A96 DUALLING
INVERNESS TO ABERDEEN

A96 Dualling Programme

Strategic Environmental Assessment
Tier 2 Post Adoption Statement

Appendix C - Tier 2 Environmental Report
Revised Appendix J

January 2016

TRANSPORT SCOTLAND
CÒMHDHAIL ALBA

A96 Dualling Programme Tier 2 SEA Option Assessment

Forres B North

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Biodiversity	Ramsar - Moray and Nairn Coast 0.6% (16.4) SPA - Moray and Nairn Coast 0.6% (16.4) SSSI - Culbin Sands, Culbin Forest and Findhorn Bay (Mixed) 0.7% (16.9) LNR - Findhorn Bay 0.5% (11.5) AWI - Total cover 5.1% (130.5) semi-natural 0.5% (13.4) plantation 4.6% (117.2) NWSS - Total cover 3.0% (75.4) native woodland 2.0% (51.1) nearly-native woodland 0.1% (2.2) open land habitat 0.2% (4.8) PAWS 0.7% (17.3) Moray SINS - Total 9.1% (233.7) Findhorn Valley 1.0% (26.5) Culbin, Findhorn & Burghead Bay 8.1% (207.2) Moray other - Moray Coastal Protection Zone: 0.4% (11.1)	Constraint sensitivity assessment - **Medium** **• Natura sites may be present/ adjacent but likely to be small or in discrete locations that could be avoided within the option extent** A key sensitivity in this option will be avoidance and minimisation of impacts on Ramsar, Natura, SSSI and LNR sites. These sites are generally at the edge of the option and do not represent a significant constraint to dualling. Relatively low AWI/ NWSS woodland cover which does not heavily constrain the option area. Other constrains include avoidance and minimisation of impacts on the Coastal Protection Zone at the northern edge of the option, as well as SINS.	Risk of effect assessment - **Minor/ Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** SINS may be difficult to avoid, however they are not extensive within the option and dualling impacts likely to be mitigated to small scale given the total extent of their coverage. Significant avoidance potential for Natura and SSSI sites as these are located at the outer edge of the 2km wide option boundary and significant impacts are predicted to be unlikely. Significant avoidance potential for small patches of AWI given its limited extent in the option. Should AWI prove unavoidable, effects likely to be limited to woodland edge in small, discrete locations and of a small scale.
Soils & Geodiversity	**SSSI** - Culbin Sands, Culbin Forest and Findhorn Bay (Mixed) 0.7% (16.9) **Agricultural Land Classes 1 to 3.1** - Total Cover 49.8% (1270.5) Grade 2 Arable Agriculture 32.0% (816.5) Grade 3.1 Arable Agriculture 17.8% (454.0) **Carbon-rich soil classification** - Class 0: 1.5% (37.5) Class 1: 97.2% (2480.3) Class 6: 1.4% (35.0)	Constraint sensitivity assessment - **High** **• Nationally/ locally important designations and features forming extensive constraints either through the area covered and/ or the number and distribution of sites** The option is extensively covered by prime agricultural land with associated importance for agriculture. A key constraint will therefore be avoidance and minimisation of impacts on prime agricultural land. The geological SSSI site is a sensitive location but confined to the extreme northern edge of the option. There are small areas of carbon-rich soils in the option however the extent and spatial distribution of these do not present an extensive constraint to dualling.	Risk of effect assessment - **Major** **• Likely to directly affect an environmental designation, resource/ feature or other receptors, e.g. through spatial loss or a direct effect on critical aspects of the resource's functions** Prime agricultural land is unavoidable due to its extent and distribution. Dualling impacts are predicted to be permanent and potentially significant at the local level. Potential for secondary effects on local land use, e.g. due to farm unit severance or fragmentation. Significant avoidance potential for SSSI site as this is located at the outer edge of the 2km wide option boundary and significant impacts are not predicted. Significant avoidance potential for peat and carbon-rich soils as these are located at the outer edge of the 2km wide option boundary and significant impacts are not predicted to be likely.
Water & Flooding	**1:200 yr fluvial flood extent (surface area)** - 28.6% (730.3) **1:200 yr coastal flood extent (surface area)** - 1.9% (48.9) **1:200 yr pluvial flooding (surface area)** - 7.8% (199.9) **Major watercourse crossings (Watercourses shown on 1:50k OS mapping)** - Very likely to require a new crossing of the River Findhorn with a large hydrological catchment and large river flows. Also likely to be constrained by crossing Muckle Burn, a tributary of the River Findhorn, and Kinloss Burn tributaries **Possibility of groundwater contributing to flooding (surface area)** - 31.0% (790.9) **Existing flood defence infrastructure** - Forres (River Findhorn & Pilmuir) Flood Alleviation Scheme Forres (Burn of Mosset) Flood Alleviation Scheme **SFRA - No. of properties within 1:200yr flood extents** - 176 properties in fluvial floodplain 2 properties in coastal floodplain 2 properties in coast and & fluvial floodplain	Constraint sensitivity assessment - **High** **• Features with limited capacity to accommodate change or which are already subject to pressures and degradation** Almost one third of the option area is within the 1:200yr fluvial flood zone, with a much lower percentage of the area (~2%) in the coastal flood zone. Large number of properties located within the fluvial floodplain, with some in the coastal floodplain or both indicating high level of sensitivity to flooding and to potential changes in the extent of floodplains as a result of dualling. Flood risk zones are likely to be the key positional constraint to dualling alignment options within the 2km option area.	Risk of effect assessment - **Major** **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially** Significant avoidance potential for coastal flood zone as this is located at the outer edge of the 2km wide option boundary and as this zone also overlaps with the fluvial flood zone, it is likely that dualling would avoid it. Almost one third of the option area is within the 1:200yr fluvial flood zone, large areas of which span the option breadth in its entirety, making it unavoidable. There is potential for significant permanent impacts on flooding through exacerbation of flood risk (to existing and potentially new sensitive receptors) through dualling. This would affect large areas of the floodplain since a crossing of the River Findhorn is needed.
Air	**Traffic flow/ demand data (as a proxy for local air quality where available)** - Current (2012) A96 trunk road Annual Average Daily Traffic (AADT) flows range between c11,100 to c13,000. These are forecast to increase to between c20,800 to c22,100 by 2032 with a new dualled route in place Current (2011) levels of key air pollutants (PM10 and NO2) are well within air quality objective levels and predicted to remain so for 2030	Constraint sensitivity assessment - **Low** Air quality in the option area is generally good and typical of rural areas and will be locally influenced by traffic using the existing A96 and busier roads at the edge of Forres.	Risk of effect assessment - **Minor** **• Small changes to the baseline resource which are detectable but the underlying characteristics or quality of the baseline situation would be similar to pre-development conditions** Forecast future year (2032) traffic flows potentially increase risk of air quality effects for sensitive receptors in close proximity to the dualled route but also present opportunity to move traffic further from current population centre in Forres than the existing A96 alignment. Effects (beneficial and adverse) would be dependent on detailed alignment and proximity to property.

A96 Dualling Programme Tier 2 SEA Option Assessment

Forres B North

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Population & Human Health	**Towns and principal centres of population** - Forres (part) adjacent to A96 Springfield adjacent to A96 Kinloss (part) ~1km N of A96 **Population** - 896 properties Average Moray household size 2012=2.24 people Therefore population density=0.77 people per Ha **Annual Average Daily Traffic (AADT) by section to nearest 100 vehicles** - 2012 AADT: c11,100 to 13,000 2032 (Forecast) AADT: c20,800 to 22,100 **Core paths/ NMUs** - Sustrans National Cycle Route 1 The Moray Coast Trail 20 Core paths 8 Aspirational Core paths	Constraint sensitivity assessment - **Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** Key constraints will be avoidance of impacts on population centres and NMUs. Option sensitivity reflects proximity of option to large settlement of Forres and the constraints from proximity of national and regional trails.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** It is predicted that small population centres which lie on the outer edges of the option or currently lie adjacent to the A96, could be avoided through route alignment. Potential remains for demolition or land take impacts on other isolated properties depending on final route alignment which will take account of other constraints. Significant avoidance potential for National Cycle Route with runs primarily through the northern part of the option, or potential impacts could be avoided through accommodation works in the road design. Crossing the Moray Coast Trail is unavoidable as it spans the breadth of the option; impacts could be avoided through accommodation works in the road design.
Historic Environment	**Scheduled Monuments** (x3) - Greshop Farm (enclosures 300-400m SW of) ~on A96 Sueno's Stone ~30m S of A96 Kinloss Abbey ~1,400m N of A96 **A Listed Buildings** (x8) - Moy House ~1,700m NW of A96 Mains of Moy ~1,800m NW of A96 Grange Hall ~550m N of A96 East Grange ~800m N of A96 Kinloss Abbey and Burial Ground, Abbot's Lodging ~1,400m N of A96 Forres, River Findhorn, Findhorn Viaduct ~200m N of A96 Invererne House ~1,300m NW of A96 Forres, Victoria Road, St John's Episcopal Church ~300m S of A96 **Gardens & Designed Landscapes** -Total cover 1.3% (33.0) Darnaway Castle 1.0% (25.0) Grant Park and Cluny Hill 0.3% (8.0) **B Listed Buildings x 23** **C Listed Buildings x 16** **Conservation Areas** - Forres 0.9% (24.1) ~100m south of A96 **Moray SMR** - 13x Regionally Significant 174x Standard	Constraint sensitivity assessment - **High** **• Nationally/ locally important designations and features forming extensive constraints either through the area covered and/ or the number and distribution of sites** Key constraint will be avoidance and minimisation of setting impacts on high value scheduled monuments, A listed buildings and GDLs. There is a particular pinch point towards the middle of the Option area between Dallas Dhu distillery and Auld Kirk Wood where there could be impacts on LBs and SMs. Option also lies close to the historic core and Conservation Area at Forres which introduces a potential constraint. Other constraints will be avoidance and minimisation of setting impacts on a high number of B and C listed buildings and Moray archaeological sites.	Risk of effect assessment - **Moderate** **• Typically medium to long term effects which are unlikely to be avoidable, but will generally reduce over time and/ or can be substantially mitigated** Significant avoidance potential for high value scheduled monuments and A listed buildings, due to their number and dispersal throughout the option. Similarly, significant avoidance potential for GDLs which lie at the outer edges of the option. Avoidance potential for conservation area of Forres as this lies to the southern extent of the option, close to the A96. As such, A96 dualling could present the potential for setting impacts. The majority of B and C listed buildings are concentrated within Forres to the southern extent of the option, with the remaining assets dispersed throughout the option, offering good avoidance potential. Avoidance potential for Moray archaeological sites, due to number and dispersal, however, analysis of HER has shown that there are a number of areas of cropmarks and the WWII Forres airfield within the option, which suggests this is an area of archaeological potential which would require further assessment at a later stage.
Landscape	**Landscape character types** - Highland Straths Lowland Coastal Landscapes of the North East **Long Distance Path** - The Moray Coastal Trail	Indicative Landscape sensitivity assessment - **Low/ Medium** **• Landscapes which by nature of their character would be able to partly accommodate change; comprised of commonplace elements and features creating generally unremarkable character but with some sense of place.** There are no national landscape designations within the option. The landscape character consists mainly of flat lowland agricultural land. There are a few small patches of woodland throughout the option and Alves wood is located in the eastern part of the option. The northern suburbs of Forres, the Village of Broom of Moy, and the southern part of Kinloss, including Kinloss Abbey, are located within the option and are sensitive receptors. The landscape in this area is quite flat and it would be sensitive to any new elevated structures required to cross the railway and the River Findhorn. The landscape can absorb the inclusion of a dualled route without significant impact to its quality and character.	Risk of effect assessment - **Moderate** **• Loss of, or alteration to key features of the baseline resource such that post development characteristics or quality would be partially changed** The character is of open fields with some wooded areas, which could generally be maintained, and absorb a dualled route with a potential moderate effect. It is predicted that small population centres could be avoided through route alignment, however a dualled route could have an adverse visual effect on properties. Crossing the railway and river is unavoidable and new infrastructure would be required and this could have a permanent adverse visual effect on the landscape. Screening may be appropriate to provide longer term mitigation, however any new structures would need to be carefully designed to be in-keeping with the local landscape character.

A96 Dualling Programme Tier 2 SEA Option Assessment			
Forres B North			
SEA Topic	**Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)**	**Level of Constraint**	**Risk of Effect**
Summary of key constraints and effects (including synergistic and cumulative effects)	This option skirts Forres, Springfield and Kinloss and as such there is potential for avoidance of these population centres. However there remains the potential for demolition or land take impacts on isolated properties depending on final route alignments which will take account of other environmental constraints within the option. As the historic environment assets in the option are either centred around the Conservation Area of Forres, or widely dispersed throughout the option boundary, there is significant potential for avoidance. Secondary impacts on their setting however, must be carefully considered and there is some potential for significant setting effects on Category A listed buildings. Although the coastal floodplain is avoidable due to its location at the outer edge of the option, almost one third of this option is within the 1:200yr fluvial flood zone, large areas of which span the option breadth in its entirety making it unavoidable, flooding is a key constraint. Since a crossing of the River Findhorn is unavoidable, large areas of its floodplain would be affected as new infrastructure would be required. This would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors, requiring design level mitigation. Whilst there are no national or local landscape features present within the option, any new elevated structures required to cross the River Findhorn, or indeed the railway line which runs through the whole of the option, would have a permanent effect on the character of the landscape which has the potential to be locally significant. The air quality in the option area is generally good and typical of rural areas and there is potential for a positive impact on air quality with movement of A96 strategic traffic further from the centre of Forres onto a northern bypass. In doing so, there is a major risk of significant local impacts from loss of prime agricultural land which covers large areas of the option, with the potential for secondary effects on local land use, e.g. due to farm unit severance or fragmentation. While this option contains Natura sites and SSSIs, as these are all located at the outer edge of the option boundary there is significant avoidance potential and therefore significant impacts are not predicted to be likely. This is also the case for the areas of ancient and native woodland within the option as well as for areas of high carbon soils.		
Mitigation	The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option study area. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation Impacts on soils and particularly loss of prime land will be mitigated through avoidance of the best areas of land where possible and reviewing alignments to minimise fragmentation and severance effects on farm units together with provision of agricultural accommodation works such as vehicle underpasses The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of floodplain protection measures Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping		

