again keep this to a minimum.	• If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat. • Some loss of non-qualifying feature habitat would be likely but mitigation should keep this to an absolute minimum. • The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration thus improving general conservation status and providing general ecological benefits.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		• All feasible wastes to be recovered and reused within the works where possible. • The application of full environmental management systems and planning for the whole works. **Ecology – General, in relation to Qualifying Species and Passage of Qualifying Fish Species** • Ecological survey and use of existing studies/surveys to inform final design and construction methods. • Construction would seek to minimise nature conservation impacts in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration of construction areas. • Habitat loss restricted to the minimum necessary for the works. • Construction area fenced during construction period to contain site activities. • All areas affected construction would be carefully restored at the end of the works. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents that could affect neighbouring habitats.		

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		• Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works.		
Scheme R15a: Orkney internal connectivity – inter-isles ferry and air service connectivity enhancements				
Hoy (SPA) **Qualifying Features** • Arctic skua • Fulmar • Great black-backed gull • Great skua • Guillemot • Kittiwake • Peregine • Puffin • Red-throated diver • Seabird assemblage **Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring the integrity of the site is maintained: and • To ensure for the qualifying species that the following are maintained: o Population of the species as a viable component of the site o Distribution of the species within the site o Distribution and extent of habitats	**Water Pollution** • Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion. • Pollution associated with concrete structures. • Contamination from waste materials **Ecology – Including Qualifying Feature Habitat** • Destruction of habitats caused by construction activities with resultant habitat loss. • Impacts on adjacent habitats caused by construction activities. **Ecology – Including Qualifying Bird Species** • Disturbance of species frequenting areas where construction taking place (e.g. noise and physical activity). • Destruction of feeding and roosting sites. • Disturbance to feeding and	**Water Pollution** • Contractors required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures. • Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and groundwater. • Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction. • Contingency plans to be developed for implementation in the case of any spillage. • Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags etc) to be stored on site and site staff briefed on how to use them in case of spillage.	**Water Pollution** • The listed mitigation measures would protect water quality (against chemical/oil and suspended solids/sediment contamination). **Ecology - Habitats** • The listed mitigation would prevent impacts on qualifying feature habitat and would help to minimise impacts on non-qualifying feature habitats in general. • There will be scope to avoid sensitive areas and prevent impacts on adjacent areas.	**Water Pollution** • No long-term adverse effects predicted on water quality. • No corresponding damage to estuarine processes and associated habitats predicted. **Ecology - Habitats** • If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat. • Some loss of non-qualifying feature habitat would be likely but mitigation should keep this to an absolute minimum. • New works structures may provide additional habitat in the longer term. **Ecology – Birds and**

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
supporting the species ○ Structure, function and supporting processes of habitats supporting the species ○ No significant disturbance of the species **Calf of Eday (SPA)** **Qualifying Features** • Breeding bird assemblage • Cormorant (Phalacrocorax carbo) • Fulmar (Fulmarus glacialis) • Greater black-backed gull (Larus marinus) • Gulliemot (Uria aalge) • Kittiwake (Rissa tridactyla) **Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring the integrity of the site is maintained: and • To ensure for the qualifying species that the following are maintained: ○ Population of the species as a viable component of the site ○ Distribution of the species within the site ○ Distribution and extent of habitats	roosting sites. • Water pollution impacts on substrates and food sources for waders and wildfowl. • Disturbance of species frequenting areas vulnerable to disturbance from passing ferries (e.g. noise and physical activity). **Ecology – Including Qualifying Features - Seals** • Disturbance to those frequenting areas where construction taking place (e.g. noise and physical activity). • Disturbance to feeding and resting sites (rookeries). • Water pollution impacts on substrates and food sources. • Disturbance to those frequenting areas vulnerable to disturbance from passing ferries (e.g. noise and physical activity). **New Structures** • New structures such as breakwaters could impact on the local marine environment changing turbidity, sedimentation processes etc • Shelter and new substrate provided by new breakwaters and other infrastructure could be beneficial to some species and offer more diverse feeding conditions for some of the SPA qualifying bird species.	• Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills. • All earth bunds and spoil storage areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance. • Concrete additives to be added to all concrete placed underwater to limit separation and concrete release into the water. • All feasible wastes to be recovered and reused within the works where possible. • The application of full environmental management systems and planning for the whole works. **Ecology - Habitats** • Ecological survey and use of existing studies/surveys to inform final design and construction methods. • Construction of the proposals would seek to minimise nature conservation impacts in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration construction areas.	**Ecology – Birds and Seals** • Some temporary disturbance during construction but good site practices would keep this to a minimum. • Avoidance of damage or disturbance to key feeding, roosting and rookery sites would result in no adverse residual effects predicted.	**seals** • The mitigation should ensure that there are no adverse effects on the qualifying features, conservation objectives and hence site integrity. • It should also ensure that appropriate biodiversity enhancement measures are incorporated into final restoration. This could provide opportunities to improve the conservation status of non-qualifying feature habitat in areas around the works.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
supporting the species ○ Structure, function and supporting processes of habitats supporting the species ○ No significant disturbance of the species **East Sanday Coast (SPA and Ramsar)** **Qualifying Features** • Bar-tailed godwit (Limosa lapponica) • Purple sandpiper (Calidris maritime) • Turnstone (Arenaria intepres) **Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring the integrity of the site is maintained: and • To ensure for the qualifying species that the following are maintained: ○ Population of the species as a viable component of the site ○ Distribution of the species within the site ○ Distribution and extent of habitats supporting the		• Habitat loss restricted to the minimum necessary for the works. • Construction area fenced to contain site activities. • All areas affected by the construction works would be carefully restored at the end of the works. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents, which could affect neighbouring habitats. • Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works. **Ecology – Birds and Seals** • Ecological survey and use of existing studies/surveys would be used to inform final design to help avoid key low water feeding sites, high water roosting sites, rookeries. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of disturbing feeding/roosting/resting bird and seal species and/or the destruction/disturbance of their habitat. • Construction areas managed to		

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
species ○ Structure, function and supporting processes of habitats supporting the species ○ No significant disturbance of the species **Sanday SAC** **Qualifying Features** • Intertidal mudflats and sandflats • Reefs • Subtidal sandbanks • Common Seal **Habitat Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: • Extent of the habitat on site • Distribution of the habitat within site		avoid and /or minimise potential impacts on sensitive bird species. **New Structures** • The effects of new infrastructure on sediment patterns to be modelled to ensure no significant adverse effects on mudflat, sandy and coastal areas etc. • New structures to be designed to provide new habitats where feasible (e.g. possible roost sites etc).		

