



---

# Tayside and Central Scotland Transport Partnership



Appropriate Assessment in support  
of the TACTRAN Regional  
Transport Strategy

June 2007



**Draft Report**

Tayside and Central Scotland  
Transport Partnership

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

**June 2007**

**Natural Capital**  
13 Coates Crescent  
Edinburgh  
EH3 7AF  
Telephone 0131 220 6121  
Facsimile 0131 220 6131  
Email [info@naturalcapital.co.uk](mailto:info@naturalcapital.co.uk)



**Draft Report**

Tayside and Central Scotland  
Transport Partnership

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

For and on behalf of  
Natural Capital Ltd.

Approved by: Dr Phil Say

Signed:

Position: Director

Date: 22<sup>nd</sup> June 2007

This report has been prepared by Natural Capital Ltd. with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client.

We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

In line with our company environmental policy we purchase paper for our documents only from suppliers who supply recycled and/or sustainably sourced paper.



## **TABLE OF CONTENTS**

<b>1</b>	<b>INTRODUCTION</b>	<b>1</b>
<b>1.1</b>	<b>GENERAL BACKGROUND TO APPROPRIATE ASSESSMENT</b>	<b>1</b>
<b>1.2</b>	<b>CONTEXT FOR THE TACTRAN RTS</b>	<b>2</b>
<b>1.3</b>	<b>GUIDANCE</b>	<b>3</b>
<b>1.4</b>	<b>APPROACH TO ASSESSMENT OF ADVERSE IMPACT ON INTEGRITY</b>	<b>3</b>
<b>2</b>	<b>ASSESSMENT OF THE RTS INTERVENTIONS</b>	<b>2</b>
<b>3</b>	<b>CONCLUSIONS</b>	<b>20</b>





## 1 INTRODUCTION

### 1.1 GENERAL BACKGROUND TO APPROPRIATE ASSESSMENT

The UK is bound by the terms of the EC Birds and Habitats Directives<sup>1</sup> and the Ramsar Convention.<sup>2</sup> In the UK the European Directives have been transposed into domestic legislation through the Conservation (Natural Habitats &c.) Regulations 1994<sup>3</sup> (as amended) (the Habitat 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 is 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."*

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. The interest features of the European Sites must be maintained in 'favourable condition'. Plans and projects that will have an adverse effect on the integrity of a site (where there are no priority habitats) may still be permitted if there are no alternatives to them and the IROPI test (see above) 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

---

<sup>1</sup> Council Directive on the conservation of wild birds of 2<sup>nd</sup> April 1979 (79/409/EEC) and Council Directive 92/43/EEC on the conservation of natural habitats and wild fauna and flora of 21<sup>st</sup> May 1992

<sup>2</sup> Convention on wetlands of international importance especially as waterfowl habitat, Ramsar, Iran 2<sup>nd</sup> Feb 1971

<sup>3</sup> Statutory Instrument 1994/2716 which came into force on 30 October 1994

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.<sup>4</sup>

## 1.2 CONTEXT FOR THE TACTRAN RTS

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.

TACTRAN 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 2021. It has undertaken a Strategic Environmental Assessment (SEA) of this strategy.

Following consultation on the SEA and the draft RTS, Scottish Natural Heritage (SNH) commented that because of the identification of interventions within the RTS that are likely to have a significant effect on four European sites within the TACTRAN area, namely – the River Tay Special Area of Conservation (SAC), the Firth of Forth Special Protection Area (SPA), the River Teith SAC and the Montrose Basin SPA (including the Montrose Basin Ramsar Site) that an Appropriate Assessment was required. The scope of the assessment was established at a meeting with SNH (22 May 2007 attended by Philip Gaskell and Zoe Kemp) where it was agreed that there was no need to undertake an assessment of the whole of the RTS (previously screened in the SEA) or consider in-combination effects but rather concentrate on an assessment of those interventions highlighted in the SEA where it was considered possible that they were likely to have a significant effect on the integrity of a European site.

Natural Capital was invited by TACTRAN to undertake the research and provide the information so that it could, as the competent authority, carry out the Appropriate Assessment.

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 must 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 would have an adverse effect on the integrity of a European site.

---

<sup>4</sup> 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

### 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<sup>4</sup> 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 2.1*.