A96 Dualling Programme Tier 2 SEA Option Assessment

Forres B South

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Biodiversity	**SPA** - Darnaway and Lethen Forest 0.1% (2.8) **SAC** - Lower Findhorn Woods <0.1% (0.9) **SSSI** - Lower Findhorn Woods (Bio.) <0.1% (0.9) **AWI** - Total cover 17.4% (456.7) semi-natural 0.1% (1.4) plantation 17.3% (455.3) **NWSS** - Total cover 4.4% (114.6) native woodland 4.1% (108.4) nearly-native woodland <0.1% (0.9) open land habitat 0.2% (5.3) **Moray SINS** - Findhorn Valley 9.5% (249.0)	Constraint sensitivity assessment - **High** **• Nationally/ locally important designations and features forming extensive constraints either through the area covered and/ or the number and distribution of sites** **• Natura sites may be present/ adjacent but likely to be small or in discrete locations that could be avoided within the option extent** Key issues will include avoidance of Natura and SSSI sites at the outer edge of the 2km study area which are sensitive features but not extensive area constraints in the option. Substantial areas of AWI (majority LEPO) and SINS to the south of Forres may prove more difficult to avoid, and therefore represent an important constraint and sensitivity to dualling, particularly in the western part of the option.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** Should AWI prove unavoidable, dualling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species. Should the Findhorn Valley SINS prove unavoidable, dualling impacts likely to be mitigated to small scale given the total extent of its coverage. Significant avoidance potential for Natura and SSSI sites as these are located at the outer edge of the 2km wide option boundary and significant impacts are predicted to be unlikely.
Soils & Geodiversity	**Agricultural land classes 1 to 3.1** - Total Cover 23.0% (605.7) Grade 2 Arable Agriculture 6.5% (169.8) Grade 3.1 Arable Agriculture 16.6% (435.9) **Carbon-rich soil classification** - Class 0: 0.2% (5.7) Class 1: 98.7% (2598.0) Class 6: 1.0% (27.2)	Constraint sensitivity assessment - **Medium** **• National / local designations and features present but not extensive in area / number and could be avoided within the option extent** The option is partly covered by prime agricultural land with associated importance for agriculture. An important constraint will therefore be avoidance and minimisation of impacts on prime agricultural land however it would be possible to develop a route which avoids most of this constraint. There are small areas of carbon-rich soils in the option however the extent and spatial distribution of these do not present an extensive constraint to dualling.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** Prime agricultural land is unavoidable due to its extent and distribution (though less than for Forres Option B North). Dualling impacts are predicted to be permanent and potentially significant at the local level. Potential for secondary effects on local land use, e.g. due to farm unit severance or fragmentation. Significant avoidance potential for carbon-rich soils as these are located at the outer edge of the 2km wide option boundary and significant impacts are not predicted to be likely.
Water & Flooding	**1:200 yr fluvial flood extent (surface area)** - 13.1% (345.3) **1:200 yr pluvial flooding (surface area)** - 7.8% (204.2) **Major watercourse crossings (Watercourses shown on 1:50k OS mapping)** - Very likely to cross the River Findhorn and Burn of Mosset (or its tributaries). Also likely to be constrained by crossing Muckle Burn, a tributary of the River Findhorn, and Kinloss Burn tributaries **Possibility of groundwater contributing to flooding (surface area)** - 38.9% (1022.4) **Existing flood defence infrastructure** - Forres (River Findhorn & Pilmuir) Flood Alleviation Scheme Forres (Burn of Mosset) Flood Alleviation Scheme **No. of properties within 1:200yr flood extents** - 29 properties in fluvial floodplain	Constraint sensitivity assessment - **Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** Key constraint will be risk from fluvial flooding both to future dualled A96 route, to the significant number of properties currently in fluvial flood plain and to potential changes in the extent of flood plains as a result of dualling. Other constraint includes watercourse crossings which may be unavoidable due to the number within the option area.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** Some potential for dualling to exacerbate flood risk (to existing and potentially new sensitive receptors) through development of road within areas of the 1:200 flood extent area(s). Likely that significant impacts could be avoided based on small number of properties in fluvial floodplain, relatively limited extent of floodplain and potential to mitigate the road design. Some avoidance potential for areas of fluvial flood zone, however this is unavoidable at the crossing of the River Findhorn which spans the option breadth in its entirety. Some scope for mitigation at watercourse crossings through appropriate design of structure.
Air	**Traffic flow/ demand data (as a proxy for local air quality where available)** - Current (2012) A96 trunk road Annual Average Daily Traffic (AADT) flows range between c11,100 to c13,000. These are forecast to increase to between c20,800 to c22,100 by 2032 with a new dualled route in place Current (2011) levels of key air pollutants (PM10 and NO2) are well within air quality objective levels and predicted to remain so for 2030	Constraint sensitivity assessment - **Low** Air quality in the option area is generally good and typical of rural areas and will be locally influenced by traffic using the existing A96 and busier roads at the edge of Forres.	Risk of effect assessment - **Minor** **• Small changes to the baseline resource which are detectable but the underlying characteristics or quality of the baseline situation would be similar to pre-development conditions** Forecast future year (2032) traffic flows potentially increase risk of air quality effects for sensitive receptors in close proximity to the dualled route but also present opportunity to move traffic further from current population centre in Forres than the existing A96 alignment. Effects would be dependent on detailed alignment and proximity to property.
Population & Human Health	**Towns and principal centres of population** - Forres (part) adjacent to A96 Mains of Burgie **Population** - 820 properties Average Moray household size 2012=2.24 people Therefore population density=0.71 people per Ha **Annual Average Daily Traffic (AADT) by section to nearest 100 vehicles** - 2012 AADT: c11,100 to 13,000 2032 (Forecast) AADT: c20,800 to 22,100 **Core paths/ NMUs** - Sustrans National Cycle Route 1 The Dava Way 13 Core paths 7 Aspirational Core paths	Constraint sensitivity assessment - **Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** Key constraints will be avoidance of impacts on population centres and NMUs. Option sensitivity reflects proximity of option to large settlement of Forres and the constraints from proximity of national and regional trails.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** It is predicted that small population centres which generally lie on the edges of the option could be avoided through route alignment. Potential remains for demolition or land take impacts on other isolated properties depending on final route alignment which will take account of other constraints. Significant avoidance potential for National Cycle Route with runs through the northern part of the option, or potential impacts could be avoided through accommodation works in the road design. Crossing the Dava Way is unavoidable as it spans the breadth of the option; impacts could be avoided through accommodation works in the road design.

A96 Dualling Programme Tier 2 SEA Option Assessment

Forres B South

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Historic Environment	**Scheduled Monuments** (x2) - Dallas Dhu (distillery) ~2,100m SE of A96 Greshop Farm (enclosures 300-400m SW of) ~on A96 **A Listed Buildings (x8)** - Dallas Dhu Distillery ~2,100m SE of A96 Dallas Dhu Distillery, 1 Dallas Dhu Cottages ~2,100m SE of A96 Dallas Dhu Distillery, 2 Dallas Dhu Cottages ~2,100m SE of A96 Dallas Dhu Distillery, 3 Dallas Dhu Cottages ~2,100m SE of A96 Dallas Dhu Distillery, 4 Dallas Dhu Cottages ~2,100m SE of A96 Dallas Dhu Distillery, Bonded Warehouses ~2,100m SE of A96 Blervie ~2,800m S of A96 East Grange ~800m N of A96 **Gardens & Designed Landscapes** - Darnaway Castle 1.2% (30.7) **B Listed Buildings x18** **C Listed Buildings x2** **Moray SMR** - 11x Regionally Significant 128x Standard	Constraint sensitivity assessment - **High** **• Nationally/ locally important designations and features forming extensive constraints either through the area covered and/ or the number and distribution of sites** Key constraint will be avoidance and minimisation of setting impacts on high value scheduled monuments, A listed buildings and GDL. There is a particular pinch point towards the middle of the option area between Dallas Dhu distillery and the southern part of Forres, where there would be limited opportunities for avoidance without subsequent impacts on private properties.. Other constraints will be avoidance and minimisation of setting impacts on a high number of B and C listed buildings and Moray archaeological sites.	Risk of effect assessment - **Major** **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially.** Limited avoidance potential for the complex of high value scheduled monument and A listed buildings at Dallas Dhu Distillery which lie to the southern extent of the option. Similarly, scheduled monument at Greshop Farm lies on the northern edge of the option. There is, however, good avoidance potential for the GDL which lies at the outer edge of the option. The dispersed nature of the remaining high value assets throughout the option offers good avoidance potential, however there could be potential setting impacts which cannot be properly identified at this stage of assessment. Avoidance potential for B and C listed buildings due to their number and dispersal throughout the option. The potential for impacts on the setting of designated assets will also need to be carefully considered. Avoidance potential for Moray archaeological sites, due to number and dispersal, however, analysis of HER has shown that there are a number of areas of cropmarks within the option, which suggests this is an area of archaeological potential which would require further assessment. Given the pinch point around Dallas Dhu, and the potential for impacts on the setting of a large number of designated assets a major risk of effect has been assessed for this option.
Landscape	**Landscape character types** - Mixed Straths Coastal Lowlands of the North East **Long Distance Path** - The Dava Way	Indicative Landscape sensitivity assessment - **Medium** **• Landscapes which by nature of their character would be able to partly accommodate change; comprised of commonplace elements and features creating generally unremarkable character but with some sense of place.** There are no national landscape designations within the option. The character is of open fields with some wooded areas. There are a larger areas of woodland to the south-east of Forres, which could potentially be impacted, however, these wooded areas could also help to conceal a dualled route, thereby potentially reducing the sensitivity of the landscape. The picturesque, historically designated Dallas Dhu Distillery is a key constraint as this is a sensitive feature in the landscape and integral to the character of the area. As the landscape in this area is quite flat is would be sensitive to any new structures required to cross the River Findhorn. Generally the landscape can be maintained, and absorb a dualled route without a significant impact to its quality and character.	Risk of effect assessment – **Moderate** **• Loss of, or alteration to key features of the baseline resource such that post development characteristics or quality would be partially changed** The character is of open fields with some wooded areas, which could generally be maintained, and absorb a dualled route with a moderate effect. It is predicted that small population centres and Dallas Dhu Distillery could be avoided through route alignment, however a dualled route could have an adverse visual effect on properties. Crossing the railway and river is unavoidable and new infrastructure would be required and this could have a permanent adverse visual effect on the landscape. Screening may be appropriate to provide longer term mitigation, however any new structures would need to be carefully designed to be in-keeping with the local landscape character.

A96 Dualling Programme Tier 2 SEA Option Assessment			
Forres B South			
SEA Topic	**Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)**	**Level of Constraint**	**Risk of Effect**
Summary of key constraints and effects (including synergistic effects)	This option skirts Forres and Mains of Burgie, and as such there is potential for avoidance of these population centres. However there remains the potential for demolition or land take impacts on isolated properties depending on final route alignments which will take account of other environmental constraints within the option. The key constraint in this option is the avoidance and minimisation of setting impacts on high value historic environment assets, in particular the complex of scheduled monuments and A listed buildings at Dallas Dhu Distillery. There is limited potential for avoidance of this group of buildings due to their size and location, spanning the southern half of the option. The dispersed nature of the remaining high value cultural heritage assets throughout the option offers good avoidance potential, however potential setting impacts must also be considered. While this option contains Natura sites and SSSIs, as these are all located at the outer edge of the option boundary there is significant avoidance potential and therefore significant impacts are not predicted to be likely. Dualling impacts on ancient woodland however, are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species. This is due to the fact that substantial areas of ancient woodland plantation woodland are difficult to avoid, especially in the western part of the option where the Burn of Mosset floodplain also spans a large area. Crossing the River Findhorn and the Burn of Mosset is unavoidable as both watercourses span the breadth of the option. As large areas of their floodplains would be affected by the requirement of new infrastructure, this would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors. In addition, although there are no national or local landscape features present within the option, any new elevated structures required to cross the River Findhorn, or indeed the railway line which runs through part of the option, would have a permanent effect on the character of the landscape. The air quality in the option area is generally good and typical of rural areas and there is potential for a positive impact on air quality with movement of A96 strategic traffic further from the centre of Forres onto a southern bypass. In doing so, there is a moderate risk of significant effects on prime agricultural land especially where it spans the breadth of the option in the west, with the potential for secondary effects on local land use economy e.g. due to farm unit severance or fragmentation.		
Mitigation	The principle of avoidance should be adopted for the constraints identified. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform route alignment studies and develop project specific mitigation In this option, crossings and other accommodation works for core paths and a national cycle network route will be important in the design to mitigate the effects of crossing these facilities for pedestrians, cyclists and equestrians Whilst loss of habitat such as ancient woodland cannot be fully mitigated and therefore needs to be avoided as far as possible, mitigation of predicted biodiversity effects from loss of native woodland will need to focus on habitat creation including woodland planting using native species typical of the area Future route alignments will be developed to avoid known sites of archaeological importance where practical. For any unavoidable cultural heritage receptors, a suitable strategy will be developed on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping		

A96 Dualling Programme Tier 2 SEA Option Assessment

Elgin B North

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Biodiversity	**Ramsar sites** - Loch Spynie 0.2% (7.5) **SPA** - Loch Spynie 0.2% (7.5) **SSSI** - Total cover 0.4% (16.1) Loch Spynie (Bio.) 0.2% (7.5) Loch Oire (Bio.) 0.2% (8.6) **AWI** - Total cover 12.4% (521.8) plantation 12.4% (521.8) **NWSS** - Total cover 3.2% (136.3) native woodland 2.8% (119.0) nearly-native woodland 0.4% (16.5) open land habitat <0.1% (0.8) **SINS** - Moray SINS: Total 10.8% (456.7) Quarrywood <0.1% (1.4) Spynie 8.0% (338.6) Lhanbryde Lochs 2.8% (116.7)	Constraint sensitivity assessment - **High** **• Nationally/ locally important designations and features forming extensive constraints either through the area covered and/ or the number and distribution of sites** **• Natura sites may be present/ adjacent but likely to be small or in discrete locations that could be avoided within the option extent** Key issues include avoidance of Natura and SSSI sites which are sensitive features but not extensive area constraints in the option. The key sensitivity in this option is associated with avoidance and minimisation of impacts on AWI, all of which is plantation, and although not extensive in cover, crosses the breadth of the option area at the eastern extent. Other constraints include the avoidance and minimisation of impacts on SINS which, in one area, covers the breadth of the option.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** There is significant avoidance potential for Loch Spynie Ramsar, SPA and SSSI as their outer edge is situated on the northern edge of the option and significant impacts are not predicted. Similarly, there is good avoidance potential for Loch Oire SSSI at the eastern extent of the option due to its size and location. There are numerous pockets of AWI woodland which, due to their size and dispersion, are avoidable along most of the option. However, there is a large area of unavoidable AWI at the eastern extent of the option. Here, dualling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species. Spynie, a Moray SINS, spans the breadth of the middle of the option and is unavoidable. Here, dualling impacts are predicted to be permanent and potentially significant at the local level.
Soils & Geodiversity	**SSSI** - Spynie Quarry and Findrassie (Geo.) 0.2% (8.1) **GCR** - Spynie Quarry and Findrassie 0.4% (18.1) **Agricultural land classes 1 to 3.1** - Total Cover 43.6% (1838.6) Grade 2 Arable Agriculture 16.6% (699.4) Grade 3.1 Arable Agriculture 27% (1139.2) **Carbon-rich soil classification** - Class 0: 0.2% (8.1) Class 1: 99.8% (4214.4)	Constraint sensitivity assessment - **High** **• Nationally/ locally important designations and features forming extensive constraints either through the area covered and/ or the number and distribution of sites** The option is extensively covered by prime agricultural land with associated importance for agriculture. A key constraint will therefore be avoidance and minimisation of impacts on prime agricultural land. The option is partly covered by SSSI and GCR and whilst these are important designations they are not extensive and do not represent a significant constraint to dualling There are small areas of carbon-rich soils in the option however the extent and distribution of these do not present an extensive constraint to dualling.	Risk of effect assessment - **Major** **• Likely to directly affect an environmental designation, resource/ feature or other receptors, e.g. through spatial loss or a direct effect on critical aspects of the resource's functions** Prime agricultural land is unavoidable due to its extent and distribution. Dualling impacts are predicted to be permanent and potentially significant at the local level. Potential for secondary effects on local land use, for e.g. due to farm unit severance or fragmentation. Significant avoidance potential for SSSI and GCR sites as these are located at the outer edge of the 2km wide option boundary and significant impacts are not predicted. Carbon-rich soils are mainly categorised as class 1 in the option which does not indicate presence of high carbon-rich soils other than a small area of peat soils at the extreme west end of the option. Significant impacts are not predicted to be likely.