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
• Structure and function of the habitat • Processes supporting the habitat • Distribution of typical species of the habitat • Viability of typical species as components of the habitat • No significant disturbance of typical species of the habitat **Species Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying species that the following are maintained in the long term: • Population of the species as a viable component of the site • Distribution of the species within site • Distribution and extent of habitats supporting the species				

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
• Structure, function and supporting processes of habitats supporting the species • No significant disturbance of the species **Faray and Holm of Faray (SAC) Qualifying Features** • Grey seal (Halichoerus grypus) **Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring the integrity of the site is maintained: and • To ensure for the qualifying species that the following are maintained: o Population of the species as a viable component of the site o Distribution of the species within the site o Distribution and extent of habitats supporting the species o Structure, function and supporting processes of habitats supporting the species o No significant disturbance of the species				

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
Scheme R16a: Easdale, Lismore, Luing and Islay – Jura ferry services – replacement vessels and / or infrastructure				
Firth of Lorn (SAC) **Qualifying Features** • Reefs **Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: o Extent of the habitat on site o Distribution of the habitat within site o Structure and function of the habitat o Processes supporting the habitat o Distribution of typical species of the habitat o Viability of typical species as components of the habitat o No significant disturbance of typical species of the habitat	**Water Pollution** • Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion. • Pollution associated with concrete structures. • Contamination from waste materials **Ecology – Including Qualifying Feature Habitat** • Destruction of reef habitats caused by construction activities with resultant habitat loss. • Impacts on adjacent habitats caused by construction activities. **New Structures** • New structures such as breakwaters could impact on the local marine environment changing turbidity, sedimentation processes etc • Shelter and new substrate provided by new breakwaters and other infrastructure could be beneficial to some species.	**Water Pollution** • Contractors required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures. • Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and groundwater. • Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction. • Contingency plans to be developed for implementation in the case of any spillage. • Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags etc) to be stored on site and site staff briefed on how to use them in case of spillage. • Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills. • All earth bunds and spoil storage	**Water Pollution** • The listed mitigation measures would protect water quality (against chemical/oil and suspended solids/sediment contamination). **Ecology - Habitats** • The listed mitigation would prevent impacts on qualifying feature habitat and would help to minimise impacts on non-qualifying feature habitats in general and on the important reefs. • There will be scope to avoid sensitive areas and prevent impacts on adjacent areas.	**Water Pollution** • No long-term adverse effects predicted on water quality. • No corresponding damage to coastal processes and associated reef habitats predicted. **Ecology - Habitats** • If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat. • Some loss of non-qualifying feature habitat would be likely but mitigation should keep this to an absolute minimum. • New works structures may provide additional habitat in the longer term.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance. • Concrete additives to be added to all concrete placed underwater to limit separation and concrete release into the water. • All feasible wastes to be recovered and reused within the works where possible. • The application of full environmental management systems and planning for the whole works. **Ecology - Habitats** • Ecological survey and use of existing studies/surveys to inform final design and construction methods. • Construction of the proposals would seek to minimise nature conservation impacts in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration of construction areas. • Habitat loss restricted to the minimum necessary for the works. • All areas affected by the construction works would be		

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		carefully restored at the end of the works. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents, which could affect neighbouring habitats. **New Structures** • The effects of new infrastructure on sediment patterns to be modelled to ensure no significant adverse effects on mudflat, sandy, rocky reef and coastal areas etc. • New structures to be designed to provide new habitats where feasible (e.g. possible roost sites for birds).		
Scheme R18c: Western isles spinal route – road improvement options				
South Uist Machair (SAC and Ramsar) **Qualifying Features** • Corncrake (*Crex crex*) • Dunlin (*Calidris alpina*) • Little tern (*Sterna albifrons*) • Oystercatcher (*Haematopus ostralegus*) • Redshank (*Tringa etanus*) • Ringed plover (*Charadrius hiaticula*) • Sanderling (*Calidris alba*) **Ramsar:** • Supporting outstanding examples	**Water Pollution** • Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion. • Pollution associated with concrete structures. • Contamination from waste materials **Ecology - General** • Destruction of habitats (mudflats,	**Some road-based improvements may require minimal construction works, whereas others involving capital works for road alignment, culverting and possible bridge works would be likely to need more detailed measures including:** **Water Pollution** • Contractors required to identify appropriate control measures (including best practice guidance for construction) to minimise the	**Water Pollution** • The listed mitigation measures would protect water quality (against chemical/oil and suspended solids/sediment contamination). **Ecology - General** • The listed mitigation would	**Water Pollution** • No long-term adverse effects predicted on water quality. • No corresponding damage to estuarine processes and associated habitats predicted. **Ecology - General** • If all mitigation measures are taken there would be no

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
of a range of wetland habitats • Supporting many rare local plants and animals • Regularly supports internationally important populations of breeding birds • Regularly supporting an internationally important wintering population of ringed plover **Habitat Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: o Extent of the habitat on site o Distribution of the habitat within site o Structure and function of the habitat o Processes supporting the habitat o Distribution of typical species of the habitat o Viability of typical species as components of the habitat o No significant	salt marsh, sandy and shingle substrate) caused by construction activities with resultant habitat loss. • Impacts on adjacent habitats caused by construction activities. • Severance of wildlife corridors and connected habitats. • Disturbance of species frequenting areas where construction taking place (e.g. noise and physical activity). • Destruction of feeding and roosting sites. • Disturbance to feeding and roosting sites. • Water pollution impacts on substrates and food sources for waders and wildfowl.	risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures. • Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and groundwater. • Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction. • Contingency plans to be developed for implementation in the case of any spillage. • Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags *etc*) to be stored on site and site staff briefed on how to use them in case of spillage. • Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills. • All earth bunds and spoil storage areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance.	prevent impacts on qualifying feature habitat and would help to minimise impacts on non-qualifying feature habitats in general. • Some temporary disturbance during construction but good site practices would again keep this to a minimum. • With avoidance of damage or disturbance to key feeding and roosting sites no significant adverse residual effects predicted.	adverse effects on qualifying feature habitat. • Some loss of non-qualifying feature habitat would be likely but mitigation should keep this to an absolute minimum. • The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration thus improving general conservation status and providing general ecological benefits in areas around the road works.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site

disturbance of typical species of the habitat
 	
Species Conservation Objectives
• To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and
• To ensure for the qualifying species that the following are maintained in the long term:
  • Population of the species as a viable component of the site
  • Distribution of the species within site
  • Distribution and extent of habitats supporting the species
  • Structure, function and supporting processes of habitats supporting the species
  • No significant disturbance of the species
 	
South Uist Machair and Lochs (SPA) Qualifying Features
• Corncrake
• Dunlin
		• Concrete additives to be added to all concrete placed underwater to limit separation and concrete release into the water (for new bridge works in particular).
		• All feasible wastes to be recovered and reused within the works where possible.
		• The application of full environmental management systems and planning for the whole works.
		
		Ecology - General
		• Ecological survey and use of existing studies/surveys to inform final design and construction methods.
		• Construction of the proposals would seek to minimise nature conservation impacts in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration of construction areas.
		• Habitat loss restricted to the minimum necessary for the works.
		• Construction area would be fenced during the construction period to contain the site activities.
		• All areas affected by the construction works would be carefully restored at the end of the works.
		• Best site management practices		

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
• Little tern • Oystercatcher • Redshank • Ringed plover • Sanderling **Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring the integrity of the site is maintained: and • To ensure for the qualifying species that the following are maintained: o Population of the species as a viable component of the site o Distribution of the species within the site o Distribution and extent of habitats supporting the species o Structure, function and supporting processes of habitats supporting the species o No significant disturbance of the species		would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents. • Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works.		
Scheme R19a: A816 Oban to Lochgilphead				
Moine Mhor (SAC) Qualifying Features	**Hydrological and Associated Water Pollution Risks**	**Hydrological and Associated Water Pollution Risks**	**Hydrological and Associated Water**	**Hydrological and Associated Water**