## 2 ASSESSMENT OF THE RTS INTERVENTIONS

The assessment is set out in *Table 2.1* below and includes the following information:

- The intervention in question
- The potential European site 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 2.1 Appropriate Assessment of RTS Interventions that could Impact on European Sites**

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
Intervention: IV_I2 – New crossing of the Tay linking the A9 to the A94 north of Scone, including a package of associated bus priority, cycle and pedestrian measures locking in the benefits to Perth city centre				
<b>River Tay SAC</b>  <b>Qualifying Features</b> <ul style="list-style-type: none"> <li>• <i>Lampetra fluviatilis</i> - River lamprey</li> <li>• <i>Lampetra planeri</i> - Brook lamprey</li> <li>• <i>Petromyzon marinus</i> - Sea</li> </ul>	<b>River Tay - Water Pollution Risks</b> <ul style="list-style-type: none"> <li>• Pollution (chemical and particulate – suspended solids and turbidity) caused by</li> </ul>	<b>River Tay - Water Pollution Risks</b> <ul style="list-style-type: none"> <li>• Contractors required to identify appropriate control</li> </ul>	<b>River Tay - Water Pollution Risks</b> <ul style="list-style-type: none"> <li>• The listed mitigation</li> </ul>	<b>River Tay - Water Pollution Risks</b> <ul style="list-style-type: none"> <li>• No long-term adverse effects</li> </ul>

<sup>5</sup> 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.

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
<p>lamprey</p> <ul style="list-style-type: none"> <li>• <i>Salmo salar</i> - Atlantic salmon</li> <li>• Oligotrophic to mesotrophic standing waters with vegetation of the <i>Littorelletea uniflorae</i> and/or of the <i>Isoëto-Nanojuncetea</i> - Clear-water lakes or lochs with aquatic vegetation and poor to moderate nutrient levels</li> <li>• <i>Lutra lutra</i> - Otter</li> </ul> <p><b>Conservation Objectives</b></p> <ul style="list-style-type: none"> <li>• To avoid deterioration of the <b>habitats of the qualifying species</b> (listed above) or significant disturbance to the <b>qualifying species</b>, 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</li> <li>• To ensure for the <b>qualifying species</b> that the following are maintained in the long term: <ul style="list-style-type: none"> <li>○ Population of the species, including range of genetic types for salmon, as a viable component of the site</li> </ul> </li> </ul>	<p>construction activities.</p> <ul style="list-style-type: none"> <li>• Pollution caused by oil and fuel spills and leakages.</li> <li>• Pollution from run-off and erosion.</li> <li>• Pollution associated with concrete structures.</li> <li>• Contamination from waste materials</li> </ul> <p><b>Standing Waters</b></p> <ul style="list-style-type: none"> <li>• The oligotrophic and mesotrophic standing waters in the upper catchment (that feature in the SAC) would not be affected by this potential intervention lower down in the catchment.</li> </ul> <p><b>General Ecology - including Qualifying Feature Habitat</b></p> <ul style="list-style-type: none"> <li>• Destruction of habitats caused by construction activities with resultant habitat loss.</li> <li>• Impacts on adjacent habitats caused by construction activities.</li> <li>• Severance of wildlife corridors and connected habitats.</li> <li>• Disturbance of species frequenting areas where</li> </ul>	<p>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.</p> <ul style="list-style-type: none"> <li>• Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and groundwater.</li> <li>• Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction.</li> <li>• Contingency plans to be developed for implementation in the case of any spillage.</li> <li>• Oil pollution prevention equipment (booms, absorbent pads and granules, sand bags etc)</li> </ul>	<p>measures would protect water quality (against chemical/oil and suspended solids/sediment contamination) so safeguarding key qualifying features (lamprey, salmon and their respective habitats and food sources together with food sources for otter).</p> <p><b>Ecology - General</b></p> <ul style="list-style-type: none"> <li>• The listed mitigation would help to minimise impacts on habitats in general.</li> <li>• Some temporary</li> </ul>	<p>predicted on water quality.</p> <ul style="list-style-type: none"> <li>• No corresponding damage to river processes and associated habitats predicted.</li> </ul> <p><b>Ecology - General</b></p> <ul style="list-style-type: none"> <li>• Some likely habitat loss but mitigation should keep this to an absolute minimum.</li> <li>• The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration. This could provide opportunities to improve the conservation status.</li> </ul> <p><b>Ecology - Otter</b></p> <ul style="list-style-type: none"> <li>• With rigorously applied mitigation there should be no</li> </ul>