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Elgin B North

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Water & Flooding	**1:200 yr fluvial flood extent (surface area)** - 18.8% (794.2) **1:200 yr coastal flood extent (surface area)** - 10.1% (427.7) **1:200 yr pluvial flooding (surface area)** - 7.6% (320.3) **Major watercourse crossings (Watercourses shown on 1:50k OS mapping)** - Very likely requires new crossings of the River Lossie downstream of the existing A96 crossing with larger river flows. **Possibility of groundwater contributing to flooding (surface area)** 54.3% (2291.3) **Existing flood defence infrastructure** - Elgin Flood Alleviation Scheme Elgin Waterside Street Flood Protection Scheme Tyock Burn Flood Prevention Scheme Lhanbryde Flood Alleviation Scheme **No. of properties within 1:200yr flood extents** - 54 properties in fluvial floodplain 17 properties in coastal floodplain 17 properties in coast and fluvial floodplain	Constraint sensitivity assessment - **High** **• Features with limited capacity to accommodate change or which are already subject to pressures and degradation** Flood risk zones are likely to be the key positional constraint to dualling alignment options within the option. A key constraint will be risk from fluvial flooding both to future dualled A96 route and to properties currently in fluvial flood plain. Other key constraints include crossing the River Lossie, which may unavoidable as it crosses the option, as well as risks associated with coastal flooding at its northern extent. Sensitive properties and other receptors in areas near current floodplains could be at risk from changes to floodplain extents as a result of dualling and become a constraint.	Risk of effect assessment - **Major** **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially** Almost a fifth of the option area is within the 1:200yr fluvial flood zone, large areas of which are associated with crossing the River Lossie, which spans the option breadth in its entirety, making it unavoidable. Some avoidance potential for coastal flood zone as this is located to the north of the option boundary, although it does span over half of the breadth of the option at some locations. The coastal flood zone also overlaps with the fluvial flood zone and it is likely that dualling would avoid these areas. There is potential for significant permanent impacts on all flooding through exacerbation of flood risk (to existing and potentially new sensitive receptors) through dualling. This would affect large areas of the River Lossie floodplain since a new crossing would be needed and development within flood risk areas has the potential to result in significant impacts, for e.g through loss of capacity.
Air	**Traffic flow/ demand data (as a proxy for local air quality where available)** - Current (2012) A96 trunk road Annual Average Daily Traffic (AADT) flows are c13,000 to 15,000. These are forecast to increase to c12,800 to 23,500by 2032 with a new dualled route in place. Current (2011) levels of key air pollutants (PM10 and NO2) are well within air quality objective levels and predicted to remain so for 2030.	Constraint sensitivity assessment - **Low** Air quality in the option area is generally good and typical of rural areas and will be locally influenced by traffic using the existing A96 and busier roads at the edge of Elgin.	Risk of effect assessment - **Minor** **• Small changes to the baseline resource which are detectable but the underlying characteristics or quality of the baseline situation would be similar to pre-development conditions** Forecast future year (2032) traffic flows potentially increase risk of air quality effects for sensitive receptors in close proximity to the dualled route but also present opportunity to move traffic further from current population centre in Elgin than the existing A96 alignment. Effects (beneficial and adverse) would be dependent on detailed alignment and proximity to property.
Population & Human Health	**Towns and principal centres of population** - Urquhart adjacent to A96 Lhanbryde adjacent to A96 Alves adjacent to A96 Elgin adjacent to A96 **Population** - 1104 properties Average Moray household size 2012=2.24 people Therefore population density=0.59 people per Ha **Annual Average Daily Traffic (AADT) by section to nearest 100 vehicles** - 2012 AADT: c13,000 to 15,000 2032 (Forecast) AADT: c12,800 to 23,500 **Core paths/ NMUs** - Sustrans National Cycle Route 1 Local Cycle Route 13 Core Paths 8 Aspirational Core Paths	Constraint sensitivity assessment - **Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** Key constraints will be avoidance of impacts on population centres and NMUs. option sensitivity reflects proximity of option to large settlement of Elgin and the constraints from proximity of national and regional trails.	Risk of effect assessment - **Major** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** It is predicted that small population centres, which are dispersed throughout the option, could be generally avoided through route alignment. Potential remains for demolition or land take impacts on some isolated properties depending on final route alignment which will take account of other constraints. Crossing the National Cycle Route (and some other core paths) is unavoidable as it spans the breadth of the option; impacts could be avoided through accommodation works in the road design.

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Elgin B North

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Historic Environment	**Scheduled Monuments** (x1) - Spynie Palace - 3,200m N of A96 **A Listed Buildings** (x3) - Pittensair - 290m S of A96 Lhanbryde Burial Ground (Innes Enclosure) - 205m N of A96 Longhill Mill - 1,400m N of A96 **B Listed Buildings x26** **C Listed Buildings x6** **Moray SMR** - 14x Regionally Significant 193x Standard	Constraint sensitivity assessment - **High** **• Nationally/ local important designations and features forming extensive constraints either through area covered and/ or number and distribution of sites** Key constraint will be avoidance and minimisation of impacts on a large number of B Listed Buildings that are evenly dispersed across the option area, with few options for avoidance. Other constraints will be avoidance and minimisation of impacts on a high number of B and C listed buildings, and direct impacts on Moray archaeological sites. Given their relatively dispersed nature, there are ample opportunities for avoidance. Further assessment will need to concentrate on Moray archaeological sites to identify their value, nature and extent.	Risk of effect assessment - **Moderate** **• Typically medium to long term effects which are unlikely to be avoidable, but will generally reduce over time and/ or can be substantially mitigated** Significant avoidance potential for high value scheduled monuments and A listed buildings, due to their number and dispersal throughout the option. Consideration needs to be given to the potential impacts on setting, which cannot be properly determined at this stage of assessment. Avoidance potential for Moray archaeological sites, due to number and dispersal, however, analysis of HER has shown that there are a number of areas of cropmarks which suggests this is an area of archaeological potential which would require further assessment at a later stage.
Landscape	**Landscape character types** - Inland Loch Lowland Cities, Towns and Settlements Lowland Coastal Landscapes of the North East	Indicative Landscape sensitivity assessment - **Low/ Medium** **• Landscapes which by nature of their character would be able to partly accommodate change; comprised of commonplace elements and features creating generally unremarkable character but with some sense of place.** There are no national landscape designations within the option. The character of the option is of open fields with some woodland areas and this landscape could generally be maintained and absorb a dualled route without a significant effect on its quality and character. The villages of Alves, Newton, Llanbryde, and the edge of Urquhart are located within the option, as well as some individual properties scattered throughout. The landscape in this area is quite flat it would be sensitive to any new elevated structures required to cross the River Lossie. Loch Oire is located at the eastern extent of the option and could be a major constraint to dualling.	Risk of effect assessment - **Moderate** **• Loss of, or alteration to key features of the baseline resource such that post development characteristics or quality would be partially changed** It is predicted that small population centres could be avoided through route alignment, however a dualled route could have an adverse visual effect on the properties. Crossing the River Lossie is unavoidable and a new structure could have a permanent adverse visual effect on the landscape. Any new infrastructure would need to be designed sensitively and where necessary, and appropriate, screening can be incorporated, to protect views. Although it is predicted that Loch Oire could be avoided through route alignment, visual effects would have to be minimised through sensitive design. The character of the area is of open fields with some wooded areas, which could generally be maintained, and absorb a dualled route with a potential moderate effect.

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Elgin B North

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Summary of key constraints and effects (including synergistic effects)	This option skirts the town of Elgin and although the population centres of Urquhart, Lhanbryde and Alves are included within its boundary, it is predicted that, as they are dispersed throughout the option, they could generally be avoided through route alignment. There remains however, the potential for demolition or land take impacts on isolated properties depending on final route alignments which will take account of other environmental constraints within the option. There are several concentrations of non-motorised user routes in this option including a requirement to cross a national cycle route (potentially in two locations). As the historic environment assets in the option are either centred around population centres, or widely dispersed throughout the option boundary, there is significant potential for avoidance. Potential impacts on their setting however, must be carefully considered. Although there is some potential for avoidance of coastal floodplain due to its location to the north of the option, as almost one fifth of this option is within the 1:200yr fluvial flood zone, flooding is a key constraint. Large areas of the River Lossie fluvial floodplain are unavoidable as they span the option breadth and, since a crossing of the River Lossie is also unavoidable, large areas of its floodplain would be affected with the new infrastructure required. This would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors, as a result of dualling. In addition, although no national or local landscape features are present within the option, any new elevated structures required to cross the River Lossie, would have a permanent effect on the character of the landscape which has the potential to be locally significant. The air quality in the option area is generally good and typical of rural areas and there is potential for a positive impact on air quality with movement of stratgeic A96 traffic further from the centre of Elgin on a northern bypass. In doing so, there is a major risk of significant local impacts on prime agricultural land which covers almost half the option area, with the potential for secondary effects on local land use economy e.g. due to farm unit severance or fragmentation. While this option contains Natura sites, SSSIs, and a Geological Conservation Review site, as these are primarily located at the outer edge of the option boundary there is significant avoidance potential and therefore significant impacts are not predicted to be likely. Loch Oire SSSI however, is located in the centre of the eastern extent of the option, and avoidance of this may lead to dualling impacts on ancient woodland. The extent and distribution of this woodland means that in some places it is difficult to avoid, and impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species.		
Mitigation	The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option boundary. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation In this option, crossings and other accommodation works for core paths and a national cycle network route will be important in the design to mitigate the effects of crossing these facilities for pedestrians, cyclists and equestrians Impacts on soils and particularly loss of prime land will be mitigated through avoidance of the best areas of land where possible and reviewing alignments to minimise fragmentation and severance effects on farm units together with provision of agricultural accommodation works such as vehicle underpasses The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of flood protection measures Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping Whilst loss of habitat such as ancient woodland cannot be fully mitigated and therefore needs to be avoided as far as possible, mitigation of predicted biodiversity effects from loss of native woodland will need to focus on habitat creation including woodland planting using native species typical of the area		

A96 Dualling Programme Tier 2 SEA Option Assessment

Elgin B South

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Biodiversity	**SSSI** - Loch Oire (Bio.) 0.2% (8.6) **AWI** - Total cover 12.0% (454.0) plantation 12.0% (454.0) **NWSS** - Total cover 4.0% (150.8) native woodland 3.8% (143.4) nearly-native woodland 0.2% (7.4) **Moray SINS** - Lhanbryde Lochs 4.8% (183.6)	Constraint sensitivity assessment - **High** **• Nationally/ locally important designations and features forming extensive constraints either through the area covered and/ or the number and distribution of sites** No Natura or NNR sites within the option and although key issues include avoidance and minimisation of impacts on the SSSI which is a sensitive feature, it is not an extensive area constraint in the option. The key sensitivity in this option is associated with avoidance and minimisation of impacts on AWI and NWSS woodland which, although not extensive in cover, cross the breadth of the option area in several locations. Other constraints will include avoidance and minimisation of impacts on SINS to the eastern extent of the option.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** There is significant avoidance potential for Loch Oire SSSI at the eastern extent of the option due to its size and location and significant impacts are not predicted. There are numerous pockets of AWI woodland which, due to their size and dispersion, are avoidable along most of the option. However, there is a large area of unavoidable AWI at the eastern extent of the option. Here, dualling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species. Similarly, the distribution of NWSS sites are avoidable apart from a strip which follows the River Lossie and spans the breadth of the middle of the option. The Moray SINS of Lhanbryde Lochs covers a large area in the middle of the eastern extent of the option, and should this prove unavoidable, dualling impacts are predicted to be permanent and potentially significant at the local level.
Soils & Geodiversity	**Agricultural land classes 1 to 3.1** - Total Cover 18.3% (694.9) Grade 2 Arable Agriculture 2% (75) Grade 3.1 Arable Agriculture 16.3% (619.9) **Carbon-rich soil classification** - Class 0: 0.8% (31.2) Class 1: 99.1% (3755.9)	**Constraint sensitivity assessment - Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** The option is partly covered by prime agricultural land and a constraint will be avoidance and minimisation of impacts on the better quality land. There is relatively little constraint from carbon-rich soils and there are no designated geological sites in the option.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** Some avoidance potential for prime agricultural land as the constraint does not cross the option breadth in its entirety. Despite limited extent of prime land the option area is important for agriculture and the risk of effect has therefore been assessed as medium. Should agricultural land prove unavoidable, dualling impacts are predicted to be permanent and with potential to be significant at the local level. Carbon-rich soils is mainly categorised as class 1 in the option which does not indicate presence of high carbon-rich soil. Significant impacts are not predicted to be likely.