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
• Active raised bogs • Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*) • Degraded raised bogs still capable of natural regeneration • Marsh fritillary butterfly (*Euphydryas (Eurodryas, Hypodryas) aurinia)* • Otter (*Lutra lutra*) • Mudflats and sandflats not covered by sweater at low tide • Old sessile oak woods with *Ilex* and *Blechnum* **Habitat Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: o Extent of the habitat on site o Distribution of the habitat within site o Structure and function of the habitat o Processes supporting the habitat o Distribution of typical species of the habitat o Viability of typical species as	• Changes to surface water morphology through realignment, culverting etc of watercourses and alterations to the beds of watercourses and drains. • Changes to drainage characteristics, aquatic habitats and hydrology in the locality of the site through physical works. • Changes to the hydrogeology/hydrology of the area through physical works. • Pollution of associated streams, springs, seepages and wetland areas (chemical and particulate – suspended solids and turbidity) caused by construction activities. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion. • Contamination from waste materials. **General Ecology - including Qualifying Feature Habitat** • Destruction of habitats caused by construction activities with resultant habitat loss. • Impacts on adjacent habitats caused by construction activities. • Severance of wildlife corridors and connected habitats. • Disturbance of species frequenting areas where construction taking place (e.g. noise and physical activity).	• All detailed drainage measures would be designed to benefit nature conservation where this is practical and feasible taking account of the future maintenance requirements. The contractor would be required to follow best practice guidance. • All existing crossed watercourses would be culverted or bridged at their current location to maintain the existing flow path. Culverts would be provided under the road at each location and would be of adequate size for predicted flows and to minimise the risk of blockage. • The detailed drainage design would ensure that there is not an increased risk of flooding of areas in proximity to the works as a result of the scheme. • Contractors would be required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution (from e.g. sediments, oil and chemicals) during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures. • Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of	**Pollution Risks** • The listed mitigation measures would help to protect hydrological regime and also water quality (against chemical/oil and suspended solids/sediment contamination) so safeguarding important springs, seepages and wetland areas associated with qualifying features. **Ecology - General** • The listed mitigation would prevent impacts on qualifying feature habitat and would help to minimise impacts on non-qualifying feature habitats in general and on the important associated species and food supplies.	**Pollution Risks** • No long-term adverse effects predicted on water quality. • No corresponding damage to hydrological processes and associated habitats predicted. **Ecology - General** • If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat. • Some loss of non-qualifying feature habitat would be likely but mitigation should keep this to an absolute minimum. • The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration thus improving general conservation status and providing general ecological benefits.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
species as components of the habitat ○ No significant disturbance of typical species of the habitat **Species Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying species that the following are maintained in the long term: ○ Population of the species as a viable component of the site ○ Distribution of the species within site ○ Distribution and extent of habitats supporting the species ○ Structure, function and supporting processes of habitats supporting the species ○ No significant disturbance of the species	**Ecology - Otter** • Habitat destruction. • Severance of routes between feeding and sheltering habitat. • Removal of safe passage up and down stream. • Destruction of holts and couches. • Disturbance to habitat and damage to food supplies. • Impacts of possible pollution as described above either directly on the otter (direct toxicity) or indirectly on the food supply (ingestion and bioaccumulation). • Noise and disturbance during construction.	managed to minimise the risk of leaks to soil and groundwater. • Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment (including springs, seepages and wetland areas) during construction. • Contingency plans to be developed for implementation in the case of any spillage. • All earth bunds and spoil storage areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance. • All feasible wastes to be recovered and reused within the works where possible. • The application of full environmental management systems and planning for the whole works. **General Ecology - including Qualifying Feature Habitat** • Ecological survey and use of existing studies/surveys to inform final design of route enhancements and construction methods. • Construction methods would	• Some temporary disturbance to non-qualifying feature habitat during construction but good site practices would again keep this to a minimum and would not extend beyond the time scale of construction period. **Ecology - Otter** • The listed mitigation would protect otter habitat and ensure safe passage and freedom of movement. • No significant adverse residual effects would be predicted.	

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		seek to minimise impacts in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration of disturbed areas. • Habitat loss restricted to the minimum necessary for the works. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents that could affect neighbouring habitats. **Ecology - Otters** • Access to an updated otter survey for area where road widening and associated works likely to be located to inform final design. • Identification of holts, couches and other potential shelters at earliest stages of design process to enable avoidance of such areas where possible. • Locating construction site compounds away from potential otter habitat. • Avoidance of night working in areas where otter active. • Use of fencing to exclude otters from site works areas and provide safe passage. • Ensure that preferred otter paths not obstructed.		

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		• Reinstatement of natural habitat to provide adequate cover for otter movements.		
Scheme R22a: A838 Kinlochbervie to Lairg – Removal of single track at Laxford Bridge				
Laxford Loch (SAC) **Qualifying Features** • Reefs • Shallow inlets and bays **Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: o Extent of the habitat on site o Distribution of the habitat within site o Structure and function of the habitat o Processes supporting the habitat o Distribution of typical species of the habitat o Viability of typical species as components of the habitat	**Water Pollution** • Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion. • Pollution associated with concrete structures. • Contamination from waste materials **Ecology – Including Qualifying Feature Habitat** • Destruction of reef habitats caused by construction activities with resultant habitat loss. • Impacts on adjacent habitats caused by construction activities.	**Water Pollution** • Contractors required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures. • Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and groundwater. • Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction. • Contingency plans to be developed for implementation in the case of any spillage. • Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags etc) to be stored on site and site staff briefed on how to use them in case of spillage. • Plant and vehicles used for the works maintained on	**Water Pollution** • The listed mitigation measures would protect water quality (against chemical/oil and suspended solids/sediment contamination). **Ecology - Habitats** • The listed mitigation would prevent impacts on qualifying feature habitat and would help to minimise impacts on non-qualifying feature habitats in general. • There will be scope to avoid sensitive areas and prevent impacts on adjacent areas.	**Water Pollution** • No long-term adverse effects predicted on water quality. • No corresponding damage to coastal processes and associated reef habitats predicted. **Ecology - Habitats** • If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat. • Some loss of non-qualifying feature habitat would be likely but mitigation should keep this to an absolute minimum.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
○ No significant disturbance of typical species of the habitat		impermeable surfaces to contain oil spills. • All earth bunds and spoil storage areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance. • Concrete additives to be added to all concrete placed underwater to limit separation and concrete release into the water. • All feasible wastes to be recovered and reused within the works where possible. • The application of full environmental management systems and planning for the whole works. **Ecology - Habitats** • Ecological survey and use of existing studies/surveys to inform final design and construction methods. • Construction of the proposals would seek to minimise nature conservation impacts including those in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration of construction areas. • Habitat loss restricted to the		

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		minimum necessary for the works. • All areas affected by the construction works would be carefully restored at the end of the works. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents, which could affect neighbouring habitats.		
Scheme R26a: A832 Gairloch to Garve – Road improvements				
River Kerry (SAC) **Qualifying Features** • Freshwater pearl mussel (*Margaritifera margaritifera*) **Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying species that the following are maintained in the long term: ○ Population of the species as a viable component of the site	**River Kerry - Water Pollution Risks** • Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion. • Pollution associated with concrete structures (if new or relocated bridges constructed). • Contamination from waste materials. **Ecology – General and in relation to Qualifying Species** • Destruction of habitats caused by construction activities with resultant habitat loss. • Smothering and coating of river substrate (sand and gravels) with solids and polluting materials. • Impacts on adjacent habitats	**River Kerry - Water Pollution Risks** • Contractors required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures. • Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks and spills to surface water, soil and groundwater. • Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction.	**Water Pollution** • The listed mitigation measures would protect water quality (against chemical/oil and suspended solids/sediment contamination) so safeguarding key qualifying features (freshwater pearl mussel and its respective habitat). **Ecology - General** • The listed mitigation would prevent impacts	**Water Pollution** • No long-term adverse effects predicted on water quality. • No corresponding damage to river processes and associated habitats predicted. **Ecology - General** • If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat. • Some loss of non-qualifying feature habitat would be likely but mitigation should keep this to an