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
<ul style="list-style-type: none"> <li>○ Distribution of the species within site</li> <li>○ Distribution and extent of habitats supporting the species</li> <li>○ Structure, function and supporting processes of habitats supporting the species</li> <li>○ No significant disturbance of the species</li> <li>● To avoid deterioration of the <b>qualifying habitat</b> (listed above) 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</li> <li>● To ensure for the <b>qualifying habitat</b> that the following are maintained in the long term: <ul style="list-style-type: none"> <li>○ Extent of the habitat on site</li> <li>○ Distribution of the habitat within site</li> <li>○ Structure and function of the habitat</li> <li>○ Processes supporting the habitat</li> </ul> </li> </ul>	<p>frequenting areas where construction taking place (e.g. noise and physical activity).</p> <ul style="list-style-type: none"> <li>● Water pollution impacts on substrates and food sources for fish and lamprey.</li> </ul> <p><b>Ecology - Otter</b></p> <ul style="list-style-type: none"> <li>● Habitat destruction.</li> <li>● Severance of routes between feeding and sheltering habitat.</li> <li>● Removal of safe passage up and down stream.</li> <li>● Destruction of holts and couches.</li> <li>● Disturbance to habitat and damage to food supplies.</li> <li>● Impacts of possible pollution as described above either directly on the otter (direct toxicity) or indirectly on the food supply (ingestion and bioaccumulation).</li> <li>● Noise and disturbance during construction.</li> </ul>	<p>granules, sand bags <i>etc</i>) to be stored on site and site staff briefed on how to use them in case of spillage.</p> <ul style="list-style-type: none"> <li>● Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills.</li> <li>● All earth bunds and spoil storage areas well managed to minimise runoff and erosion.</li> <li>● Any surface water drainage features affected by the proposals made good.</li> <li>● Any new culverts to be sensitively designed following best practice guidance.</li> <li>● Concrete additives to be added to all concrete placed underwater to limit separation and concrete release into the water.</li> <li>● All feasible wastes to be recovered and reused within the works where possible.</li> </ul>	<p>disturbance during construction but good site practices would again keep this to a minimum and would not extend beyond time scale of construction period.</p> <p><b>Ecology - Otter</b></p> <ul style="list-style-type: none"> <li>● The listed mitigation would protect otter habitat and ensure safe passage and freedom of movement.</li> <li>● No significant adverse residual effects would be predicted.</li> </ul>	<p>there should be no threat to the distribution and viability of the otter within the SAC.</p> <ul style="list-style-type: none"> <li>● Careful site restoration could provide opportunities to improve habitat (e.g. reed/sedge beds for couches, scrub <i>etc</i> for cover).</li> </ul>

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
<ul style="list-style-type: none"> <li>○ Distribution of typical species of the habitat</li> <li>○ Viability of typical species as components of the habitat</li> <li>○ No significant disturbance of typical species of the habitat</li> </ul>		<ul style="list-style-type: none"> <li>• The application of full environmental management systems and planning for the whole works.</li> </ul> <p><b>Ecology - General</b></p> <ul style="list-style-type: none"> <li>• Ecological survey and use of existing studies/surveys to inform final design and construction methods.</li> <li>• 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.</li> <li>• Habitat loss restricted to the minimum necessary for the works.</li> <li>• Construction area would be fenced during the construction period to contain the site activities.</li> <li>• All areas affected by the construction works would</li> </ul>		



Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		<p>be carefully restored at the end of the works.</p> <ul style="list-style-type: none"> <li>• The seedbank within the topsoil would be stripped from areas of the construction site to be affected and replaced on the site at the end of the works to aid vegetation growth.</li> <li>• Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents that could affect neighbouring habitats.</li> <li>• Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works.</li> </ul> <p><b>Ecology - Otters</b></p> <ul style="list-style-type: none"> <li>• Access to an updated otter survey for area where crossing likely to be located to inform final site</li> </ul>		

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		<p>selection.</p> <ul style="list-style-type: none"> <li>• Identification of holts, couches and other potential shelters at earliest stages of design process to enable a route to be selected that avoids such areas where possible.</li> <li>• Locating construction site compounds away from potential otter habitat.</li> <li>• Avoidance of night working in areas where otter active.</li> <li>• Use of fencing to exclude otters from site works areas and provide safe passage.</li> <li>• Ensure that preferred otter paths not obstructed.</li> <li>• Retention of one bank of river intact during construction.</li> <li>• Bridge designed with sufficiently wide span to allow animals dry and safe passage along river bank on completion of construction works.</li> </ul>		