A96 Dualling Programme Tier 2 SEA Option Assessment

Elgin B South

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Water & Flooding	**1:200 yr fluvial flood extent (surface area)** - 11.3% (429.6) **1:200 yr pluvial flooding (surface area)** - 7.7% (290.8) **Major watercourse crossings (Watercourses shown on 1:50k OS mapping)** - Very likely to be constrained by multiple tributaries of the River Lossie. **Possibility of groundwater contributing to flooding (surface area)** - 47.8% (1811.8) **Existing flood defence infrastructure** - Elgin Flood Alleviation Scheme Elgin Waterside Street Flood Protection Scheme Tyock Burn Flood Prevention Scheme Lhanbryde Flood Alleviation Scheme **No. of properties within 1:200yr flood extents** - 43 properties in fluvial floodplain	Constraint sensitivity assessment - **High** **• Features with limited capacity to accommodate change or which are already subject to pressures and degradation** Watercrosings are likely to be the key positional constraint to dualling alignment options within the option. A key constraint will be crossing the River Lossie and a number of its tributaries, which will be unavoidable as they cross the breadth of the option at numerous locations. The other key constraint will be risk from fluvial flooding both to future dualled A96 route and to properties currently in fluvial flood plain. Sensitive properties and other receptors in areas near current floodplain could be at risk from changes to floodplain extents as a result of dualling and become a constraint.	Risk of effect assessment - **Major** **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially** There are multiple tributaries of the River Lossie which cross the breadth of the option area. To the west of the option, crossing the River Lossie itself and its larger tributaries, the Black Burn and Monaughty Burn/ Canal, is unavoidable. To the east of the option, crossing the smaller tributaries of Lhanbryde Burn and the Burn of Linkwood is also unavoidable due to their location and extent. Potential for significant permanent impacts on flooding through exacerbation of flood risk (to existing and potentially new sensitive receptors) through dualling. This would affect the floodplains of the River Lossie and its tributaries since crossings are needed, and development within flood risk areas has the potential to result in significant impacts, for e.g .through loss of capacity.
Air	**Traffic flow/ demand data (as a proxy for local air quality where available)** - Current (2012) A96 trunk road Annual Average Daily Traffic (AADT) flows range between c13,000 to c15,000. These are forecast to increase to between c22,100 to c23,500 by 2032 with a new dualled route in place. Current (2011) levels of key air pollutants (PM10 and NO2) are well within air quality objective levels and predicted to remain so for 2030.	Constraint sensitivity assessment - **Low** Air quality in the option area is generally good and typical of rural areas and will be locally influenced by traffic using the existing A96 and busier roads at the edge of Elgin.	Risk of effect assessment - **Minor** **• Small changes to the baseline resource which are detectable but the underlying characteristics or quality of the baseline situation would be similar to pre-development conditions** Forecast future year (2032) traffic flows potentially increase risk of air quality effects for sensitive receptors in close proximity to the dualled route but also present opportunity to move traffic further from current population centre in Elgin than the existing A96 alignment. Effects (beneficial and adverse) would be dependent on detailed alignment and proximity to property.
Population & Human Health	**Towns and principal centres of population** - Lhanbryde adjacent to A96 Alves adjacent to A96 **Population** - 589 properties Average Moray household size 2012=2.24 people Therefore population density=0.35 people per Ha **Annual Average Daily Traffic (AADT) by section to nearest 100 vehicles** - 2013 AADT: c13,000 to 15,000 2032 (Forecast) AADT: c22,100 to 23,500 **Core paths/ NMUs** - Local Cycle Route 6 Core Paths 5 Aspirational Core Paths	Constraint sensitivity assessment - **Low** **• Land uses and general character of the area are of limited sensitivity, or high tolerance to change** Key constraints will be avoidance of impacts on population centres and core paths. Option sensitivity reflects the low number of properties and population density.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** It is predicted that small population centres, which are dispersed throughout the option, could be generally avoided through route alignment. Potential remains for demolition or land take impacts on some isolated properties depending on final route alignment which will take account of other constraints. Crossing a number of core paths is unavoidable as they span the breadth of the option to the south of Elgin; impacts could be avoided through accommodation works in the road design.

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SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Historic Environment	**Scheduled Monuments** (x3) - Birnie Parish Kirk, (old graveyard and symbol stone) - 3,900m S of A96 Coxton Tower - 640m S of A96 Bogton (stone circle 250m NW of) - 210m S of A96 **A Listed Buildings** (x8) - Birnie Parish Church (Burial Ground) - 3,900m S of A96 Birnie Parish Church - 3,900m S of A96 Birnie Churchyard (Pictish Symbol Stone) - 3,900m S of A96 Birnie Parish Church (Burial Ground Extension) - 3,900m S of A96 Birnie Parish Church (Gatepiers) - 3,900m S of A96 Pittensair - 290m S of A96 Coxton Tower - 640m S of A96 Pittendreich Dovecot - 1,600m S of A96 **B Listed Buildings x4** **C Listed Buildings x4** **Moray SMR** - 12x Regionally Significant 151x Standard	Constraint sensitivity assessment - **Medium** **• National/ local designations and features present but not extensive in area/ number and could be avoided within the option extent** Key constraint will be avoidance and minimisation of setting impacts on high value scheduled monuments and A listed buildings. Other constraints will be avoidance and minimisation of impacts on Moray archaeological sites. Further assessment will need to concentrate on Moray archaeological sites to identify their value, nature and extent.	Risk of effect assessment - **Minor** **• Potential to result in temporary (short term) but small in scale and/ or reversible changes which are either likely to be avoidable or can be substantially mitigated** Significant avoidance potential for high value scheduled monuments and A listed buildings, due to their number and dispersal throughout the option. Avoidance potential for Moray archaeological sites, due to number and dispersal, however, analysis of HER has shown that there are a number of areas of cropmarks and a former WWII airfield within the option which suggests this is an area of archaeological potential which would require further assessment at a later stage. Given the avoidance opportunities and a small number of dispersed designated assets, a low risk of effect has been identified for this option.
Landscape	**Landscape character types** - Inland Loch Lowland Coastal Landscapes of the North East	Indicative Landscape sensitivity assessment - **Medium** **• Landscapes which by nature of their character would be able to partly accommodate change; comprised of commonplace elements and features creating generally unremarkable character but with some sense of place.** There are no national landscape designations within the option. The character of the area is open fields with some woodland areas, which could generally be maintained. The landscape can absorb the inclusion of a dualled route without having a significant effect on its character and quality. Directly south of Elgin, woodland crosses most of the option which could be challenging to avoid. Landscape in the option is generally flat would be sensitive to any new structures required to cross the railway and River Findhorn. The sensitive setting of the distilleries is a key constraint within this option. Loch Oire and Loch na Bo are identified as constraints within this option. The railway line at the east and west extents of the option is a constraint.	Risk of effect assessment – **Moderate** **• Loss of, or alteration to key features of the baseline resource such that post development characteristics or quality would be partially changed** It is predicted that small population centres could be avoided through route alignment, however a dualled route could have an adverse visual effect on the properties. Crossing the railway and river is unavoidable and new infrastructure would be required and this could have a permanent adverse effect on the landscape. Screening may be appropriate to provide longer term mitigation, however any new structures would need to be carefully designed to be in-keeping with the local landscape character. Although it is predicted that Loch Oire and Loch na Bo could be avoided through route alignment, visual effects would have to be minimised through sensitive design. The character of the area is of open fields with some wooded areas, which could generally be maintained, and absorb a dualled route with a potential moderate effect.
Summary of key constraints and effects (including synergistic effects)	This option skirts the southern side of the town of Elgin and although the population centres of Lhanbryde and Alves are included within its boundary, it is predicted that, as they are dispersed throughout the option, they could generally be avoided through route alignment. There remains however, the potential for demolition or land take impacts on isolated properties depending on final route alignments which will take account of other environmental constraints within the option. A group of core paths to the south of Elgin would need to be carefully accommodated to avoid significant effects on non-motorised users. Watercrosings are the key positional constraint to dualling alignments within this option, as the River Lossie and some of its tributaries cross the breadth of the option area and are therefore unavoidable. Consequently, the floodplains of these waterbodies are also unavoidable, and development within them would create the potential for significant permanent effects on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors. In addition, although no national or local landscape features are present within the option, any new elevated structures required to cross River Lossie, other watercourses or the railway line which runs through part of the option, would have a permanent effect on the character of the landscape with potentially to be locally significant. The air quality in the option area is generally good and typical of rural areas and there is potential for a positive impact on air quality with movement of strategic A96 traffic further from the centre of Elgin on a southern bypass. In doing so, there is some risk of significant local impacts on prime agricultural land where it spans the breadth of the option, with the potential for secondary effects on local land use economy e.g. due to farm unit severance or fragmentation. This option contains Loch Oire SSSI, although there is significant potential for avoidance due to its size and location. Woodland is more difficult to avoid as large areas of ancient woodland cover either end of the option and a strip of native woodland spans the breadth of the option at its centre. As a result, dulling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species. There is significant potential for avoidance of the historic environment assets in the option due to their number and dispersal, and the risk of significant effects on these sites and their setting is low.		

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

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Option N: Approximately 37km long and 7450Ha in area.

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Biodiversity	**SPA** - Darnaway and Lethen Forest 0.4% (29.2) **SAC** - Total cover 0.8% (61.8) Lower Findhorn Woods 0.2% (11.6) River Spey 0.7% (50.2) **SSSI** - Total cover 1.1% (82.2) Lower Findhorn Woods (Bio.) 0.2% (11.3) Buinach and Glenlatterach (Bio.) 0.2% (14.4) Coleburn Pasture (Bio.) 0.1% (6.1) River Spey (Bio.) 0.7% (50.3) **AWI** - Total cover 24.8% (1848.8) plantation 24.7% (1837.6) semi-natural 0.2% (11.2) **NWSS** - Total cover 6.0% (444.8) native woodland 4.7% (352.4) nearly-native woodland 0.1% (7.3) open land habitat 1.1% (82.1) PAWS <0.1% (3.0) **Moray SINS** - Total cover 16.1% (1203.1) Findhorn Valley 9.2% (682.7) Scaat Craig 0.3% (19.2) Spey, Garmouth- Boat O' Brig 2.6% (192.9) Brown Muir/ Teindland 4.8% (308.2)	Constraint sensitivity assessment - **High** **• Nationally/ locally important designations and features forming extensive constraints either through the area covered and/ or the number and distribution of sites** **• Natura sites may be present/ adjacent but likely to be small or in discrete locations that could be avoided within the option extent** Key issues will include avoidance and minimisation of impacts on Natura and SSSI sites throughout the option. The Natura and SSSI sites in the western and central parts of the option are avoidable due to their location at the outer edges of the option boundary and although they are sensitive features, they are not extensive area constraints in the option. At the eastern end of the option however, the River Spey SAC and SSSI cross the breadth of the option and are unavoidable. Substantial areas of AWI and NWSS woodland cross the breadth of the option in several locations, proving unavoidable and representing an important constraint and sensitivity to dualling in this option. In particular, at the eastern and western extents of the option, plantation AWI woodland are extensive area constraints, while a strip of NWSS woodland spans the entire breadth of the option where it follows the River Lossie in the centre of the option. Similarly, Moray SINS are unavoidable as they span the breadth of the option area at both the eastern and western extents and cover over half of the option breadth at its centre.	Risk of effect assessment - **Moderate/ Major** **• Likely to directly affect an environmental designation, resource/ feature or other receptors, e.g. through spatial loss or a direct effect on critical aspects of the resource's functions** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** Due to its distribution particularly in the western and eastern parts of the option, AWI woodland is unavoidable in places and dualling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species. Findhorn Valley SINS in the west is also unavoidable, however, dualling impacts likely to be mitigated to small scale given the total extent of its coverage. Scaat Craig SINS in the central part of the option may prove difficult to avoid due to its size and location. Moderate avoidance potential for Natura and SSSI sites at the western end of the option although significant effects are possible if a dualling alignment followed the southern part of the option in this area. The SAC, SSSI and SINS associated with the River Spey are unavoidable as they cross the entire breadth of the option at the eastern end near Fochabers. With mitigation applied, the HRA has identified that potential impacts can be avoided or reduced such that no adverse effects on site integrity would be predicted.
Soils & Geodiversity	**SSSI** - Total cover 0.1% (4.2) Scaat Craig <0.1% (1.6) Teindland Quarry <0.1% (2.6) **GCR** - Total cover <0.1% (3.4) Teindland Quarry (Geo.) <0.1% (1.6) Scaat Craig (Geo.) <0.1% (1.7) **Agricultural Land Classes 1 to 3.1** - Total Cover 4.2% (316.1) Grade 2 Arable Agriculture 1.8% (134.4) Grade 3.1 Arable Agriculture 2.4% (181.6) **Carbon-rich soil classification** - Class 0: 0.2% (17.5) Class 1: 90.0% (6702.3) Class 3: 4.0% (299.3) Class 4: 5.7% (427.1)	Constraint sensitivity assessment - **Low** **• Nationally/ locally designated sites may be present but do not form an extensive constraint, and could be avoided within the option area** The option includes small SSSI and GCR sites at the western end and whilst these are important designations they do not represent a significant constraint to dualling. The option is not extensively covered by prime agricultural land although agriculture remains important and a constraint will be avoidance and minimisation of impacts on the better quality land. Other constraints will include avoidance and minimisation of impacts on carbon-rich soils (classes 3 and 4 especially) which are distributed over small areas of the option, but are primarily concentrated in the south. The extent and distribution of these sites does not represent a significant constraint to road dualling.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** Significant avoidance potential for SSSI and GCR sites due to their size and location; significant impacts are not predicted. Some avoidance potential for prime agricultural land although this constraint does cross almost the whole of the option breadth where it follows the River Spey in the east near Fochabers. Should prime agricultural land prove unavoidable, dualling impacts are predicted to be permanent and with potential to be significant at the local level. Despite the limited extent of prime land within the option, it is important for agriculture and the risk of effect has therefore been assessed as moderate. Significant avoidance potential for carbon-rich soils class 1 and 3, as these are located at the outer edge of the option boundary and significant impacts are not predicted to be likely. Some avoidance through design potential for class 4 carbon-rich as the constraint does not cross the option breadth in its entirety, although it is heavily constrained.

A96 Dualling Programme Tier 2 SEA Option Assessment

Option N: Approximately 37km long and 7450Ha in area.

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Water & Flooding	**1:200 yr fluvial flood extent (surface area)** - 6.3% (473) **1:200 yr pluvial flooding (surface area)** - 3.4% (251.1) **Major watercourse crossings (Watercourses shown on 1:50k OS mapping)** - River Findhorn Muckle Burn, a tributary of the River Findhorn Burn of Mosset (or its tributaries) River Lossie Glen Burn, a tributary of the River Lossie River Spey **Possibility of groundwater contributing to flooding (surface area)** - 42.8% (3186.9) **Existing flood defence infrastructure** - Forres (River Findhorn & Pilmuir) Flood Alleviation Scheme Forres (Burn of Mosset) Flood Alleviation Scheme Elgin Flood Alleviation Scheme Elgin Waterside Street Flood Protection Scheme Tyock Burn Flood Prevention Scheme Lhanbryde Flood Alleviation Scheme **SFRA - No. of properties within 1:200yr flood extents** - 47 properties in fluvial floodplain	Constraint sensitivity assessment - **High** **• Features with limited capacity to accommodate change or which are already subject to pressures and degradation** The River Spey crossing and flood risk zones in the east, are likely to be the key positional constraints to dualling alignment within the option; these span the option breadth and are therefore unavoidable. Similarly, crossing the River Findhorn and Burn of Mosset in the west of the option, and the River Lossie and Glen Burn in the centre of the option, is also unavoidable. The flood risk zones associated with these water crossings are also unavoidable as they cross the breadth of the option entirely. A key constraint therefore, will be risk from fluvial flooding to future dualled A96 route, to the significant number of properties currently in fluvial flood plain and to potential changes in the extent of flood plains as a result of dualling. Sensitive properties and other receptors in areas near current floodplain could be at risk from changes to floodplain extents as a result of dualling and become a constraint.	Risk of effect assessment - **Major** **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially** Crossing the River Spey, as well as the Rivers Findhorn and Lossie and some of their tributaries, is unavoidable in this option. There is potential for significant permanent impacts on flooding through exacerbation of fluvial flood risk (to existing and potentially new sensitive receptors) through dualling. This would affect the floodplains of all unavoidable watercourses, since crossings are needed and development in within flood risk areas has the potential to result in significant impacts, for e.g. through loss of capacity. There is some scope for mitigation at watercourse crossings through appropriate design of structure.
Air	**Traffic flow/ demand data (as a proxy for local air quality where available)** - To the west, current (2012) A96 trunk road Annual Average Daily Traffic (AADT) flows range between c11,100 to c13,000. These are forecast to increase to between c20,800 to c22,100 by 2032 with a new dualled route in place To the east, current (2012) AADT flows vary between c15,000 (west of Fochabers) to c6,400 (east of Fochabers). These are forecast to increase to c23,500 (west of Fochabers) to c14,000 (east of Fochabers) by 2032 with a new dualled route in place Current (2011) levels of key air pollutants (PM^{10} and NO_2) are well within air quality objective levels and predicted to remain so for 2030	Constraint sensitivity assessment - **Low** Air quality in the option area is generally good and typical of rural areas. This will be locally influenced by busier roads at the edge of Forres to the west and Fochabers to the east, as well as the A941 in the centre of the option.	Risk of effect assessment - **Minor** **• Small changes to the baseline resource which are detectable but the underlying characteristics or quality of the baseline situation would be similar to pre-development conditions** Forecast future year (2032) traffic flows potentially increase risk of air quality effects for sensitive receptors in close proximity to the dualled route, but also present opportunity to move traffic further from current population centres in Forres and Fochabers than the existing A96 alignment. Effects (beneficial and adverse) would be dependent on detailed alignment and proximity to property but at this level are not predicted to result in significantly different air quality effects from those currently experienced.
Population & Human Health	**Towns and principal centres of population** - Rafford Tulloch Califer Pluscarden ~5km S of A96 Obliston south of A96 Ordiquish south of A96 **Population** - 474 properties Average Moray household size 2012=2.24 people Therefore population density=0.14 people per Ha **Annual Average Daily Traffic (AADT) by section to nearest 100 vehicles** - 2012 AADT: c6,400 to 15,000 2032 (Forecast) AADT: c14,000 to 23,500 **Core paths/ NMUs -** The Dava Way Speyside Way 11 Core Paths 3 Aspirational Core Paths	Constraint sensitivity assessment - **Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** Key constraints will be avoidance of impacts on population centres and NMUs. The option sensitivity reflects its proximity to the large settlement of Forres in the west, and the constraints from proximity of national and regional trails throughout.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** It is predicted that small population centres, which are dispersed throughout the option, could be generally avoided through route alignment. Potential remains for demolition or land take impacts on some isolated properties depending on final route alignment which will take account of other constraints. Crossing the long distance paths the Dava Way and Speyside Way, as well as local core paths, is unavoidable as they span the breadth of the option, but impacts could be avoided through accommodation works in the road design.