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
○ Distribution of the species within site ○ Distribution and extent of habitats supporting the species ○ Structure, function and supporting processes of habitats supporting the species ○ No significant disturbance of the species ○ Distribution and viability of the species' host species ○ Structure, function and supporting processes of habitats supporting the species' host species	caused by construction activities. • Destruction of and/or disturbance to freshwater pearl mussel habitat. • Toxicity effects of associated water pollution on freshwater pearl mussel either direct or indirect via food chain.	• Contingency plans to be developed for implementation in the case of any spillage. • Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags etc) to be stored on site and site staff briefed on how to use them in case of spillage. • Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills. • All earth bunds and spoil storage areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance. • Concrete additives to be added to all concrete placed underwater to limit separation and concrete release into the water (in case of bridge construction). • All feasible wastes to be recovered and reused within the works where possible. • The application of full environmental management systems and planning for the whole works. **Ecology – General and in relation to Qualifying Species**	on qualifying features and their habitat and would minimise impacts on non-qualifying feature habitats in general. • Some temporary disturbance during construction but good site practices would again keep this to a minimum. **Ecology – Freshwater pearl mussel** • The listed mitigation would protect freshwater pearl mussel habitat. • Any route enhancements involving structures would be designed to avoid mussel beds. • Hydrological and water pollution control measures would	absolute minimum. • The mitigation should ensure adequate protection for the freshwater pearl mussel and that appropriate biodiversity enhancement measures are incorporated into final restoration.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		• Ecological survey and use of existing studies/surveys to inform final design and construction methods. • Construction of the proposals would seek to prevent or minimise the impacts on freshwater pearl mussel and its habitat. • Construction would also seek to minimise nature conservation impacts in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration of construction areas. • Habitat loss restricted to the minimum necessary for the works. • Construction area fenced during construction period to contain site activities. • All areas affected construction would be carefully restored at the end of the works. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents that could affect neighbouring habitats. **Ecology – Freshwater Pearl Mussel** • Construction of the proposals would seek to prevent impacts on freshwater pearl mussel and its	prevent adverse effects on water quality which in turn would protect freshwater pearl mussel.	

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		habitat. • Identification of mussel beds at earliest stages of the design process to ensure that any structures and associated construction processes avoid adverse impacts. • Hydrological and water pollution mitigation measures listed above will protect the freshwater pearl mussel from negative impacts on its aquatic environment.		
Scheme A9 Inverness to Perth				
Insh Marshes (SAC) **Qualifying Features** • Alder woodland on floodplains • Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels • Very wet mires often identified by an unstable `quaking` surface • Otter (*Lutra lutra*) **Habitat Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term:	**Hydrological and Associated Water Pollution Risks** • Changes to surface water morphology through realignment, culverting etc of watercourses and alterations to the beds of watercourses and drains. • Changes to drainage characteristics, aquatic habitats and hydrology in the locality of the site through physical works. • Changes to the hydrogeology/hydrology of the area through physical works. • Pollution of associated streams, springs, seepages and wetland areas (chemical and particulate – suspended solids and turbidity) caused by construction activities. • Pollution caused by oil and fuel spills and leakages. • Pollution from run-off and erosion.	**Hydrological and Associated Water Pollution Risks** • All detailed drainage measures would be designed to benefit nature conservation where this is practical and feasible taking account of the future maintenance requirements. The contractor would be required to follow best practice guidance. • All existing crossed watercourses would be culverted or bridged at their current location to maintain the existing flow path. Culverts would be provided under the road at each location and would be of adequate size for predicted flows and to minimise the risk of blockage. • The detailed drainage design would ensure that there is not an	**Hydrological and Associated Water Pollution Risks** • The listed mitigation measures would help to protect hydrological regime and also water quality (against chemical/oil and suspended solids/sediment contamination) so safeguarding important springs, seepages and wetland areas associated with qualifying	**Hydrological and Associated Water Pollution Risks** • No long-term adverse effects predicted on water quality. • No corresponding damage to hydrological processes and associated habitats predicted. **Ecology - General** • If all mitigation measures are taken there would be no adverse effects on qualifying feature habitat. • Some loss of non-qualifying feature

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
○ Extent of the habitat on site ○ Distribution of the habitat within site ○ Structure and function of the habitat ○ Processes supporting the habitat ○ Distribution of typical species of the habitat ○ Viability of typical species as components of the habitat ○ No significant disturbance of typical species of the habitat **Species Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying species that the following are maintained in the long term: ○ Population of the species as a viable component of the site ○ Distribution of the species within site ○ Distribution and extent of habitats supporting the species	• Contamination from waste materials. **General Ecology - including Qualifying Feature Habitat** • Destruction of habitats caused by construction activities with resultant habitat loss. • Impacts on adjacent habitats caused by construction activities. • Severance of wildlife corridors and connected habitats. • Disturbance of species frequenting areas where construction taking place (e.g. noise and physical activity). **Ecology – Associated Fauna (birds and animals)** • Habitat destruction. • Severance of routes between feeding and sheltering habitat. • Disturbance to habitat and damage to food supplies. • Impacts of possible pollution as described above either directly on the species (direct toxicity) or indirectly on the food supply (ingestion and bioaccumulation). • Noise and disturbance during construction. **Ecology - Otter** • Habitat destruction. • Severance of routes between feeding and sheltering habitat. • Removal of safe passage up and	increased risk of flooding of areas in proximity to the works as a result of the scheme. • Contractors would be required to identify appropriate control measures (including best practice guidance for construction) to minimise the risk of pollution during construction and to consult with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures. • Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and groundwater. • Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment (including springs, seepages and wetland areas) during construction. • Contingency plans to be developed for implementation in the case of any spillage. • Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags *etc*) to be stored on site and site staff briefed on how to use them in case of spillage. • Plant and vehicles used for the works maintained on impermeable surfaces to contain	features. **Ecology - General** • The listed mitigation would prevent impacts on qualifying feature habitat and help to minimise impacts on non-qualifying habitats, associated species and food supplies. • Some temporary disturbance during construction but good site practices would again keep this to a minimum and would not extend beyond time scale of construction period. • Use of best practice in restoration should compensate for some of the habitat loss. **Ecology - Otter**	habitat would be likely but mitigation should keep this to an absolute minimum. • The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration. This could provide opportunities to improve habitats and conservation status along existing road curtilage in heath, upland grassland and bog areas.

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
○ Structure, function and supporting processes of habitats supporting the species ○ No significant disturbance of the species **River Spey – Insh Marshes (SPA and Ramsar)** **Qualifying Species** • Hen harrier *(Circus cyaneus)* • Osprey (*Pandion haliaetus)* • Spotted crake (*Porzana porzana)* • Whooper swan (*Cygnus cygnus cygnus)* • Wigeon (*Anas penelope*) • Wood sandpiper (*Tringa glareola)* **Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and • To ensure for the qualifying species that the following are maintained in the long term: • Population of the species as a viable component of the site • Distribution of the species within site • Distribution and extent of	down stream. • Destruction of holts and couches. • Disturbance to habitat and damage to food supplies. • Impacts of possible pollution as described above either directly on the otter (direct toxicity) or indirectly on the food supply (ingestion and bioaccumulation). • Noise and disturbance during construction.	oil spills. • All earth bunds and spoil storage areas well managed to minimise runoff and erosion. • Any surface water drainage features affected by the proposals made good. • Any new culverts to be sensitively designed following best practice guidance. • All feasible wastes to be recovered and reused within the works where possible. • The application of full environmental management systems and planning for the whole works. **General Ecology - including Qualifying Feature Habitat** • Ecological survey and use of existing studies/surveys to inform final design of route enhancements and construction methods. • Construction methods would seek to minimise impacts in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration of disturbed areas. • Non-qualifying feature habitat loss restricted to the minimum necessary for the works. • Construction area would be fenced during the construction	• The listed mitigation would protect otter habitat and ensure safe passage and freedom of movement. • No significant adverse residual effects would be predicted. **Ecology – Freshwater pearl mussel** • The listed mitigation would protect freshwater pearl mussel habitat. • Any route enhancements involving structures would be designed to avoid mussel beds. • Hydrological and water pollution control measures would prevent adverse effects on water quality which in turn would protect	