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		<ul style="list-style-type: none"> <li>If it is not possible to design a gap between bridge abutments and river then provision must be made for a ledge to permit otter movement.</li> <li>Reinstatement of scrub and natural river bank habitat to provide adequate cover for otter movements.</li> </ul>		
<p>Intervention: IV_I3 – Provision of new link road between A84 Kildean and A9 University completing Stirling’s Outer Ring road, including package of measures of associated bus priority, cycle and pedestrian measures, locking in the benefits to Stirling city centre</p>				
<p><b>Firth of Forth SPA</b></p> <p><b>Qualifying Features</b></p> <ul style="list-style-type: none"> <li>bar-tailed godwit <i>Limosa lapponica</i></li> <li>common scoter <i>Melanitta nigra</i></li> <li>cormorant <i>Phalacrocorax carbo</i></li> <li>curlew <i>Numenius arquata</i></li> <li>dunlin <i>Calidris alpina</i></li> <li>eider <i>Somateria mollissima</i></li> <li>Golden plover <i>Pluvialis apricaria</i></li> <li>goldeneye <i>Bucephala clangula</i></li> <li>great crested grebe <i>Podiceps</i></li> <li>grey plover <i>Pluvialis squatarola</i></li> <li>knot <i>Calidris canutus</i></li> </ul>	<p><b>Water Pollution - Indirect</b></p> <ul style="list-style-type: none"> <li>Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities (including possible oil and fuel spills or leakages, run-off and erosion, waste materials) and transported downstream into SPA.</li> </ul>	<p><b>Water Pollution - Indirect</b></p> <ul style="list-style-type: none"> <li>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</li> </ul>	<p><b>Water Pollution - Indirect</b></p> <ul style="list-style-type: none"> <li>The listed mitigation measures would protect water quality (against chemical/oil and suspended solids/sediment contamination).</li> </ul>	<p><b>Water Pollution - Indirect</b></p> <ul style="list-style-type: none"> <li>No long-term adverse effects predicted on water quality.</li> <li>No corresponding damage to river and estuarine</li> <li>processes and associated habitats predicted.</li> </ul>

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
<ul style="list-style-type: none"> <li>• lapwing <i>Vanellus vanellus</i></li> <li>• long-tailed duck <i>Clangula hyemalis</i></li> <li>• mallard <i>A. platyrhynchos</i></li> <li>• oystercatcher <i>Haematopus ostralegus</i></li> <li>• pink-footed goose <i>Anser brachyrhynchus</i></li> <li>• red-breasted merganser <i>Mergus serrator</i></li> <li>• red-throated diver <i>Gavia stellata</i></li> <li>• redshank <i>Tringa tetanus</i></li> <li>• ringed plover <i>Charadrius hiaticula</i></li> <li>• sandwich tern <i>Sterna sandvicensis</i></li> <li>• scaup <i>Aythya marila</i></li> <li>• shelduck <i>Tadorna tadorna</i></li> <li>• Slavonian grebe <i>Podiceps auritus</i></li> <li>• turnstone <i>Arenaria interpres cristatus</i></li> <li>• velvet scoter <i>M. fusca</i></li> <li>• waterfowl assemblage</li> <li>• wigeon <i>Anas Penelope</i></li> </ul> <p><b>Conservation Objectives</b></p> <ul style="list-style-type: none"> <li>• To avoid deterioration of the <b>habitats of the qualifying species</b> (listed above) or significant disturbance to the <b>qualifying species</b>, thus ensuring that the integrity of the site is maintained and the site makes an appropriate</li> </ul>	<p><b>Ecology – Qualifying bird species that frequent or move in and around SPA into upper catchment</b></p> <ul style="list-style-type: none"> <li>• Disturbance to feeding and roosting sites.</li> <li>• Water pollution impacts on substrates and food sources for waders and wildfowl in feeding areas and further downstream.</li> </ul>	<p>pollution control measures.</p> <ul style="list-style-type: none"> <li>• Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and groundwater.</li> <li>• Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction.</li> <li>• Contingency plans to be developed for implementation in the case of any spillage.</li> <li>• 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.</li> <li>• Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills.</li> </ul>	<p><b>Ecology</b></p> <ul style="list-style-type: none"> <li>• The listed mitigation would help to minimise impacts on potential feeding areas and habitats lower down in the estuary.</li> <li>• With avoidance of damage or disturbance to key feeding and roosting sites no significant adverse residual effects predicted.</li> </ul>	<p><b>Ecology</b></p> <ul style="list-style-type: none"> <li>• Minimal implications anticipated for the Forth SPA as a result of possible construction activities, given the distance of the Natura site from Stirling.</li> </ul>