A96 Dualling Programme Tier 2 SEA Option Assessment

Option N: Approximately 37km long and 7450Ha in area.

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Historic Environment	**Scheduled Monuments (x4) -** **Altyre (old parish church) ~3,500m SE of A96** **Altyre House (inscribed stone) ~3,600m SE of A96** **Dallas Dhu (distillery) ~2,100m SE of A96** **Templestone (stone circle, Rafford) ~3,000m S of A96** **A Listed Buildings (x11) -** **Altyre, Blairs Home Farm, Pond Cottage ~3,300m SE of A96** **Altyre, Blairs Home Farm, Tower Cottage ~3,300m SE of A96** **Altyre, Blairs Home Farm, Hall ~3,300m SE of A96** **Altyre, Blairs Home Farm ~3,300m SE of A96** **Altyre, Old Parish Church and Burial Ground ~3,500m SE of A96** **Dallas Dhu Distillery, 1 Dallas Dhu Cottages ~2,100m SE of A96** **Dallas Dhu Distillery, 2 Dallas Dhu Cottages ~2,100m SE of A96** **Dallas Dhu Distillery, 3 Dallas Dhu Cottages ~2,100m SE of A96** **Dallas Dhu Distillery, 4 Dallas Dhu Cottages ~2,100m SE of A96** **Dallas Dhu Distillery, Bonded Warehouses ~2,100m SE of A96** **Dallas Dhu Distillery ~2,100m SE of A96** **Gardens & Designed Landscapes -** **Darnaway Castle 0.8% (63.3)** **B Listed Buildings x16** **C Listed Buildings x10** **Moray SMR -** **15x Regionally Significant** **221x Standard**	Constraint sensitivity assessment - **Medium** **• National/ local designations and features present but not extensive in area/ number and could be avoided within the option extent** The key constraint in this option will be at its western extent, where avoidance and minimisation of setting impacts on the high value scheduled monuments and A listed buildings associated with Dallas Dhu distillery, and the undesignated designed landscape associated, and contemporary, with Westerton House may be difficult to avoid. Other constraints will be avoidance and minimisation of setting impacts on a large number of B and C listed buildings throughout the option. Furthermore, the avoidance and minimisation of impacts on Moray archaeological sites, of which there are 15 regionally significant and 221 standard, may constrain the option, although further assessment will be required to identify their value, nature and extent.	Risk of effect assessment - **Moderate** **• Typically medium to long term effects which are unlikely to be avoidable, but will generally reduce over time and/ or can be substantially mitigated** There is some avoidance potential for the assets associated with Dallas Dhu distillery as they span half of the breadth of the option to the west, however Westerton House undesignated designed landscape spans the option extent and may be unavoidable, introducing potential constraints associated with impacts on the setting of this asset. The dispersed nature of the remaining high value assets throughout the option offers good avoidance potential. Similarly, there is avoidance potential for B and C listed buildings due to their number and dispersal throughout the option, however the potential for impacts on the setting of designated assets will also need to be considered. There is avoidance potential for Moray archaeological sites due to number and dispersal, however, analysis of HER has shown that there are a number of areas of cropmarks throughout the option and the WWII Forres airfield to the west, which suggests this is an area of archaeological potential which would require further assessment.
Landscape	**Landscape character types** - High, Massive, Rolling, Rounded Mountains of the Highlands and Islands Highland Straths Inland Loch Lowland Coastal Landscapes of the North East **Moray AGLV** - Total cover 15.4% (1148.0) River Findhorn 0.4% (27.9) Pluscarden 13.1% (978.4) Speyside 1.9% (141.7)	Indicative Landscape sensitivity assessment - **High** **• Landscapes which by nature of their character would be unable to accommodate change; of high quality with distinctive elements and features making a positive contribution to character and sense of place; likely to be designated, but the aspects which underpin such value may also be present outside designated areas, especially at the local scale; areas of special recognised value through use, perception or historic and cultural associations.** There are several small population centres dispersed throughout the option, and the character of the option from the west to the centre is mostly open fields with some wooded areas. There are large areas of woodland to the south-east of Forres, which could potentially be avoided, but further east there are larger areas of woodland where it would be impossible to avoid any impact. Moving east, the landscape character changes from hilly and covered in woodland which will be difficult to avoid, to an open, gently undulating landscape which includes the River Spey and the Speyside AGLV; any road infrastructure would be highly visible here. Where the levels in the landscape change, its character will be very sensitive to any new infrastructure. This means that effects could arise as a result of any new elevated bridge structures required to cross either the watercourses in the option, or the railway line which crosses the option at its eastern and western extents. Furthermore, the high wilderness area at Todholes and presence of unavoidable local designations, Pluscarden AGLV to the west and Speyside AGLV to the east, as well as the River Spey which provides a prominent and positive contribution to the area and is a local visual and physical amenity, means that the option's sensitivity to dualling proposals is great.	Risk of effect assessment – **Moderate/ Major** **• Total loss of, or alteration to, key features of the baseline such that post development characteristics, or quality, would be fundamentally affected** There are no national landscape designations within the option but there are a number of historic environment assets dispersed throughout so the design of the dualled route would need to take into account this sensitive landscape. The option also generally follows the alignment of the existing A96 trunk road which forms an established part of the local landscape. Although it is predicted that individual properties and small population centres could generally be avoided through route alignment to minimise visual effects, it would not be possible to introduce a new road features into the landscape around the more highly populated areas, without having adverse effect on these settlements. Where the landscape character consists of undulating terrain with some farmland, it would be very sensitive to change due to its openness and there would be the potential for some moderate long-term effects. Where the landscape is hilly and challenging it will be harder to accommodate a dualled route. Crossing a number of watercourses, as well as crossing the railway, is unavoidable within the option and new infrastructure would be required. This would have a permanent visual effect on the landscape and although screening may be appropriate, any new structures would need to be carefully designed to be in-keeping with the local landscape character. In addition, the physical and visual impact on large areas of woodland which span the option and are impossible to avoid, would adversely affect the quality and character of the option's landscape area.

A96 Dualling Programme Tier 2 SEA Option Assessment			
Option N: Approximately 37km long and 7450Ha in area.			
SEA Topic	**Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)**	**Level of Constraint**	**Risk of Effect**
Summary of key constraints and effects (including synergistic effects)	This option skirts the southern extent of Forres at its western extent and it is predicted that the small population centres which are dispersed throughout the option, could generally be avoided through route alignment. Potential remains for demolition or land take impacts on some isolated properties depending on final route alignment which will take account of other constraints. Crossing the long distance paths the Dava Way and Speyside Way is unavoidable as they span the breadth of the option, but impacts could be avoided through accommodation works in the road design. Ecological constraints are key within this option, and although there is moderate avoidance potential for Natura and SSSI sites at the western end of the option, the SAC, SSSI and SINS associated with the River Spey are unavoidable as they cross the entire breadth of the option at the eastern end near Fochabers. However, with mitigation applied, the HRA has identified that potential impacts can be avoided or reduced such that no adverse effects on site integrity would be predicted. In addition, due to its distribution particularly in the western and eastern parts of the option, AWI woodland is unavoidable in places and dualling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species. As crossing the River Spey, as well as the Rivers Findhorn and Lossie and some of their tributaries, is unavoidable, there is also potential for significant permanent impacts on flooding through exacerbation of fluvial flood risk (to existing and potentially new sensitive receptors) through dualling. This would affect the floodplains of all unavoidable watercourses, since crossings are needed and development in within flood risk areas has the potential to result in significant impacts, for e.g. through loss of capacity. There is some scope for mitigation at watercourse crossings through appropriate design of structure, however crossings would have a permanent visual impact on the landscape and would need to be carefully designed to be in-keeping with the local landscape character; this would also apply to the unavoidable railway crossing at the eastern of the option. This option passes through relatively remote landscape with little in the way of settlement and other infrastructure and introducing a new dualled route into the landscape has the potential to detrimentally impact the character of the area. There are no national landscape designations within the option, but there are local landscape designations and features which cannot be avoided due to their size and location; these include the Pluscarden AGLV and the Speyside AGLV. Similarly, avoidance and minimisation of setting impacts on high value historic environment assets may prove difficult due to number and dispersal. This is true of the assets associated with Dallas Dhu distillery as they span half of the breadth of the option to the west, as well the undesignated designed landscape associated, and contemporary, with Westerton House, also in the west. The dispersed nature of the remaining historic environment assets throughout the option offers good avoidance potential, however the potential for impacts on the setting of designated assets will also need to be considered.		
Mitigation	The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option boundary. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation In this option, crossings and other accommodation works for core paths and the long distance paths of the Dava Way and Speyside Way will be important in the design to mitigate the effects of crossing these facilities for pedestrians, cyclists and equestrians Impacts on soils and particularly loss of prime agricultural land will be mitigated through avoidance of the best areas of land where possible and reviewing alignments to minimise fragmentation and severance effects on farm units together with provision of agricultural accommodation works such as vehicle underpasses The 2km wide extent for Option N overlaps with the Lower Findhorn Woods SAC, the Darnaway and Lethen Forest SPA and the River Spey SAC, with associated potential for LSE. The principle of avoidance of A96 Dualling options that encroach into Natura sites will be adopted wherever possible, and site specific mitigation measures will be developed via the HRA Appropriate Assessment to avoid Adverse Effects on Site Integrity Future route alignments will be developed to avoid known sites of archaeological importance where practical. For any unavoidable cultural heritage receptor (especially Dallas Dhu distillery and Westerton House designed landscape), a suitable strategy will be finalised on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist Whilst loss of habitat such as ancient woodland cannot be fully mitigated and therefore needs to be avoided as far as possible, mitigation of predicted biodiversity effects from loss of native woodland will need to focus on habitat creation including woodland planting using native species typical of the area The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk especially at the River Spey, the Rivers Findhorn and Lossie and some of their tributaries. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of floodplain protection measures Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping		

A96 Dualling Programme Tier 2 SEA Option Assessment

Option C: Approximately 43km long and 8600Ha in area.