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
habitats supporting the species • Structure, function and supporting processes of habitats supporting the species • No significant disturbance of the species **River Spey SAC** **Qualifying Features** • Alluvial forests with *Alnus glutinosa* and *Fraxinus excelsior* • Freshwater pearl mussel (*Margaritifera margaritifera*) • Sea lamprey (*Petromyzon marinus*) • Atlantic salmon (*Salmo salar*) • Otter (*Lutra lutra*) **Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: o Extent of the habitat on site o Distribution of the habitat within site o Structure and function of the habitat o Processes supporting the habitat		period to contain site activities. • All areas affected by the construction works would be carefully restored at the end of the works. • The seedbank within the topsoil, together with associated peat and vegetation would be stripped from areas to be affected and replaced on the site at the end of the works to aid vegetation growth. • Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents that could affect neighbouring habitats. • Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works. **Ecology - Otters** • Access to an updated otter survey for area where road widening and associated works likely to be located to inform final design. • Identification of holts, couches and other potential shelters at earliest stages of design process to enable avoidance of such areas where possible. • Locating construction site compounds away from potential otter habitat.	protect freshwater pearl mussel.	

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
○ Distribution of typical species of the habitat ○ Viability of typical species as components of the habitat No significant disturbance of typical species of the habitat **Kinveachy Forest (SAC)** **Qualifying Features** • Bog woodland • Caledonian forest **Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: ○ Extent of the habitat on site ○ Distribution of the habitat within site ○ Structure and function of the habitat ○ Processes supporting the habitat ○ Distribution of typical species of the habitat ○ Viability of typical species as components of the		• Avoidance of night working in areas where otter active. • Use of fencing to exclude otters from site works areas and provide safe passage. • Ensure that preferred otter paths not obstructed. • Reinstatement of natural habitat to provide adequate cover for otter movements. **Ecology – Freshwater Pearl Mussel** • Construction of the proposals would seek to prevent impacts on freshwater pearl mussel and its habitat. • Identification of mussel beds at earliest stages of the design process to ensure that any structures and associated construction processes avoid adverse impacts. • Hydrological and water pollution mitigation measures listed above will protect the freshwater pearl mussel from negative impacts on its aquatic environment.		

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
habitat ○ No significant disturbance of typical species of the habitat **Kinveachy Forest (SPA)** **Qualifying Species** • Capercaillie (*Tetrao urogallus)* • Scottish crossbill (*Loxia scotica)* **Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species (listed below) or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and • To ensure for the qualifying species that the following are maintained in the long term: ○ Population of the species as a viable component of the site ○ Distribution of the species within site ○ Distribution and extent of habitats supporting the species ○ Structure, function and supporting processes of habitats supporting the species ○ No significant disturbance of the species **Drumochter Hills (SAC)** **Qualifying Features**				

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
• Acidic scree • Alpine and subalpine heaths • Blanket bog • Dry heaths • Montane acid grasslands • Mountain willow scrub • Plants in crevices on acid rocks • Species-rich grassland with mat-grass in upland areas • Tall herb communities • Wet heathland with cross-leaved heath **Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: o Extent of the habitat on site o Distribution of the habitat within site o Structure and function of the habitat o Processes supporting the habitat o Distribution of typical species of the habitat o Viability of typical species as				

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
components of the habitat o No significant disturbance of typical species of the habitat **Drumochter Hills (SPA)** **Qualifying Features** • Dotterel (*Charadrius morinellus)* • Merlin *(Falco columbarius)* **Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained; and • To ensure for the qualifying species that the following are maintained in the long term: • Population of the species as a viable component of the site • Distribution of the species within site • Distribution and extent of habitats supporting the species • Structure, function and supporting processes of habitats supporting the species • No significant disturbance of the species				

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
Tulach Hill and Glen Fender Meadow (SAC) **Qualifying Features** • Base-rich fens • Dry grassland and scrublands on chalk and or limestone • Dry heaths • Limestone pavements **Qualifying Species** • Geyer`s whorl snail • Round-mouthed whorl snail **Habitat Conservation Objectives** • To avoid deterioration of the qualifying habitats thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying habitats that the following are maintained in the long term: o Extent of the habitat on site o Distribution of the habitat within site o Structure and function of the habitat o Processes supporting the habitat o Distribution of typical species of the habitat o Viability of typical				

European Site Potentially Affected with Qualifying Features and Conservation Objectives[5]	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
species as components of the habitat o No significant disturbance of typical species of the habitat **Species Conservation Objectives** • To avoid deterioration of the habitats of the qualifying species or significant disturbance to the qualifying species, thus ensuring that the integrity of the site is maintained and the site makes an appropriate contribution to achieving favourable conservation status for each of the qualifying features; and • To ensure for the qualifying species that the following are maintained in the long term: • Population of the species as a viable component of the site • Distribution of the species within site • Distribution and extent of habitats supporting the species • Structure, function and supporting processes of habitats supporting the species • No significant disturbance of the species				

3 CONCLUSIONS

This study has identified the particular types of environmental impact that have the potential to generate adverse effects on the integrity of European sites within the HITRANS area.

The screening process summarised in *Annex 1* describes the rationale for taking particular interventions together with relevant European and Ramsar sites forward for more detailed assessment.

The assessment presented in *Table 1* looks at the interventions that could generate environmental effects and thus pose a risk, assesses the risks with regard to the European sites in question and identifies mitigation measures to avoid/reduce these effects so that the integrity of the sites is not affected.

The residual effects and implications for all sites once the mitigation has been put in place can be summarised as follows:

3.1 HYDROLOGICAL AND ASSOCIATED WATER POLLUTION RISKS

In all cases it has been identified that there would be sufficient mitigation available (including best practice guidance for design and construction, consultation with the Scottish Environment Protection Agency (SEPA) on all temporary and permanent pollution control measures, and the adoption of comprehensive environmental management systems for the duration of the project) to ensure that:

- no long-term adverse effects would be predicted for water quality;
- no corresponding damage to hydrological processes and associated habitats would be predicted.

In the case of wetland areas the listed mitigation measures:

- would help to protect the hydrological regime and also water quality (against chemical/oil and suspended solids/sediment contamination) thus safeguarding important springs, seepages and wetland areas associated with qualifying features.

3.2 ECOLOGICAL RISKS – INCLUDING QUALIFYING FEATURE HABITAT AND SPECIES

In all cases it has been identified that there would be sufficient mitigation available (including ecological survey and use of existing studies/surveys to inform final design of route enhancements and construction methods so as to avoid sensitive habitats/species and remove any risks to qualifying features, the adoption of best practice in dealing with the requirements for qualifying species such as the otter, and the overall adoption of an environmental management systems approach to the project) to ensure that:

- any disturbance during construction is minimal and that good site practices ensure that impacts are not significant;
- any habitat loss is minimal and not related to any qualifying feature habitat;
- appropriate biodiversity enhancement measures are incorporated into final restoration which although not relevant to qualifying features and the site integrity of European sites would nevertheless be of benefit to the overall supporting environment. Such measures would take into account the nature of the specific habitat(s) in question (i.e. whether heath or bog areas) and also the nature of any physical interventions (i.e. bridge works, road margins, railway embankment etc).

In the case of European and Ramsar sites frequented by important bird populations, mitigation measures that include avoidance of damage or disturbance to the key feeding and roosting sites can be employed. If these are rigorously implemented then no adverse residual effects would be predicted for such sites.