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
<p>contribution to achieving favourable conservation status for each of the qualifying features; and</p> <ul style="list-style-type: none"> <li>• To ensure for the <b>qualifying species</b> that the following are maintained in the long term:               <ul style="list-style-type: none"> <li>○ Population of the species as a viable component of the site</li> <li>○ Distribution of the species within the site</li> <li>○ Distribution and extent of habitats supporting the species</li> <li>○ Structure, function and supporting processes of habitats supporting the species</li> <li>○ No significant disturbance of the species</li> </ul> </li> </ul> <p><b>Firth of Forth RAMSAR</b></p> <p><b>Qualifying Features</b></p> <ul style="list-style-type: none"> <li>• Greylag goose <i>Anser anser</i></li> <li>• Mudflat - Littoral sediment <i>Marine</i></li> <li>• Pink-footed goose <i>Anser brachyrhynchus</i></li> </ul>		<ul style="list-style-type: none"> <li>• All earth bunds and spoil storage areas well managed to minimise runoff and erosion.</li> <li>• Any surface water drainage features affected by the proposals made good.</li> <li>• Any new culverts to be sensitively designed following best practice guidance.</li> <li>• Concrete additives to be added to all concrete placed underwater to limit separation and concrete release into the water.</li> <li>• All feasible wastes to be recovered and reused within the works where possible.</li> <li>• The application of full environmental management systems and planning for the whole works.</li> </ul> <p><b>Ecology - General</b></p> <ul style="list-style-type: none"> <li>• Ecological survey and use of existing studies/surveys</li> </ul>		

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
<ul style="list-style-type: none"> <li>• Redshank <i>Tringa totanus</i></li> <li>• Waterfowl assemblage</li> </ul> <p><b>Conservation Objectives</b> As above.</p>		<p>to inform final design and construction methods.</p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Habitat loss restricted to the minimum necessary for the works.</li> <li>• Construction area would be fenced during the construction period to contain the site activities.</li> <li>• All areas affected by the construction works would be carefully restored at the end of the works.</li> <li>• Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents which could affect neighbouring</li> </ul>		

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		habitats. • Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works.		
<p><b>River Teith SAC</b></p> <p><b>Qualifying Features</b></p> <ul style="list-style-type: none"> <li>• <i>Lampetra fluviatilis</i> - River lamprey</li> <li>• <i>Lampetra planeri</i> - Brook lamprey</li> <li>• <i>Petromyzon marinus</i> - Sea lamprey</li> <li>• <i>Salmo salar</i> - Atlantic salmon</li> </ul> <p><b>Conservation Objectives</b></p> <ul style="list-style-type: none"> <li>• To avoid deterioration of the <b>habitats of the qualifying species</b> (listed above) or significant disturbance to the <b>qualifying species</b>, 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</li> <li>• To ensure for the <b>qualifying species</b> that the following are</li> </ul>	<p><b>Water Pollution</b></p> <ul style="list-style-type: none"> <li>• Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities.</li> <li>• Pollution caused by oil and fuel spills and leakages.</li> <li>• Pollution from run-off and erosion.</li> <li>• Pollution associated with concrete structures.</li> <li>• Contamination from waste materials</li> </ul> <p><b>Ecology – General and Passage of Qualifying Fish Species</b></p> <ul style="list-style-type: none"> <li>• Destruction of habitats caused by construction activities with resultant habitat loss.</li> <li>• Impacts on adjacent habitats</li> </ul>	<p><b>Water Pollution</b></p> <ul style="list-style-type: none"> <li>• 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.</li> <li>• Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and groundwater.</li> <li>• Appropriate measures</li> </ul>	<p><b>Water Pollution</b></p> <ul style="list-style-type: none"> <li>• The listed mitigation measures would protect water quality (against chemical/oil and suspended solids/sediment contamination) so safeguarding key qualifying features (lamprey, salmon and their respective habitats).</li> </ul>	<p><b>Water Pollution</b></p> <ul style="list-style-type: none"> <li>• No long-term adverse effects predicted on water quality.</li> <li>• No corresponding damage to river processes and associated habitats predicted.</li> </ul> <p><b>Ecology - General</b></p> <ul style="list-style-type: none"> <li>• Some likely habitat loss but mitigation should keep this to an absolute minimum.</li> <li>• The mitigation should ensure that appropriate</li> </ul>