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Biodiversity	**AWI** - Total cover 10.2% (880.8) semi-natural 0.1% (11.5) plantation 9.7% (838.7) Roy 0.4% (30.6) **NWSS** - Total cover 9.4% (808.8) native woodland 8.9% (764.7) nearly-native woodland 0.3% (23.0) open land habitat 0.2% (21.1) **Aberdeenshire SESA** - Total cover 14.5% (1246.4) Bennachie 5.7% (488.6) Bin Quarry, Huntly 0.2% (20.7) Cottown Woods, Kemnay 0.6% (48.4) Hill of Foudland 6.4% (547.4) Tom's Forest 1.3% (112.3) West side of River Don North of Kemnay 0.3% (28.9) **Aberdeenshire LNCS** - Total cover 10.3% (889.1) Cottown Woods 0.2% (16.4) Fetternear 0.3% (24.0) Foudland 1.5% (131.4) Bennachie 4.7% (401.6) Tom's Forest 0.8% (66.5) Bin Hill 2.9% (249.3)	Constraint sensitivity assessment - **High** **• Nationally/ locally important designations and features forming extensive constraints either through the area covered and/ or the number and distribution of sites** This option does not contain any nationally or internationally ecological designated sites. The key sensitivity in this option is associated with avoidance and minimisation of impacts on AWI woodland, almost all of which is plantation. Although not extensive in overall cover, there are several areas where it crosses the breadth of the option area, particularly in the south and at its very northern extent. Similarly avoidance and minimisation of impacts on NWSS woodland, the majority of which is native, is another key sensitivity in this option. Again, cover is not extensive however dispersal of sites throughout the option makes it difficult to avoid, and there are several locations where it spans the breadth of the option. In addition, when considered collectively AWI and NWSS woodlands in several locations form bands which cross the breadth of the option and present a significant constraint to dualling alignments. The other key constraint in the option is the avoidance and minimisation of impacts on the locally designated conservation sites, SESAs and LNCSs, throughout the option. These are primarily associated with the areas around the Binn Hill and the Hill of Foudland in the north, and Benachie and Tom's Forest in the south; many of these are significant area constraints as they span all, or almost all, of the option breadth.	Risk of effect assessment - **Moderate to Major** **• Likely to directly affect an environmental designation, resource/ feature or other receptors, e.g. through spatial loss or a direct effect on critical aspects of the resource's functions** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** Throughout the option AWI and NWSS woodland is unavoidable due to the size and dispersal of sites. Although there are some areas where separately, there is avoidance potential for AWI or NWSS woodland, however together they form several strips of woodland which span the breadth of the option, proving difficult to avoid. Where unavoidable, dualling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species. There is some avoidance potential for the locally designated conservation sites at the northern and southern extents of the option where they do not span its breadth, however those sites associated with the Hill of Foudland and Benachie are unavoidable due to their size and location. Where sites prove unavoidable, dualling impacts are predicted to be permanent and potentially significant at the local level.
Soils & Geodiversity	**SSSI** - Total cover <0.1% (2.6) Bin Quarry (Geo.) <0.1% (0.5) Pittodrie (Geo.) <0.1% (0.1) **GCR -** Total cover 0.1% (12.3) Bin Quarry <0.1% (2.2) Binhill Quarry 0.1% (9.6) Pittodrie <0.1% (0.5) **Agricultural Land Classes 1 to 3.1** - Total Cover 7.7% (660.8) Grade 3.1 Arable Agriculture 7.7% (660.8) **Carbon-rich soil classification -** Class 1: 75.3% (6477) Class 2: 2.9% (250.3) Class 3: 15.2% (1310.8) Class 4: 6.6% (564.3)	Constraint sensitivity assessment - **Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** The option includes SSSI and GCR sites and whilst these are important designations they are not extensive in extent and do not represent a significant constraint to dualling. The option is not extensively covered by prime agricultural land, however there are several locations where this feature spans the breadth of the centre of the option and a constraint will be avoidance and minimisation of impacts on the better quality land. Another constraint will include avoidance and minimisation of impacts on carbon-rich soils. Again, although these are limited in their area and spatial distribution throughout the option, to the south, particularly near Benachie, class 3 and 4 carbon-rich soils span its breadth.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** Significant avoidance potential for SSSI and GCR sites due to their small spatial extent and location within the option; significant impacts are not predicted. Despite the limited extent of prime agricultural land within the option, in its centre it could prove unavoidable; dualling impacts are predicted to be permanent and with potential to be significant at the local level. There is also the potential for secondary effects on local land use, e.g. due to farm unit severance or fragmentation. Carbon-rich soils may prove difficult to fully avoid in the south of the option and there is some potential for significant effects from loss of peat.
Water & Flooding	**1:200 yr fluvial flood extent (surface area)** - 3.8% (324.2) **1:200 yr pluvial flooding (surface area)** - 2.8% (238.4) **Major watercourse crossings (Watercourses shown on 1:50k OS mapping)** - Likely to be constrained by crossings of the River Deveron and River Bogie, as well as tributaries of the River Urie and River Don, and smaller watercourses such as the Burn of Largie, at higher elevation. **Existing flood defence infrastructure** - None existing Proposed Huntly Flood Protection Scheme **SFRA - No. of properties within 1:200yr flood extents -** 14 properties within fluvial flood plain	Constraint sensitivity assessment - **Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** Crossings and flood risk zones associated with major watercourses and their tributaries are likely to be the key positional constraints to dualling alignment options within the option, especially where they span the option breadth and are therefore unavoidable. The main watercourses which span the option in the north are the Rivers Deveron and Bogie, while in the centre of the option, River Urie tributaries, The Shevock and Gadie Burn, cross its breadth and are also unavoidable; in the southern part of the option the River Don and its tributary Tuach Burn both span the breadth of the option. Risk from fluvial flooding both to the future dualled A96 route and to the properties which are currently in fluvial flood plain, are a key constraint. Sensitive properties and other receptors in areas near the current floodplains could be at risk from changes to floodplain extents as a result of dualling and become a constraint.	Risk of effect assessment - **Moderate** **• Typically medium to long term effects which are unlikely to be avoidable, but will generally reduce over time and/ or can be substantially mitigated** Throughout the option, there are several watercourses which are unavoidable as they cross the option breadth entirely however there, is some avoidance potential for a number of smaller tributaries and watercourses, namely the Kellock in the centre of the option and Linn Burn and Burn Hervie in the south. Where crossing are unavoidable, the fluvial floodplains of watercourses could be affected by dualling and as such, there is potential for permanent impacts through exacerbation of fluvial flood risk to existing and potentially new sensitive receptors. Similarly, any development within these flood risk areas has the potential to result in significant impacts, for e.g. through loss of capacity. There is some scope for mitigation at watercourse crossings through appropriate design of structure.
Air	**Traffic flow/ demand data (as a proxy for local air quality where available)** - Current (2012) A96 trunk road Annual Average Daily Traffic (AADT) flows are c6,800 to 8,100 . These are forecast to increase to c12,900 to 16,900 by 2032 with a new dualled route in place Around Inverurie, current (2012) A96 trunk road Annual Average Daily Traffic (AADT) flows are c22,800 to 23,800 . These are forecast to increase to c24,000 to 32,700 by 2032 with a new dualled route in place Current (2011) levels of key air pollutants (PM10 and NO2) are well within air quality objective levels and predicted to remain so for 2030	Constraint sensitivity assessment - **Low** Air quality in the north of the option is generally good and typical of rural areas and although air quality to the south is fair, predicted levels of PM10 are closer to objective limit levels nearer Kintore at the southern extent. Air quality will be locally influenced by traffic using the existing A96 and other busy roads in the areas around Huntly, Insch, Inverurie and Kintore.	Risk of effect assessment - **Minor** **• Small changes to the baseline resource which are detectable but the underlying characteristics or quality of the baseline situation would be similar to pre-development conditions** Forecast future year (2032) traffic flows potentially increase the risk of air quality effects for sensitive receptors in close proximity to the dualled route, but also present the opportunity to move traffic further from current population centres in Huntly, Inverurie and Kintore, than the existing A96 alignment. Effects (beneficial and adverse) would be dependent on detailed alignment and proximity to property.

A96 Dualling Programme Tier 2 SEA Option Assessment

Option C: Approximately 43km long and 8600Ha in area.

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Population & Human Health	**Towns and principal centres of population** - Huntly adjacent to A96 Insch adjacent to A96 Oyne adjacent to B9002 south of the existing A96 Kintore adjacent to A96 **Population -** 1013 properties Average Aberdeenshire household size 2012=2.47 people per Ha Therefore population density= 0.29 people per Ha **Annual Average Daily Traffic (AADT) by section to nearest 100 vehicles -** 2012 AADT: c6,800 to 23,800 2032 (Forecast) AADT: c12,900 to 32,700 **Core paths/ NMUs -** 41 Core Paths 3 Local Cycle Routes	Constraint sensitivity assessment - **Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** A key constraint will be avoidance of impacts on the properties and population centres throughout the option, particularly around the relatively densely populated area of Insch. Another constraint will be the avoidance of impacts on NMU routes, and the option sensitivity reflects the proximity and crossing of the option by local trails and cycle routes.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** It is predicted that isolated properties, clusters of properties and small population centres which are dispersed throughout the option, could generally be avoided through route alignment. Potential remains for demolition or land take impacts on some properties – particularly given extent of development in the centre of the option at Insch – depending on final route alignment which will take account of other constraints. There is potential for core paths and other NMU routes to be avoided or otherwise accommodated through scheme design, even where a number of local cycle paths are unavoidable as they span the breadth of the option around Insch.
Historic Environment	**Scheduled Monuments** (x15) **-** Dunbennan Old Church - 540m SW of A96 Picardy Stone, symbol stone - 4,000m W of A96 Insch Old Parish Church and associated memorials - 2,600m SW of A96 Inschfield, stone circle 300m WNW of - 3,700m E of A96 Mill of Boddom, ring ditch and souterrain 190m NE of - 2,400m W of A96 Gowk Stane, standing stone 80 WSW of Craigconnock - 1,400m SW of A96 Maiden Castle, fort 285m ESE of Rowantree Cottage - 1,250m S of A96 Berry Hill, enclosure 600m SW of Bogend - 2,500m SW of A96 Hatton of Ardoyne, stone circle 350m SE of - 1,600m SW of A96 Westerton of Petmathen, standing stone 395m NNW of - 1,400m SW of A96 Ratch-hill, settlement, field system & enclosures S and SE of - 1,000m W of A96 Old Braco, chapel and enclosure 190m SSE of - 4,000m SW of A96 Deer's Den, roundhouses 195m and 250m S of - 10m W of A96 East Aquhorthies, stone circle - 3,000m W of A96 Castle of Hallforest - 650m W of A96 **A Listed Buildings** (x2) - Harthill Castle - 840m SW of A96 House of Aquahorthies - 3,500m SW of A96 **B Listed Buildings x17** **C Listed Buildings x6** **Aberdeenshire SMR** - Regionally Significant x 9 Standard x 387	Constraint sensitivity assessment - **Medium** **• National/ local designations and features present but not extensive in area/ number and could be avoided within the option extent** The key constraint will be avoidance and minimisation of impacts on scheduled monuments and listed buildings throughout the option, which could be challenging given that the dispersal of these assets may cause pinch points when other constraints are taken into account. Avoidance may be challenging, and it may not be possible to reduce potential impacts on all designated assets. There is a higher concentration of historic environment assets in the central and southern parts of the option with clusters around the population centres of Insch and Kintore. In addition, the Aberdeenshire Historic Environment Record shows a great number of recorded sites within the option. These are dispersed throughout the option area and will require further detailed assessment at later stages.	Risk of effect assessment - **Moderate** **• Typically medium to long term effects which are unlikely to be avoidable, but will generally reduce over time and/ or can be substantially mitigated** There is some avoidance potential for many of the scheduled monuments and listed buildings within the option due to their dispersal, however avoidance of some of these assets could be at the detriment of others, and potential impacts on the setting of all assets will need to be carefully considered. Pinch points created by avoidance of population centres such as Insch and Kintore, or those caused by the topography of the option, mean that road alignments could be restricted to areas where a number of assets are located, for example around Oyne in the centre of the option. The Aberdeenshire Historic Environment Record shows a great number of recorded sites within the option, the nature, extent and significance of which are currently not known. Further assessment will be required, and the results of this could present further constraints to development.

A96 Dualling Programme Tier 2 SEA Option Assessment			
Option C: Approximately 43km long and 8600Ha in area.			
SEA Topic	**Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)**	**Level of Constraint**	**Risk of Effect**
Landscape	**Landscape character type -** Agricultural Lowlands of the North East Flat or Rolling, Smooth or Sweeping, Extensive, High Moorlands of the Highlands and Islands Highland Straths Moorland Transitional Landscapes of the Highlands and Islands	Indicative Landscape sensitivity assessment - **High** **• Landscapes which by nature of their character would be unable to accommodate change of the type proposed. Typically these would be: of high quality with distinctive elements and features making a positive contribution to character, and sense of place and areas of special recognised value through use, perception or historic and cultural associations. and cultural associations.** The landscape character of the option comprises steep hills with some dense woodland in the north which gives way to gently rolling terrain and agricultural landscape to the south. There are some areas of steep slopes, especially around the Foudland and the Bennachie hills in the centre of the option, which would be sensitive to change particularly as dualling in this constrained and challenging terrain may require extensive engineering earthworks. Although the more open landscape is less constrained in engineering terms, it is still sensitive to change, due to its openness and generally, to introduce a new road into the landscape of this option would substantially change the character of the area. In the north, the option skirts the population centre of Huntly and moving south there are individual properties scattered throughout which could potentially be avoided, although they would be potentially visually sensitive to a new dualled route. Insch and Kintore are located in the centre and south of the option respectively, and properties in and around these population centres that currently do not have a view of, or only partially view, the existing A96 would be visual receptors to a new dualled road, and highly sensitive to any new features within this landscape. The presence of a number of Scheduled Monuments and listed buildings throughout the option adds to the overall landscape sensitivity and level of constraint due to the difficulty of avoiding indirect effects on their setting. For example, the Picardy Stone and the Inschfield stone circle stand in fields in the centre of the option and although it may be possible to avoid these Scheduled Monuments, their landscape context makes them very sensitive to change. There are instances of other man-made features which partially reduce the sensitivity of the landscape in local areas, for example the Dummuies windfarm to the north and two overhead power lines which cross the option to the south. However, the option spans a relatively remote landscape with little in the way of settlement and other infrastructure, making it highly sensitive to a new dualled route. In addition, the landscape would be very sensitive to any new elevated bridge structures required to cross the watercourses within the option, for example the Rivers Deveron and Bogie in the north and the River Don in the south, which are unavoidable as they span the option breadth. Similarly, there are several wooded areas which traverse the breadth of the option and these may be difficult to avoid and sensitive to change.	Risk of effect assessment – **Moderate/ Major** **• Total loss of, or alteration to, key features of the baseline such that post development characteristics, or quality, would be fundamentally affected** There are no national landscape designations within the option but there are a number of historic environment assets dispersed throughout so the design of the dualled route would need to take into account this sensitive landscape. The option also generally follows the alignment of the existing A96 trunk road which forms an established part of the local landscape. Although it is predicted that individual properties and small population centres could generally be avoided through route alignment to minimise visual effects, it would not be possible to introduce a new road features into the landscape around the more highly populated areas, without having an adverse effect on these settlements. Where the landscape character consists of undulating terrain with some farmland, it would be very sensitive to change due to its openness and there would be the potential for some moderate long-term effects. Where the landscape is hilly and challenging, the potential requirement of extensive earthworks could create impacts on the landform through cut slopes and embankments. Crossing a number of watercourses, as well as crossing the railway, is unavoidable within the option and new infrastructure would be required. This would have a permanent visual impact on the landscape and although screening may be appropriate, any new structures would need to be carefully designed to be in-keeping with the local landscape character. In addition, the physical and visual impact on large areas of woodland which span the option and are impossible to avoid, would adversely affect the quality and character of the option's landscape area.

A96 Dualling Programme Tier 2 SEA Option Assessment			
Option C: Approximately 43km long and 8600Ha in area.			
SEA Topic	**Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)**	**Level of Constraint**	**Risk of Effect**
Summary of key constraints and effects (including synergistic effects)	This option skirts Huntly in the north and includes the settlement of Insch in its centre and part of Kintore to the south. It is predicted that the isolated properties, clusters of properties and small population centres which are dispersed throughout the option could generally be avoided through route alignment. Potential remains however, for demolition or land take impacts on some properties – particularly given the extent of development at Insch and Kintore – depending on final route alignment which will take account of other constraints. Similarly, properties in and around the population centres within the option could be visual receptors to a new dualled road, and highly sensitive to any new features within this landscape, if they currently do not have a view of, or only partial view of, the existing A96. Ecological constraints are key within this option, and although there are no nationally or internationally designated sites, AWI and NWSS woodlands collectively form bands of woodland which cross the breadth of the option and present a significant constraint to dualling alignments in several locations. Where unavoidable, dualling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species. In addition, the locally designated conservation sites associated with the Hill of Foudland in the north of the option, and Benachie in the south, are unavoidable due to their size and location and dualling impacts are predicted to be permanent and potentially significant at the local level. Crossing a number of watercourses, including the Rivers Deveron and Bogie in the north and the River Don and its tributary Tuach Burn in the south, is unavoidable as they span the option breadth entirely. The floodplains of unavoidable watercourses could be affected by dualling and as such, there is potential for permanent impacts through exacerbation of fluvial flood risk to existing and potentially new sensitive receptors. Similarly, any development within these flood risk areas has the potential to result in significant impacts, for e.g. through loss of capacity. There is some scope for mitigation at watercourse crossings through appropriate design of structures, however crossings would have a permanent visual impact on the landscape and would need to be carefully designed to be in-keeping with the local landscape character; this would also apply to the unavoidable railway crossing in the centre of the option. There is some avoidance potential for many of the scheduled monuments and listed buildings within the option due to their dispersal, however avoidance of some of these assets could be at the detriment of others, and potential impacts on the setting of all assets will need to be carefully considered. Pinch points created by avoidance of population centres such as Insch and Kintore, or those caused by the topography of the option, mean that road alignments could be restricted to areas where a number of assets are located, for example around Oyne in the centre of the option. Avoidance of properties and historic environment assets within and around the population centre of Insch, creates a risk of significant local impacts from loss of prime agricultural land which spans the breadth of the option in this area; there is also the potential for secondary effects on local land use, f example from farm unit severance or fragmentation. As this option passes through a relatively remote landscape with little in the way of settlement and other infrastructure, introducing a new dualled route into the landscape has the potential to adverse ly impact the character of the area.		
Mitigation	The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option boundary. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation In this option, crossings and other accommodation works for core paths and local cycling routes will be important in the design to mitigate the effects of crossing these facilities for pedestrians, cyclists and equestrians Impacts on soils and particularly loss of prime agricultural land will be mitigated through avoidance of the best areas of land where possible and reviewing alignments to minimise fragmentation and severance effects on farm units together with provision of agricultural accommodation works such as vehicle underpasses Future route alignments will be developed to avoid known sites of archaeological importance where practical. For any unavoidable cultural heritage receptor (especially at Picardy Stone, Gowk Stane, Berry Hill, Maiden Castle and Hatton of Ardoyne stone circle SM, and the A listed buildings Westhall House and Harthill Castle), a suitable strategy will be developed on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist Whilst loss of habitat such as ancient woodland cannot be fully mitigated and therefore needs to be avoided as far as possible, mitigation of predicted biodiversity effects from loss of native woodland will need to focus on habitat creation including woodland planting using native species typical of the area The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk especially at Gadie Burn, River Don, the Shevock, the River Deveron and their tributaries. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of floodplain protection measures Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping		