In conclusion:

- the proposed interventions within the RTS considered in this assessment would not adversely affect the integrity of the European sites in question;
- the assessment identifies mitigation measures to avoid/reduce possible effects so that the integrity of the sites is not adversely affected;
- project-specific potential adverse impacts have been identified but have been considered to be capable of being satisfactorily mitigated through the detailed design and implementation of best management practices during construction.

Without prejudice to the appraisal that has been carried out (*Table 1*) HITRANS believes that more detailed assessments will be required under Regulation 48[6], if and when any of the interventions are taken forward. As such (subject to Regulation 49[6]) an intervention would only be allowed to proceed if it was ascertained that there would be no adverse affect on the integrity of the site.

Project based appropriate assessments, and where necessary Environmental Impact Assessments, are the next stage to provide this more detailed approach as and when interventions progress, and these will be informed by detailed baseline ecological data. Through an iterative process these assessments should inform the final design of any scheme and its associated construction techniques.

[6] The Conservation (Natural Habitats, & c.) Regulations 1994 (as amended) (the Habitats Regulations)

ANNEX 1
SCREENING OF INTERVENTIONS
AND
EUROPEAN SITES

Table 1 HITRANS RTS Schemes that may impact on Natura sites (Special Areas of Conservation and Special Protection Areas)

Scheme	Description	Sites Impacted	Key Questions in Screening Stage	Go forward to AA?
S1b: A82 corridor– Ballachulish to Fort William Route enhancements	The option consists of route enhancement between Ballachulish and Fort William (widening, upgrading etc.). There are some old designs on stretch but may need to be developed from scratch, and needs significant work to advance. However, the Route Action Plan for this route has highlighted this stretch as a priority for improvement. There is the potential for widening of a limited nature along A82 through Onich to North Ballachulish Woods, but it is recognised that impacts would have to be minimal, and kept within the existing zone of disturbance, adopting principle of staying on the road line and maintaining road speed restrictions as opposed to realignment (which was originally proposed).	Onich to North Ballachulish Woods (SAC)	The Onich SAC has been identified as the only Natura site impacted by potential enhancements on this stretch – A82 goes directly through this SAC. Any work will have to avoid encroachment into old sessile oak woods that form the qualifying interest and ensure mitigation of any other possible impacts within road curtiledge in this section	**Yes**
S1c: A82 corridor – Tarbet to Ballachulish strategy (road improvement to Tarbet to Inverannan & route enhancement Tyndrum to Ballachulish.	Advanced planning stage for Tarbert to Inverannan (Transport Scotland scheme), early planning stage for Tyndrum to Ballachulish. No designs for improvements on this latter stretch, and significant amount of work required to advance option. 50-60 miles of route, 2 track, high altitude. No work on alignment but widening may be required at strategic locations (i.e. widening road to standard of 7m, increasing width by 1m strip). Requires new modern junctions at Bridge of Orchy, Ballachulish, Glencoe (but all within cartilage of existing roads) etc. Climbing lane proposed at Loch Tulla, just beyond Bridge of Orchy, at Black Mount. May be bridge replacement on sections, including through Glencoe, although no specific designs at present.	Rannoch Moor (SAC) Rannoch Moor (Ramsar) Glen Coe (SAC)	Direct or indirect hydrological Impacts on Rannoch Moor, as A82 crosses Rannoch Moor between Tyndrum and Ballachulish; and direct or indirect impacts on drainage/water quality in Glencoe from any road improvements, as A82 crosses through Glencoe SAC, as well as mitigating any impacts during construction phase. Apply best practice to mitigate impacts.	**Yes**
S1d: A82 corridor - Pinch points / junction improvements Fort William to Inverness	Road improvement work proposed, although early in planning stage. Improvements to the current pinch points and junctions. A need to do a feasibility study/RAP first to highlight key strategic works – no desire to upgrade whole	River Moriston at Invermoriston (SAC)	Likely to be indirect impacts on water quality from any work at River Moriston (River Moriston crosses the A82 at Invermoriston) so good practice needs	**Yes**

Scheme	Description	Sites Impacted	Key Questions in Screening Stage	Go forward to AA?
	of road to 7.3m width. 67miles (108km). Progress a series of phased improvements over lifetime of RTS. Some work likely to be required on swing bridges over canals. Possibility of new bridge at River Moriston – road may be re-aligned with new bridge.		to be applied to mitigate impacts from construction and run-off/pollution.	
S1e: A82 corridor - A82 to A9 / A96 link road	Major scheme to build new link road around Inverness, linking A82 in east with A9/A96 in south/west. In 2 sections – eastern section, which is advanced in the planning stage as related to major development of East Inverness and A96 Masterplanning; western link road least advanced. Link road will be on the south side of Inverness. The road will cross the River Ness and may require building of new bridge over River Ness (although this option has not been selected as preferred option as yet).	Moray Firth (Marine SAC) Inner Moray Firth (SPA) Inner Moray Firth (Ramsar)	Link road will cross River Ness, and may be a need for a new bridge over the River Ness on western side, so need to consider water quality impacts on Moray Firth SAC, as well as sedimentation impacts. Indirect run-off impacts on Moray Firth SAC from entire scheme. Need to consider 'in-combination' effects with other development including the Inverness Flood Prevention Scheme and possible cumulative effects on the River Ness which in turn could impact on the Moray Firth.	**Yes**
S9d: A9 road north – route action plan to provide climbing lanes	Designs exist for, 2 climbing lanes, 2.5km each, at Tore and Cromarty Bridge. Proposals also for climbing lanes on the Black Isle and north of Dornoch.	East Caithness Cliffs (SAC) Cromarty Firth (Ramsar)	Main impacts assessed to be indirect ones through drainage run-off into Cromarty Firth Ramsar from Cromarty Bridge climbing lane (not on bridge itself) and potentially work north of Dornoch (Loch Fleet), during construction and operation. which will need to be mitigated. No direct or indirect impacts on East Caithness Cliffs as some distance from this SAC.	**Yes**
S2a: Highland mainline – journey time and frequency improvements	Improve the journey time and increase the frequency to hourly service – particular priority to increasing frequency as most deliverable. "Room for Growth" study recommends	River Spey (SAC) Insh Marshes (SAC)	Only work screened in for AA is reinstatement of loop at Newtonmore. Realignment of track over current bed	**Yes**

Scheme	Description	Sites Impacted	Key Questions in Screening Stage	Go forward to AA?
improvements	investigation of the following after consideration of a number of options: Detailed timetable study and computer simulation of an hourly passenger service derived from more detailed specification to prove timetable and obtain information regarding pinch points and possible performance risks on present infrastructure; •Carry out similar timetable study and computer simulation on new infrastructure e.g. double line Daviot – Culloden with reinstated loops at Newtonmore and Ballinluig; and • Re-visit gauging clearances to W9 and W10 gauge for new freight opportunities	River Spey – Insh Marshes (Ramsar) Kinveachy Forest (SAC) Cairngorm Mountains (SAC) Monadhliath (SAC) Drumochter Hills (SAC) Tulach Hill and Glen Fender Meadows (SAC)	to create a loop over a km. No movement outside current railway line although may need some work on embankments and on drainage cess. Therefore, potential indirect drainage/run-off impacts on River Spey SAC and Insh Marshes SAC. Other SACs not impacted by improvements between Daviot and Culloden.	
S5: Inverness – Aberdeen rail line	Several RTS options within this overall desire to improve this rail line. Option S5a Commuter services Elgin to Inverness, The option is for an additional 5-6 services per day depending on the stopping pattern in each direction between Inverness and Elgin, increasing the frequency from between 10 and 11 trains per day to 16-17 trains per day. This represents a significant improvement to the current level of service provision. May involve track realignment at Forres Station, and possible new bridge over river. Option 5b: new railway station at Dalcross, to serve Inverness airport and wider business park development in that location. New station will involve development on green land, car park etc, so impacts on drainage. Highland Council are the applicant for Dalcross rail halt, and already far in the planning process – have consulted SNH and SEPA, and SAC apparently not raised as an issue (correspondence available from Colin Howell at Highland Council). SUDS will be implemented to respond to SEPA comments on drainage.	Lower River Spey – Spey Bay (SAC) Inner Moray Firth SAC	Potential run off impacts on Lower River Spey Bay SAC from any work at Forres, which will need to be mitigated. Potential run-off impacts on Inner Moray Firth SAC from new station at Dalcross, which will need to be mitigated (although SUDS already agreed by Highland Council with SEPA).	**Yes**