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
<p>maintained in the long term:</p> <ul style="list-style-type: none"> <li>○ Population of the species, including range of genetic types for salmon, as a viable component of the site</li> <li>○ Distribution of the species within site</li> <li>○ Distribution and extent of habitats supporting the species</li> <li>○ Structure, function and supporting processes of habitats supporting the species</li> <li>○ No significant disturbance of the species</li> </ul>	<p>caused by construction activities.</p> <ul style="list-style-type: none"> <li>● Severance of wildlife corridors and connected habitats.</li> <li>● Disturbance of species (salmon and lamprey) frequenting areas or passing through where construction taking place (e.g. physical activities and activities causing pollution).</li> </ul>	<p>adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction.</p> <ul style="list-style-type: none"> <li>● Contingency plans to be developed for implementation in the case of any spillage.</li> <li>● 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.</li> <li>● Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills.</li> <li>● All earth bunds and spoil storage areas well managed to minimise runoff and erosion.</li> <li>● Any surface water drainage features affected by the proposals made good.</li> </ul>	<p><b>Ecology - General</b></p> <ul style="list-style-type: none"> <li>● The listed mitigation would help to minimise impacts on habitats in general and passage of qualifying fish species.</li> <li>● Some temporary disturbance during construction but good site practices would again keep this to a minimum.</li> </ul>	<p>biodiversity enhancement measures are incorporated into final restoration.</p>



Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		<ul style="list-style-type: none"> <li>• Any new culverts to be sensitively designed following best practice guidance.</li> <li>• Concrete additives to be added to all concrete placed underwater to limit separation and concrete release into the water.</li> <li>• All feasible wastes to be recovered and reused within the works where possible.</li> <li>• The application of full environmental management systems and planning for the whole works.</li> </ul> <p><b>Ecology – General and Passage of Qualifying Fish Species</b></p> <ul style="list-style-type: none"> <li>• Ecological survey and use of existing studies/surveys to inform final design and construction methods.</li> <li>• Construction of the proposals would seek to minimise nature conservation impacts in</li> </ul>		

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		<p>areas not required for construction and maximise opportunities to enhance local biodiversity on restoration construction areas.</p> <ul style="list-style-type: none"> <li>• Habitat loss restricted to the minimum necessary for the works.</li> <li>• Construction area fenced during construction period to contain site activities.</li> <li>• All areas affected construction would be carefully restored at the end of the works.</li> <li>• Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents which could affect neighbouring habitats.</li> <li>• Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works.</li> </ul>		

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
Intervention: IV_J2 – Improved road links to the Ports of Montrose and Dundee and Perth Harbour				
<p><b>Montrose Basin SPA</b></p> <p><b>Qualifying Features</b></p> <ul style="list-style-type: none"> <li>Dunlin <i>Calidris alpina alpina</i></li> <li>Eider <i>Somateria mollissima</i></li> <li>Greylag goose <i>Anser anser</i></li> <li>Knot <i>Calidris canutus</i></li> <li>Oystercatcher <i>Haematopus ostralegus</i></li> <li>Pink-footed goose <i>Anser brachyrhynchus</i></li> <li>Redshank <i>Tringa totanus</i></li> <li>Shelduck <i>Tadorna tadorna</i></li> <li>Waterfowl assemblage</li> <li>Wigeon <i>Anas penelope</i></li> </ul> <p><b>Conservation Objectives</b></p> <ul style="list-style-type: none"> <li>To avoid deterioration of the <b>habitats of the qualifying species</b> (listed above) or significant disturbance to the <b>qualifying species</b>, 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</li> </ul>	<p><b>Water Pollution</b></p> <ul style="list-style-type: none"> <li>Pollution (chemical and particulate – suspended solids and turbidity) caused by construction activities.</li> <li>Pollution caused by oil and fuel spills and leakages.</li> <li>Pollution from run-off and erosion.</li> <li>Pollution associated with concrete structures.</li> <li>Contamination from waste materials</li> </ul> <p><b>Ecology - General</b></p> <ul style="list-style-type: none"> <li>Destruction of habitats caused by construction activities with resultant habitat loss.</li> <li>Impacts on adjacent habitats caused by construction activities.</li> <li>Severance of wildlife corridors and connected habitats.</li> <li>Disturbance of species frequenting areas where construction taking place (e.g.</li> </ul>	<p>Some road-based improvements may require minimal construction works, whereas others involving capital works around the Basin would be likely to need more detailed measures including:</p> <p><b>Water Pollution</b></p> <ul style="list-style-type: none"> <li>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.</li> <li>Oil and fuel storage facilities and small static plant to be well managed to minimise the risk of leaks to soil and</li> </ul>	<p><b>Water Pollution</b></p> <ul style="list-style-type: none"> <li>The listed mitigation measures would protect water quality (against chemical/oil and suspended solids/sediment contamination).</li> </ul> <p><b>Ecology - General</b></p> <ul style="list-style-type: none"> <li>The listed mitigation would help to minimise impacts on habitats in general.</li> <li>Some temporary disturbance during construction but good site</li> </ul>	<p><b>Water Pollution</b></p> <ul style="list-style-type: none"> <li>No long-term adverse effects predicted on water quality.</li> <li>No corresponding damage to estuarine processes and associated habitats predicted.</li> </ul> <p><b>Ecology - General</b></p> <ul style="list-style-type: none"> <li>Some likely habitat loss but mitigation should keep this to an absolute minimum.</li> <li>The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration. This could provide</li> </ul>