A96 Dualling Programme Tier 2			
Option D: Approximately 15km long and 3090Ha in area.			
SEA Topic	**Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)**	**Level of Constraint**	**Risk of Effect**
Biodiversity	**AWI** - Total cover- 7.6% (235.2) plantation- 7.6% (235.2) **NWSS** - Total cover- 3.1% (95.3) native woodland - 3.0% (91.6) nearly-native woodland- 0.1% (3.7) open land habitat - <0.1% (0.04) **Aberdeenshire SESA** - Total cover- 12.6% (388.9) Cairnhill Quarry 1.4% (41.7) Govals Quarry - Part overgrown, landscaped 0.5% (14.2) Hill of Foudland 8.1% (250.0) Moss of Cairnhill 1.0% (29.5) Pitcaple Quarry (working 1977) 0.8% (24.1) Pitscurrie Moss 0.4% (11.2) Slate Quarries, Hill of Tillymorgan 0.6% (18.1) **Aberdeenshire LNCS** - Total cover 8.0% (247.9) Cairnhill 1.0% (31.2) Foudland 6.9% (231.2) Govals 0.1% (3.2) Pitscurry Moss <0.1% (0.3)	Constraint sensitivity assessment - **Medium** **• National/ local designations and features present but not extensive in area/ number and could be avoided within the option extent** No Natura, SSSI or NNR sites within this option. The key constraint in the option is the avoidance and minimisation of impacts on the locally designated conservation sites around the Hill of Foudland in the northern part of the option. The hill of Foudland SESA is a constraint which cannot be avoided as it crosses the breadth of the option at its northern end, as does the Foudland LNCS. Other constraints include the avoidance and minimisation of impacts on AWI and NWSS woodland. Although NWSS woodland is scattered throughout the option and is not an extensive area constraint, AWI woodland spans half of the breadth of the option at both northern and southern extents.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** Locally designated conservation sites are unavoidable in the northern extent of the option due to their size and location. Both the Hill of Foudland SESA and LNCS cover the entire breadth of the option, and dualling impacts are predicted to be permanent and potentially significant at the local level. There is some avoidance potential for AWI woodland throughout the option although sites could prove more difficult to avoid at the northern and southern extents where they span almost half of the option breadth. Should AWI be unavoidable, dualling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species. There is good avoidance potential for NWSS woodland due to size and dispersal of sites throughout the option.
Soils & Geodiversity	**SSSI** - Pitcaple and Legatsden Quarries (Geo.) 0.2% (7.6) **GCR** - Pitsmedded and Pitscurry Quarries 0.2% (7.7) **Agricultural Land Classes 1 to 3.1** - Total Cover 31.4% (968.7) Grade 3.1 Arable Agriculture 31.4% (968.7) **Carbon-rich soil classification** - Class 1: 89.7% (2769.0) Class 2: 3.7% (113.5) Class 3: 6.6% (203.3)	Constraint sensitivity assessment - **High** **• Nationally/ locally important designations and features forming extensive constraints either through the area covered and/ or the number and distribution of sites** The option area is extensively covered by prime agricultural land with associated importance for agriculture. A key constraint will therefore be avoidance and minimisation of impacts on prime agricultural land. The option includes a very small area of SSSI and GCR in its southern section and whilst these are important designations they are not extensive and do not represent a significant constraint to dualling. There is a small area of carbon-rich soil in the northern half of the option however the extent and spatial distribution of these do not present an extensive constraint to dualling.	Risk of effect assessment - **Major** **• Likely to directly affect an environmental designation, resource/ feature or other receptors, e.g. through spatial loss or a direct effect on critical aspects of the resource's functions** Significant avoidance potential for SSSI and GCR sites due to their small spatial extent within the option and significant impacts are not predicted. Prime agricultural land is unavoidable due to its extent and distribution throughout the option. Dualling impacts are predicted to be permanent and potentially significant at the local level. Potential for secondary effects on local land use, e.g. due to farm unit severance or fragmentation. There is some avoidance potential for carbon-rich soils throughout the option, although areas of class 2 and 3 could prove more difficult to avoid at the northern extent where together they span the option breadth.

A96 Dualling Programme Tier 2			
Option D: Approximately 15km long and 3090Ha in area.			
SEA Topic	**Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)**	**Level of Constraint**	**Risk of Effect**
Water & Flooding	**1:200 yr fluvial flood extent (surface area)** - 3.6% (111.5) **1:200 yr pluvial flooding (surface area)** - 1.8% (56.4) **Major watercourse crossings (Watercourses shown on 1:50k OS mapping)** - Likely to be constrained by crossing the River Urie (potentially at multiple locations), and smaller watercourses such as Bonnyton Burn. **SFRA - No. of properties within 1:200yr flood extents** - 5 properties within fluvial flood plain	Constraint sensitivity assessment - **Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** Crossings and flood risk zones associated with the River Urie and its tributaries are likely to be the key positional constraints to dualling alignments within the option. In the north, the River Urie crosses over half of the breadth of the option while its tributary, Bonnyton Burn, is unavoidable as it spans the entire breadth. Similarly in the south, the River Urie is unavoidable as it spans the breadth of the option, while another tributary, the Burn of Durno, crosses half of its breadth. Risk from fluvial flooding both to the future dualled A96 route and to the properties which are currently in fluvial flood plain, are a key constraint. Sensitive properties and other receptors in areas near the current floodplains could be at risk from changes to floodplain extents as a result of dualling and become a constraint.	Risk of effect assessment - **Moderate** **• Typically medium to long term effects which are unlikely to be avoidable, but will generally reduce over time and/ or can be substantially mitigated** Throughout the option, the River Urie winds its way south east, crossing its breadth either fully or partially, meaning that crossings and floodplains will be unavoidable; this is also the case for tributaries of the river. The fluvial floodplains of these watercourses could be affected by dualling and as such, there is potential for significant permanent effects through exacerbation of fluvial flood risk to existing and potentially new sensitive receptors. Similarly, any development within these flood risk areas has the potential to result in significant impacts, for e.g through loss of capacity. There is some scope for mitigation at watercourse crossings through appropriate design of structures.
Air	**Traffic flow/ demand data (as a proxy for local air quality where available)** - To the east, current (2012) A96 trunk road Annual Average Daily Traffic (AADT) flows are c8,400. These are forecast to increase to c15,200 by 2032 with a new dualled route in place To the west, current (2012) A96 trunk road Annual Average Daily Traffic (AADT) flows are c8,400 . These are forecast to increase to c15,200 by 2032 with a new dualled route in place Current (2011) levels of key air pollutants (PM10 and NO2) are well within air quality objective levels and predicted to remain so for 2030	Constraint sensitivity assessment - **Low** Air quality in the north of the option is generally good and typical of rural areas although predicted levels of PM10 are closer to objective limit levels nearer Inverurie to the south. Air quality will be locally influenced by traffic using the existing A96 and other busy roads in the area, such as the A920 in the north of the option.	Risk of effect assessment - **Minor** **• Small changes to the baseline resource which are detectable but the underlying characteristics or quality of the baseline situation would be similar to pre-development conditions** Forecast future year (2032) traffic flows potentially increase risk of air quality effects for sensitive receptors in close proximity to the dualled route. Effects (beneficial and adverse) would be dependent on detailed alignment and proximity to property but at this level are not predicted to result in significantly different air quality effects from those currently experienced.
Population & Human Health	**Towns and principal centres of population** - Kirkton of Culsalmond adjacent to A96 Kirkton of Rayne south of the A920 Cairnrhill adjacent to A920 Whiteford (small town) north of the existing A96 Pitcaple (small town) adjacent to the existing A96 Chapel of Garioch (small town) south of the existing A96 **Population** - 293 properties Average Aberdeenshire household size 2012= 2.47 people Therefore population density= 0.23 people per Ha **Annual Average Daily Traffic (AADT) by section to nearest 100 vehicles -** 2012 AADT: c8,400 2032 (Forecast) AADT: c15,200 **Core paths/ NMUs -** 3 Core Paths	Constraint sensitivity assessment - **Low** Key constraints will be avoidance of impacts on population centres although the number of properties is very low in this option. The option sensitivity reflects the low number of properties and population density and relatively limited constraints from NMU routes in the southern part of the option.	Risk of effect assessment - **Minor** **• Permanent or medium term effects on resources/ features or other receptors which will be small in scale and not likely to result in a material loss of the resource or critical aspects of its functions** It is predicted that isolated properties or clusters of properties, which are dispersed throughout the option, could be generally avoided through route alignment. Potential remains for demolition or land take impacts on some isolated properties depending on final route alignment which will take account of other constraints. Similarly, core paths could be avoided through design as they are concentrated in a fairly discrete area in the southern part of the option, otherwise they could be accommodated through scheme design.

A96 Dualling Programme Tier 2			
Option D: Approximately 15km long and 3090Ha in area.			
SEA Topic	**Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)**	**Level of Constraint**	**Risk of Effect**
Historic Environment	**Scheduled Monuments** (x6) - Woodside, hut circles 300m W of - 530m W of A96 Mummer's Reive, cairn - 1,400m E of A96 Durno, Roman temporary camp, 420m ESE of Westerton - 750m E of A96 Newton of Lewesk, enclosure 165m ESE of - 1,300m NE of A96 The Law, cairn 175m NNW of East Law - 1,900m NE of A96 Pitscurry, cairn 410m N of - 1,350m N of A96 **A Listed Buildings** (x3) - Chapel of Garioch - 1,350m S of A96 Pitcaple Castle - 200m N of A96 Old Parish Church, Kirkton of Culsalmond - 700m E of A96 **Gardens & Designed Landscapes** - Williamston House 0.8% (25.7) **Battlefields** - Harlaw <0.1% (0.1) **B Listed Buildings x6** **C Listed Buildings x5** **Aberdeenshire SMR** - 11x Regionally Significant 184x Standard	Constraint sensitivity assessment - **High** **• Nationally/ local important designations and features forming extensive constraints either through area covered and/ or number and distribution of sites** Key constraints within the option will be avoidance and minimisation of impacts on a number of designated assets. These include 6 scheduled monuments, 3 A listed buildings, part of a GDL and Harlaw Inventory Battlefield and a number of B and C listed buildings. Although the dispersed nature of assets in the northern half of the option presents opportunities for avoidance, the southern part of the option is more constrained by the number and location of assets. There is the potential however, for direct and/ or indirect impacts on all or some of the assets throughout the option. The Aberdeenshire Historic Environment Record shows 184 recorded sites within the option. These are spread out throughout the option area and will require further detailed assessment at later stages.	Risk of effect assessment - **Major** **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially** As Williamston House GDL and Harlaw Battlefield are located at the outer edges of the option, there is significant avoidance potential for both. However, despite the fact that there are not a great number of high value scheduled monuments and A listed buildings within this option, constraints caused by the topography of the southern extent of the option mean that road alignments would be restricted to areas where the majority of these assets are located. One such pinch point is associated with the area around Pitcaple Castle tower in the south, another relating a cluster of scheduled monuments at East Law in the centre of the option. Similarly, a pinch point is evident towards the north end of the option around Kirkton of Culsalmond, where challenges for avoidance exist and could result in potential impacts on the setting of a number assets. The Aberdeenshire Historic Environment Record shows 195 recorded sites within the option, the nature, extent and significance of which are currently not known. Further assessment will be required, and the results of this could present further constraints to development.
Landscape	**Landscape character type** - Agricultural Lowlands of the North East Flat or Rolling, Smooth or Sweeping, Extensive, High Moorlands of the Highlands and Islands **Local designations** - GDLs and SMs - see Historic Environment	Indicative Landscape sensitivity assessment - **Medium/ High** **• Landscapes which by nature of their character would be unable to accommodate change of the type proposed. Typically these would be: of high quality with distinctive elements and features making a positive contribution to character and sense of place and areas of special recognised value through use, perception or historic and cultural associations.** The landscape character of the northern end of the option generally includes steep hills either side of the existing A96, which turn into gently rolling terrain as the option flows south, where the hills of Bennachie overlook the option from the west. Due to its hilly terrain, the option is more constrained at its northern and southern extents by the Hill of Tillymorgan and Gallows Hill respectively. The open landscape of the centre of the option has less constraints, but is still sensitive to change due to its openness. To the north, swathes of farmland dominate the landscape although there is a GDL at the western edge and a large tree-lined avenue in the centre, while to the south there are woodland areas scattered throughout and the landscape consists mainly of open farmland and some archaeological features. The woodland areas within the option would be sensitive to a new route, especially where the span almost the whole breadth of the option at its northern and southern extents. The presence of the Williamston House GDL locally increases the sensitivity of the landscape on the western edge of the option to the north, while the presence of a number of Scheduled Monuments and listed buildings throughout the option adds to the overall landscape sensitivity and level of constraint due to the difficulty of avoiding indirect effects on their setting. There are many individual and grouped properties as well as small villages scattered throughout the option. The individual properties and villages that currently do not have a view, or only a partially view, of the existing A96 would be visual receptors to the new dualled road, and highly sensitive to any new features within this landscape. Although two overhead power lines, a highly visible man-made element within the landscape, run through the option to the south reducing the landscape sensitivity, generally the landscape character is very sensitive to change and the introduction of a new route through would have an adverse effect on its quality. Similarly, the landscape would be very sensitive to any new elevated bridge structures required to cross the River Urie and the railway, which both span the breadth of the option at its southern extent.	Risk of effect assessment – **Major** **• Total loss of, or alteration to, key features of the baseline such that post development characteristics, or quality, would be fundamentally affected** There are no national landscape designations within the option but there are a number of historic environment assets dispersed throughout so the design of the dualled route would need to take into account this sensitive landscape. The option also generally follows the alignment of the existing A96 trunk road which forms an established part of the local landscape. Although it is predicted that individual properties and small population centres could generally be avoided through route alignment to minimise visual effects, it would not be possible to introduce a new road features into the landscape around the more highly populated areas, without having an adverse effect on these settlements. Where the landscape character consists of undulating terrain with some farmland, it would be very sensitive to change due to its openness and there would be the potential for some moderate long-term effects. Where the landscape is hilly and challenging it will be more difficult to accommodate a dualled route. Crossing a number of watercourses, as well as crossing the railway, is unavoidable within the option and new infrastructure would be required. This would have a permanent visual impact on the landscape and although screening may be appropriate, any new structures would need to be carefully designed to be in-keeping with the local landscape character. In addition, the physical and visual impact on large areas of woodland which span the option and are impossible to avoid, would adversely affect the quality and character of the option's landscape area.