Scheme	Description	Sites Impacted	Key Questions in Screening Stage	Go forward to AA?
S6a: A96 corridor – Dual Carriageway Inverness – Airport	Dualling of existing double track road, although is likely to be new alignment. Approved by HC Committee in Nov 2006. Contained within Development Framework for East Inverness, which has been approved by Highland Council Planning, Dev, Europe and Tourism committee in Nov 2006.	Moray Firth (Marine SAC)	Drainage issues need to be considered to mitigate impact of run off during construction and operation on Moray Firth SAC.	**Yes**
S6c: A96 corridor – Elgin Bypass	Elgin bypass with demand management & provision of space for passenger transport / cycling through Elgin, plus bus priority on approaches and P&R. Some work has been done on route alignment, although recent STAG work has developed three main alternative options of alignment – one to the north, and two to the south of Elgin. No detailed EIA or AA as yet, only at STAG 2 stage. Elgin Flood Alleviation project at draft Flood Protection Order stage, report to Council early July. Flood Team at Moray Council currently in discussions with SNH about scope of AA, which they know they have to do, and they already have detailed data on Loch Spynie.	Loch Spynie (SPA) Moray and Nairn Coast (Ramsar)	Potential impact on Loch Spynie SPA from any northern bypass alignment as a site of European importance as a roost for Icelandic Greylag Goose. Moreover, geese feed and roost for miles around SPA. No impact on Moray and Nairn Coast due to distances involved.	**Yes**.
S8a: Far North Line – New station at Conon Bridge	Advanced planning stage - New station at Conon Bridge to serve a proposed new housing development in the immediate area and to serve as a commuter service station. Submitted to Transport Scotland and awaiting discussion on commitment – have not asked if going to support this. Has to go through planning process. HRP for more detail of location. Conon Station will be south of the River Conon and the Conon Islands are to the east. The station will be entirely within the existing site of the old station, in a built up area where drainage systems already in place.	Conon Islands (SAC) Cromarty Firth (SPA)	Impacts of run off considered as SAC is located at the mouth of the River Conon at Conon Bridge – however, as new station will be entirely within existing built-up site and there are established drainage systems in place, assessed to be no impacts on Natura sites.	**No**
S9a: A9 (north) – Berriedale Braes Crossings	The existing road geometry with tight radii and hairpin bends are exacerbated by the steep gradients as the road descends/ascends either sides of the valley. Heavy goods vehicles have particular difficulties negotiating the tight	Berriedale and Langwell Waters (SAC)	New valley crossing crosses the SAC, so run-off impacts may occur during construction, which need to be mitigated.	**Yes**

Scheme	Description	Sites Impacted	Key Questions in Screening Stage	Go forward to AA?
	bends and it is not uncommon for them to get stuck blocking the road. Large HGVs require to be escorted through this section of A9, with the road being shut off to opposing traffic to allow these loads to pass through. The proposed scheme to deal with this section of road will be a valley crossing at height.			
S9b: A9 (north) - bypass settlements on route	Early in planning stage. The A9 currently passes through a number of existing settlements along its route. The speed limits and distances that the road travels through range from being derestricted through smaller villages for 200-300m being subject to passing 30mph limits as they pass through Golspie and Brora for distances of around 2km. All on landward side of these settlements. Local plan is identifying land for bypasses. Scottish Executive/ Transport Scotland need to take forward, but done no work to date.	Berriedale and Langwell Waters (SAC) East Caithness Cliffs (SAC and SPA)	Berriedale and Langwell Waters and East Caithness Cliffs (north of Helmsdale) are located further north than Golspie and Brora and therefore no effects on the Natura sites anticipated.	**No**
S10b: Oban A85 – Oban and Fort William rail line service enhancement / frequency increase	Additional return journeys and journey time enhancement to Fort William/ Oban; upgrade Oban line to Class 66 operation (freight); and enhance timetable integration and management. Consultancy report on timetable recast due in January 07. All timetabling work underway, although no appraisal work of physical works required as yet.	Loch Etive Woods (SAC)	No infrastructural works so no impact assessed on Natura sites.	**No**
S12a: Kyle rail line – commuter services to Inverness	The option is to provide an early morning service into Inverness from Kyle of Lochalsh such that is would be attractive to potential commuters. Proposal to retime the first train to achieve a pre 0900 arrival in June 07.	Conon Islands (SAC)	No infrastructural works so no impact assessed on Natura sites.	**No**
R15a: Orkney internal connectivity – inter-isles ferry and air service connectivity enhancements	Inter-isles connectivity enhancements including ferry and air. Currently 9 vessels and 13 ferry routes, many of the vessels are coming to the end of their lifespan. Ongoing programme of cascading and vessel replacement needed, together with upgraded infrastructure due to changes in	Hoy (SPA) Calf of Eday (SPA) East Sanday Coast (SPA, SAC and Ramsar)	Construction of new linkspan at North Ronaldsay may impact on Sanday SAC and Ramsar Construction of new linkspan on Stronsay may impact on Sanday SAC	**Yes** – for the Northern Isle improvements (terminal improvements

Scheme	Description	Sites Impacted	Key Questions in Screening Stage	Go forward to AA?
	accessibility/Health and Safety/working time regulations etc. and opportunities to improve operational efficiency and/or connectivity. First new ferry vessels required by 2010. Thereafter, 15 yr programme. Exploration of future feasibility/development of air services in partnership with the ferry cascade programme. Planning permission required for harbour developments. Provision of Ro-Ro terminals where these currently don't exist, so potential issues during construction. No significant infrastructure developments. Vessels may change by not routes and the same applies to air services. Improvements are identified as: North Ronaldsay – new linkspan at the same location as at present which will enable operation at all states of the tide and improve connectivity. Stronsay – linkspan operation at a new location on the north west coast of the isle. Papa Westray and Pierowall – hard ramps in the existing port areas. This will allow a Ro-Ro connection through Westray to Kirkwall (instead of Papa Westray straight to Kirkwall) and will therefore half the number of services travelling past and Holm of Faray SACs. Terminals will also require modification at Eday, Sanday and Westray (Rapness). North Ronaldsay service improvements - increase from one sailing per week to two sailings per week (AA has been carried out for this) Hoy/Flotta – relocation of the mainland base to Stromness and the cascade of one of the existing Outer North Isles vessels (no harbour improvements required as would utilise existing infrastructure in Stromness) Modification of Shapinsay terminal for linkspan operation	Ramsar) Faray and Holm of Faray SAC	Stronsay may impact on Sanday SAC and Ramsar. Terminal enhancements at Rapness may impact on the Faray and Holm of Faray SAC An AA has already been undertaken by Orkney Council for this scheme and identified that no significant adverse impact will occur on the and Holm of SACs or on the Calf of Eday SPA. Some impacts are possible on the East Sanday coast SPA, SAC and Ramsar sites however mitigation measures have been identified for these. Relocation of the mainland base of the Hoy / Flotta service to Stromness may impact on the Hoy SAC / SPA as the new route will follow the eastern coastline of Hoy	and operation of larger vessels) **Yes** – Hoy / Flotta terminal change