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
<ul style="list-style-type: none"> <li>• To ensure for the <b>qualifying species</b> that the following are maintained in the long term:                             <ul style="list-style-type: none"> <li>○ Population of the species as a viable component of the site</li> <li>○ Distribution of the species within site</li> <li>○ Distribution and extent of habitats supporting the species</li> <li>○ Structure, function and supporting processes of habitats supporting the species</li> <li>○ No significant disturbance of the species</li> </ul> </li> </ul> <p><b>Montrose Basin RAMSAR</b></p> <p><b>Qualifying Features</b></p> <ul style="list-style-type: none"> <li>• Greylag goose <i>Anser anser</i></li> <li>• Mudflat - Littoral sediment <i>Marine</i></li> <li>• Pink-footed goose <i>Anser brachyrhynchus</i></li> <li>• Redshank <i>Tringa totanu</i></li> <li>• Waterfowl assemblage</li> </ul>	<p>noise and physical activity).</p> <ul style="list-style-type: none"> <li>• Destruction of feeding and roosting sites.</li> <li>• Disturbance to feeding and roosting sites.</li> <li>• Water pollution impacts on substrates and food sources for waders and wildfowl.</li> </ul>	<p>leaks to soil and groundwater.</p> <ul style="list-style-type: none"> <li>• Appropriate measures adopted to reduce the risk of particulate or chemical contamination from the site polluting the aquatic environment during construction.</li> <li>• Contingency plans to be developed for implementation in the case of any spillage.</li> <li>• 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.</li> <li>• Plant and vehicles used for the works maintained on impermeable surfaces to contain oil spills.</li> <li>• All earth bunds and spoil storage areas well managed to minimise runoff and erosion.</li> <li>• Any surface water</li> </ul>	<p>but good site practices would again keep this to a minimum.</p> <ul style="list-style-type: none"> <li>• With avoidance of damage or disturbance to key feeding and roosting sites no significant adverse residual effects predicted.</li> </ul>	<p>This could provide opportunities to improve the conservation status in areas around the road works.</p>

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
<p><b>Conservation Objectives</b></p> <ul style="list-style-type: none"> <li>As above</li> </ul>		<p>drainage features affected by the proposals made good.</p> <ul style="list-style-type: none"> <li>Any new culverts to be sensitively designed following best practice guidance.</li> <li>Concrete additives to be added to all concrete placed underwater to limit separation and concrete release into the water.</li> <li>All feasible wastes to be recovered and reused within the works where possible.</li> <li>The application of full environmental management systems and planning for the whole works.</li> </ul> <p><b>Ecology - General</b></p> <ul style="list-style-type: none"> <li>Ecological survey and use of existing studies/surveys to inform final design and construction methods.</li> <li>Construction of the proposals would seek to minimise nature</li> </ul>		

Potentially Affected European Site Qualifying Features and Conservation Objectives <sup>5</sup>	Assessment of Possible Impacts of Intervention	Potential Mitigation	Residual Effects	Implications to the Site
		<p>conservation impacts in areas not required for construction and maximise opportunities to enhance local biodiversity on restoration construction areas.</p> <ul style="list-style-type: none"> <li>• Habitat loss restricted to the minimum necessary for the works.</li> <li>• Construction area would be fenced during the construction period to contain the site activities.</li> <li>• All areas affected by the construction works would be carefully restored at the end of the works.</li> <li>• Best site management practices would be adopted to minimise intrusion into adjacent habitats and the risk of pollution incidents.</li> <li>• Requirements in the construction contract would ensure that disturbance to wildlife is kept to the minimum necessary for the works.</li> </ul>		

### 3 CONCLUSIONS

This study has identified the particular types of environmental impact that have the potential for adverse effects on the integrity of European sites within the TACTRAN area. The assessment presented in *Table 2.1* identifies mitigation measures to avoid/reduce these effects so that the integrity of the sites is not affected as indicated in the following summary tables (*Tables 3.1 to 3.3*) where the anticipated residual effects following mitigation are summarised. This demonstrates that the measures that are likely to have a significant effect on European sites in the RTS can be mitigated so that the integrity of the sites is not adversely affected.