Scheme	Description	Sites Impacted	Key Questions in Screening Stage	Go forward to AA?
	with a cascaded vessel. Rousay, Egilsay and Wyre – terminal alterations and dredging undertaken as required for operation with a lengthened and refurbished vessel. Graemsay – modifications to the Graemsay terminal to enable a limited RO-RO service either side of high tide. Air services – to include enhancements to the air service connections to North Ronaldsay and perhaps Papa Westray. Enhancements would focus on increasing capacity links where these are not catered for by ferry. Rationalisation of the remaining network will include reducing services to meet only essential links that can not be accommodated by ferry.			
R16a: Easdale, Lismore, Luing and Islay – Jura ferry services – replacement vessels and / or infrastructure	Early planning stage for most of these elements. The option covers a broad spectrum of improvements, from vessel replacement to potential fixed links, all of which require further research/exploration. Luing – STAG2 complete, with preferred option for a fixed link, a High level bridge, where optimum location would involve construction of road links from existing network to ends of bridge, located between naturally occurring cliffs at some distance away from the villages of North and South Cuan although no specific location defined (in north of island, between Luing and Seil, see figure 1.1 in STAG2 of Cuan Sound). Easdale – STAG currently being undertaken, at option development stage – fixed link and ferry improvements both being considered. See location map of existing ferry, across Easdale Sound (east of island). Lismore – Scottish Executive carrying out STAG Islay – Jura – nothing progressed to date.	Firth of Lorne (SAC)	Lismore and Islay-Jura no impacts on Firth of Lorne SAC. Potential impacts on Firth of Lorne SAC from Luing and Easdale work, including construction of fixed links or harbour facilities, which will need to be mitigated, during construction and operation.	**Yes**

Scheme	Description	Sites Impacted	Key Questions in Screening Stage	Go forward to AA?
R18c: Western isles spinal route – road improvement options	Road improvement of remaining 80km of single track to modern 2 track standard, 7.3m width where possible (no kerbs needed, 0.5m width). Double tracking work has been completed from Stornoway to Tarbert, and further section from Lochmaddy to Clachan. Remaining sections are Tarbert to Leverburgh (South Harris), and South Uist. Primarily widening existing road, although will be small sections (approx 10%) where change alignment e.g. at bends, also culverting, new bridges. So far effort has been focused on easiest sections to double track. Programme of phased improvements.	South Uist Machair (SAC and Ramsar) South Uist Machair and Lochs (SPA)	Of remaining work, South Uist main area of potential impact on Natura sites (no Natura sites on South Harris and work largely complete elsewhere on spinal route). Therefore, impacts on South Uist Machair (SAC and Ramsar), and South Uist Machair and Lochs (SPA) need to be mitigated, as A865 South passes through these areas.	**Yes**
R19a: A816 Oban to Lochgilphead	Road improvement – large-scale structures on 3 bridges to upgrade to double-track provision. In addition, re-alignment and widening of sections. Remove all pinchpoints STAG work ongoing.	Moine Mhor (SAC)	Whilst Moine Mhor SAC is set away from the A816, and unlikely to be significantly impacted by construction or operation of structures on the A816, there may be potential indirect impacts on hydrology which need to be mitigated.	**Yes**
R20a: A848 and A849 Tobermory to Fionnphort and Iona Ferry – Route enhancement	Upgrade the 10km section north of Salen from single track to double track, providing a standard 6-metre wide carriageway. This will ensure double track road provision from Craignure to Tobermory and remove the requirement for passing places. Detailed design stage. **Full EIA has been done.**	Mull Oakwoods (SAC)	Improvements will be north of Salen. This SAC is located in the South of the island therefore no effects on this Natura site anticipated.	**No**
R22a: A838 Kinlochbervie to Lairg – Removal of single track at Laxford Bridge	To remove single track section at Laxford Bridge, and upgrading 0.5km of road to 2-track carriageway. Bridge will be 2 track, to cope with HGVs, with footpath as well – 6m width, plus 600mm. Designs been done, land acquired. Road design for road widening exists, but not for bridge.	Laxford Loch (SAC)	Impact on the SAC could occur during construction / upgrade to the bridge so impacts need to be mitigated.	**Yes**
R22b: A838 Kinlochbervie to Lairg – Route	Route enhancement of the majority of the route; small scheme including improving visibility at key locations. 30/40	Foinaven (SAC)	Work already largely complete (bar 500m stretch) on Laxford Bridge-	**No**

Scheme	Description	Sites Impacted	Key Questions in Screening Stage	Go forward to AA?
enhancement	mile stretch. Enhancements can be done as and when funding received – work tends to be done with limited design as experienced engineers etc. Therefore, money goes into improvements as opposed to planning and design. Some work has already been carried out on this route. No planning consent required.		Rhiconich section, so limited impact on SAC from this work. Topography and contours unlikely that run-off potential to SAC is limited from works on road to south east. Therefore, not considered necessary to take to AA.	
R25a: A98 from Elgin to Fraserburgh and A950 to Peterhead – Road improvement options	Road improvement including addressing pinch points and providing overtaking opportunities 28km Fochabers to HITRANS boundary. £11.5m – 4 schemes and contingency for general widening. - £2m east of Fochabers, £1.5m Tynet realignment and new bridge, £2m Cullen Bay, £3m 2 stacking lanes, £3m widening works in between these projects. NB: One scheme not included in this option – Cullen, Grade A listed viaduct, single lane road. In Moray Capital programme but no detailed work done to date.	Turclossie Moss (SAC)	**N**o SACs / SPAs in the vicinity of the works proposed.	**No**
R26a: A832 Gairloch to Garve – Road improvements	To improve the A832 in terms of route enhancement and improving road safety (further details required). All 2 track until just before loch – last bit to Gairloch is single track (3/4 km or half a mile). Second section in question is between Contin and Garve – high accident record, 2 track but poor alignment, trunk road. Layouts and design in place for section near Gairloch, HC. Trunk road section Contin to Garve – designs done by Exec 15/20 yrs ago but nothing done on them. Gairloch section is a priority as bottleneck and inhibiting economic development. Hydro scheme alongside road. Specific improvements proposed at Kerrysdale – single track road needs realigned (avoiding bends), new or	River Kerry (SAC)	Improvements are scheduled for Kerrysdale, so potential impact on the River Kerry, which need to be mitigated.	**Yes**

Scheme	Description	Sites Impacted	Key Questions in Screening Stage	Go forward to AA?
	relocated bridges, (road crosses river at least twice). Improvements around Loch Maree and Achanalt Marshes have already been done. Only outstanding section is the approaches to Gairloch from Slattadale.			
A9 Inverness to Perth	Strategic dualling Inverness to Perth. It is likely that this dualling would occur on-line however they are now discussing constructing a crossing of the Spey at Kingussie. Likely to want to extend the dualling between Drummochter Hill and the summit.	Insh Marshes (SAC) River Spey – Insh Marshes (SPA and Ramsar) River Spey (SAC) Kinveachy Forest (SAC) Drumochter Hills (SAC and SPA) Tulach Hill and Glen Fender Meadow (SAC)	There is potential impact on the Insh Marshes from construction of a bridge at Kingussie. Dualling between Drummochter Hill and the summit is likely to impact on the Drummochter Hills SAC and SPA. Impact on other SACs, SPAs and Ramsar sites in the vicinity of the road could occur and issues such as drainage and run-off will need to be considered and mitigated.	**Yes**

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CONTROL SHEET

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