**Table 3.1: New Crossing of the Tay**

Intervention	European Site and Summary Residual Effects
<p><b>IV_I2 – New crossing of the Tay linking the A9 to the A94 north of Scone, including a package of associated bus priority, cycle and pedestrian measures locking in the benefits to Perth city centre</b></p>	<p><b>River Tay SAC</b>  <b>Water Pollution</b></p> <ul style="list-style-type: none"> <li>• No long-term adverse effects predicted on water quality</li> <li>• No corresponding damage to river processes and associated habitats predicted</li> </ul> <p><b>Ecology – in Relation to Qualifying Features</b></p> <ul style="list-style-type: none"> <li>• Some likely habitat loss but not likely to adversely affect qualifying species and mitigation should keep this to an absolute minimum</li> <li>• The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration. This could provide opportunities to improve the conservation status</li> </ul> <p><b>Ecology - Otter</b></p> <ul style="list-style-type: none"> <li>• Providing that mitigation is rigorously applied there should be no threat to the distribution and viability of the otter within the SAC</li> <li>• Careful site restoration could provide opportunities to improve habitat (e.g. reed/sedge beds for couches, scrub etc for cover)</li> </ul>

**Table 3.2: New A9 link road**

Intervention	European Site and Summary Residual Effects
<p><b>IV_I3 – Provision of new link road between A84 Kildean and A9 University completing Stirling's Outer Ring road, including package of measures of associated bus priority, cycle and pedestrian measures, locking in the benefits to Stirling city centre</b></p>	<p><b>Firth of Forth SPA and Ramsar Site</b>  <b>Water Pollution</b></p> <ul style="list-style-type: none"> <li>• No long-term adverse effects predicted on water quality</li> <li>• No corresponding damage to river and estuarine processes and associated habitats predicted</li> </ul> <p><b>Ecology – in Relation to Qualifying Species</b></p> <ul style="list-style-type: none"> <li>• Some possible habitat disturbance and damage to feeding areas but mitigation should prevent or keep this to an absolute minimum and thus would not adversely affect qualifying species</li> </ul> <p><b>River Teith SAC</b>  <b>Water Pollution</b></p> <ul style="list-style-type: none"> <li>• No long-term adverse effects predicted on water quality</li> <li>• No corresponding damage to river processes and associated habitats predicted</li> </ul> <p><b>Ecology – in Relation to Qualifying Species</b></p> <ul style="list-style-type: none"> <li>• Some likely habitat loss but not likely to adversely affect qualifying species and mitigation should keep this to an absolute minimum</li> <li>• The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration. This could provide opportunities to improve the conservation status of parts of the SAC in this area</li> </ul>

**Table 3.3: Improved road links to the Ports of Montrose and Dundee and Perth Harbour**

Intervention	European Site and Summary Residual Effects
IV_J2 – Improved road links to the Ports of Montrose and Dundee and Perth Harbour	<p data-bbox="695 349 1158 376"><b>Montrose Basin SPA and Ramsar Site</b></p> <p data-bbox="695 405 866 432"><b>Water Pollution</b></p> <ul data-bbox="695 434 1326 517" style="list-style-type: none"> <li data-bbox="695 434 1326 461">• No long-term adverse effects predicted on water quality</li> <li data-bbox="695 463 1326 517">• No corresponding damage to estuarine processes and associated habitats predicted</li> </ul> <p data-bbox="695 546 1174 573"><b>Ecology – in Relation to Qualifying Species</b></p> <ul data-bbox="695 575 1362 813" style="list-style-type: none"> <li data-bbox="695 575 1362 658">• Some likely habitat loss but not likely to adversely affect qualifying species and mitigation should keep this to an absolute minimum</li> <li data-bbox="695 660 1362 768">• The mitigation should ensure that appropriate biodiversity enhancement measures are incorporated into final restoration. This could provide opportunities to improve the conservation status in areas around the road works</li> <li data-bbox="695 770 1362 813">• Some possible construction disturbance but no long-term residual effects on bird species predicted</li> </ul>

In conclusion, the proposed interventions within the RTS considered in this assessment would not significantly 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, thus demonstrating that the RTS can be mitigated to avoid an adverse impact. 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 2.1*) TACTRAN believes that more detailed assessments will be required under Regulation 48, if and when any of the interventions are taken forward. As such (subject to Regulation 49) 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 and through an iterative process these should in turn inform the final design and its associated construction techniques.





Natural Capital Ltd  
13 Coates Crescent  
Edinburgh  
EH3 7AF  
Tel: 0131 220 6121  
Fax: 0131 220 6131  
Email: [info@naturalcapital.co.uk](mailto:info@naturalcapital.co.uk)