A96 Dualling Programme Tier 2			
Option D: Approximately 15km long and 3090Ha in area.			
SEA Topic	**Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)**	**Level of Constraint**	**Risk of Effect**
Summary of key constraints and effects (including synergistic effects)	The number of population centres and the population density within this option is low and it is predicted that isolated properties or clusters of properties, which are dispersed throughout the option, could be generally avoided through route alignment. There remains, however, the potential for demolition or land take impacts on some isolated properties depending on final route alignments which will take account of other environmental constraints within the option. The landscape character types within the option would be very sensitive to change by the introduction of a new route through the terrain, with some moderate long-term effects to the landscape. It is unlikely that these character areas could be maintained if a new dualled route was introduced. Hilly terrain constrains the option at its northern and southern extents and the open landscape at the centre of the option, which includes swathes of farmland, is sensitive to change due to its openness. One of the key constraints within the option is the impact of dualling on prime agricultural land, which is unavoidable due to its extent and distribution throughout the option. Effects are predicted to be permanent and potentially significant at the local level, with potential for secondary effects on local land use economy e.g. due to farm unit severance or fragmentation. Another key constraint is the avoidance and minimisation of setting impacts on high value historic environment assets within the option. As Williamston House GDL and Harlaw Battlefield are located at the outer edges of the option, there is significant avoidance potential for both, and despite the fact that there are not a great number of high value scheduled monuments and A listed buildings within this option, topographical constraints at its northern and southern extents mean that road alignments would be restricted to areas where the majority of these assets are located. While this option does not contain any nationally or internationally ecological designated sites, locally designated conservation sites are unavoidable in the northern extent of the option due to their size and location. Both the Hill of Foudland SESA and LNCS cover the entire breadth of the option, and dualling impacts are predicted to be permanent and potentially significant at the local level. There is some avoidance potential for AWI woodland throughout the option although sites could prove more difficult to avoid at the northern and southern extents where they span almost half of the option breadth. These areas of plantation AWI coincide with hilly terrain, which would make the creation of a new dualled route challenging, requiring extensive roadside earthworks; however, should AWI be unavoidable, dualling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species. The River Urie and its tributaries wind their way south east spanning the breadth of the option either fully or partially, meaning that crossings and floodplains will be unavoidable. Any development in the floodplain of these watercourses as a result of new infrastructure requirements, would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors. In addition, any new elevated structures required to cross watercourses, or indeed the railway line which runs through the southern part of the option, would have a permanent effect on the character of the landscape.		
Mitigation	The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option boundary. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation Impacts on soils and particularly loss of prime agricultural land will be mitigated through avoidance of the best areas of land where possible and reviewing alignments to minimise fragmentation and severance effects on farm units together with provision of agricultural accommodation works such as vehicle underpasses Future route alignments will be developed to avoid known sites of archaeological importance where practical. For any unavoidable cultural heritage receptor (especially around Kirkton of Culsalmond), a suitable strategy will be developed on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk especially at The River Urie and its tributaries. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of floodplain protection measures Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping Whilst loss of habitat such as ancient woodland cannot be fully mitigated and therefore needs to be avoided as far as possible, mitigation of predicted biodiversity effects from loss native woodland will need to focus on habitat creation including woodland planting using native species typical of the area		

A96 Dualling Programme Tier 2 SEA Option Assessment

Inverurie Option B North

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Biodiversity	**AWI -** Total cover 4.1% (129.9) plantation 4.0% (126.3) Roy 0.1% (3.5) **NWSS** - Total cover 4.3% (136.6) native woodland 3.9% (122.8) nearly-native woodland 0.2% (5.4) open land habitat 0.3% (8.4) **Aberdeenshire LNCS -** Kinkell Belt 0.6% (20.5) **Aberdeenshire SESA -** Total 2.7% (85.3) Inverurie - area S. of Urie Cottage.1.1% (34.1) Cairnhall 1.5% (46.7) Tuach Hill 0.1% (4.4)	Constraint sensitivity assessment - **Medium** **• National/ local designations and features present but not extensive in area/ number and could be avoided within the option extent** No Natura, SSSI or NNR sites within this option. The key sensitivity in this option is associated with avoidance and minimisation of impacts on AWI and NWSS woodland which are distributed throughout the option and are not extensive area constraints. Other constraints include the avoidance and minimisation of impacts on the locally designated conservation sites which, due to their distribution within the option are not extensive area constraints.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** There is some avoidance potential for AWI and NWSS woodland throughout the option although sites could prove more difficult to avoid in the central area, where together they form strips which span over half of the option breadth. Should either AWI or NWSS woodland prove unavoidable, dualling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species. There is good avoidance potential for the locally designated conservation due to their size and dispersal throughout the option.
Soils & Geodiversity	**Agricultural land classes 1 to 3.1** - Total Cover 25.8% (817) Grade 2 Arable Agriculture <0.1% (0.2) Grade 3.1 Arable Agriculture 25.8% (816.8) **Carbon-rich soil classification -** Class 0: 4% (129.2) Class 1: 86.1% (2720.3) Class 3: 7.6% (239.4) Class 4: 2.3% (72.1)	Constraint sensitivity assessment - **High** **• Nationally/ locally important designations and features forming extensive constraints either through the area covered and/ or the number and distribution of sites** The option is extensively covered by prime agricultural land with associated importance for agriculture. A key constraint will therefore be avoidance and minimisation of impacts on prime agricultural land. Other constraints will include avoidance and minimisation of impacts on carbon-rich soils although these are limited in their area and spatial distribution across the option.	Risk of effect assessment - **Major** **• Likely to directly affect an environmental designation, resource/ feature or other receptors, e.g. through spatial loss or a direct effect on critical aspects of the resource's functions** Prime agricultural land is unavoidable due to its extent and distribution. Dualling impacts are predicted to be permanent and potentially significant at the local level. Potential for secondary effects on local land use, e.g. due to farm unit severance or fragmentation. Carbon-rich soils are mainly categorised as class 1 in the option area which does not indicate presence of high carbon-rich soils other than a small area of peat soils at the extreme west end. Significant impacts on carbon-rich soils are not predicted to be likely.
Water & Flooding	**1:200 yr fluvial flood extent (surface area) -** 17.2% (542.5) **1:200 yr pluvial flooding (surface area)** - 9.5% (300.8) **Major watercourse crossings (Watercourses shown on 1:50k OS mapping)** - Very likely to be constrained by crossings of the Rivers Urie/ Don **Existing flood defence infrastructure** - Inverurie (Strathburn & Overburn) Flood Prevention Scheme Overburn Culvert, Inverurie Flood Prevention Scheme **No. of properties within 1:200yr flood extents** - 141 properties in fluvial floodplain	Constraint sensitivity assessment - **High** **• Features with limited capacity to accommodate change or which are already subject to pressures and degradation** Crossings and flood risk zones associated with the Rivers Don and Urie and their tributaries are likely to be the key positional constraints to dualling alignment options within the option. The River Urie spans the option breadth and is unavoidable in north of the option, and after the confluence with the River Don in the central section, the River Don is also unavoidable in the south. River Urie tributaries, the Strathnaterick and Lochter Burns in the north, and River Don tributaries the Bridgealehouse and Tuach Burns in the south, are also unavoidable as they span the breadth of the option. Risk from fluvial flooding both to the future dualled A96 route and to the high number of properties around Inverurie and Kintore which are currently in fluvial flood plain, are a key constraint. Sensitive properties and other receptors in areas near the current floodplains could be at risk from changes to floodplain extents as a result of dualling and become a constraint.	Risk of effect assessment - **Major** **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially** In this option, the Rivers Urie and Don, their associated tributaries and floodplains are unavoidable and dualling is likely to affect large fluvial flood risk areas. There is potential for significant permanent impacts on flooding through exacerbation of flood risk (to already existing and potentially new sensitive receptors) through dualling. This would affect large areas of floodplain and development within flood risk areas has the potential to result in significant impacts, for e.g through loss of capacity.
Air	**Traffic flow/ demand data (as a proxy for local air quality where available)** - Current (2012) A96 trunk road Annual Average Daily Traffic (AADT) flows are c8,400 to 27,300 . These are forecast to increase to c15,200 to 27,700 by 2032 with a new dualled route in place Current (2011) levels of key air pollutants (PM10 and NO2) are within air quality objective levels and predicted to remain so for 2030 however monitored NO2 levels at sites in Inverurie town centre are close to objective levels	Constraint sensitivity assessment - **Medium** Air quality in the option area is generally fair although predicted levels of PM10 are closer to objective limit levels and will be locally influenced by traffic using the existing A96 and other busy roads in the area.	Risk of effect assessment - **Minor** **• Small changes to the baseline resource which are detectable but the underlying characteristics or quality of the baseline situation would be similar to pre-development conditions** Forecast future year (2032) traffic flows potentially increase risk of air quality effects for sensitive receptors in close proximity to the dualled route but also present opportunity to move traffic further from current population near the existing A96 alignment. Effects (beneficial and adverse) would be dependent on detailed alignment and proximity to property.

A96 Dualling Programme Tier 2 SEA Option Assessment

Inverurie Option B North

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Population & Human Health	**Towns and principal centres of population** - Inverurie adjacent to A96 Kintore adjacent to A96 Port Elphinstone adjacent to A96 **Population** - 2761 properties Average Aberdeenshire household size 2012=2.47 people Therefore population density=2.2 people per Ha **Annual Average Daily Traffic (AADT) by section to nearest 100 vehicles** 2013 AADT: c8,400 to c27,300 2032 (Forecast) AADT: c15,200 to c27,700 **Core paths/ NMUs** - 25 Core Paths mainly located along the existing A96 and around Inverurie and Kintore	Constraint sensitivity assessment - **High** **• Extensive areas of settlement extending across option area** Key constraints will be avoidance of impacts on population centres as the number of properties is high in this option. Sensitivity reflects the high number of properties and population density which acts to constrain the corridor available for dualling, as well as constraints from a large number and density of NMU routes within Inverurie and across the option area north of the town.	Risk of effect assessment - Major **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially** It is predicted that high population areas will be difficult to avoid completely through route alignment due to the presence of the built up area of Inverurie, particularly in the central part of the option. Potential remains for demolition or land take impacts on properties, which are predicted to result in significant effects on population, depending on final route alignment which will take account of other constraints. Crossing a number of core paths is unavoidable as some span the breadth of the option; impacts could be avoided through accommodation works in the road design.

A96 Dualling Programme Tier 2 SEA Option Assessment

Inverurie Option B North

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Historic Environment	**Scheduled Monuments (x16) -** Aberdeenshire Canal, milestone 14 1/2 at Canal Cottage, Kintore - 720m E of A96 Aberdeenshire Canal, milestone 15 at Bridgend House, Kintore - 150m E of A96 Balquhain Castle - 950m W of A96 Broomend, henge, standing stones and symbol stone - 90m E of A96 Caskieben moat, moated site and symbol stone 170m N of Keith Hall - 1,600m NE of A96 Castle of Hallforest - 650m W of A96 Deer's Den, roundhouses 195m and 250m S of - 10m W of A96 Drimmies, symbol stone - 30m E of A96 East Blairbowie, standing stone 250m ENE of - 1,350 SW of A96 Fullerton, ring ditches & cairn circle 420m SE of - 20m NE of A96 Inverurie Cemetery, four symbol stones - 850m E of A96 Kinkell Church and burial ground - 850m E of A96 Kintore, symbol stone near church - 700m E of A96 Mains of Balquhain, stone circle 715m NE of - 450m W of A96 Midmill, long cairn 400m SSE of Tuach Hill - 950m E of A96 The Bass and Little Bass, motte and bailey - 900m E of A96 **Inventory Battlefields** - Harlaw 9% (283.2) **A Listed Buildings (x2) -** Keith Hall - 1,600m E of A96 Town House, The Square, Kintore - 600m E of A96 **Gardens & Designed Landscapes** - Keith Hall 9.4% (295.71) **B Listed Buildings x37** **C Listed Buildings x18** **Aberdeenshire SMR -** 18x Regionally Significant 322x Standard	Constraint sensitivity assessment - **High** **• Nationally/ local important designations and features forming extensive constraints either through area covered and/ or number and distribution of sites** The main constraint within the option is the large number of scheduled monuments (16) as well as Harlaw Battlefield, Keith Hall GDL, 2 A listed buildings and a large number of B and C listed buildings. Avoidance is likely to be very challenging and there is a high potential for impacts on the setting and structure of these assets. The Aberdeenshire Historic Environment Record shows 340 recorded sites within the option. These will require further detailed assessment at later stages.	Risk of effect assessment - **Major** **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially** This option is heavily constrained, with a large number of high value assets comprising 16 scheduled monuments, a GDL and Inventory Battlefield and 58 A, B and C listed buildings. While there may be some opportunities for avoidance of some assets, this could be at the detriment of others. Harlaw Battlefield and Keith Hall GDL would be impossible to avoid, and therefore represent major constraints to the development of options within this section. There are also 340 recorded assets on the Aberdeenshire HER, the nature, extent and significance of which are currently unknown. Further assessment will be required, and the results of this would likely present further constraint to route alignment options.
Landscape	**Landscape character types** - Agricultural Lowlands of the North East **Local designations -** GDLs and SMs - see Historic Environment	Indicative Landscape sensitivity assessment - **High** **• Landscapes which by nature of their character would be unable to accommodate change of the type proposed. Typically these would be: Areas of special recognised value through use, perception or historic and cultural associations.** There are no national landscape designations within the option. The landscape character comprises gently rolling open farmland following the river valley from north to south. There are some small hills and an areas of woodland which span over half of the breadth of the option at its eastern extent. The existing A96 is an established part of the local landscape in the northern and southern extents, which reduces its sensitivity, as do the overhead power lines at either extent. The railway line also runs through the option further reducing the local landscape sensitivity. However, the landscape would be sensitive to any new elevated structures required to cross the railway or the Rivers Urie and Don. The significant number of Scheduled Monuments and Listed Buildings throughout the option, and Keith Hall Gardens and Designed Landscapes which span more than half its breadth, are highly sensitive historic assets which contribute to the landscape character. There are many individual properties scattered through the option and it skirts the highly populated area of Inverurie to the north-east, with the town of Kintore located in the centre of its southern extent. It is considered that a dualled route could have a significant impact on the landscape character within this option.	Risk of effect assessment – Major **• Total loss of, or alteration to, key features of the baseline such that post development characteristics, or quality, would be fundamentally affected** The large number of historic assets and their location within or close to highly populated areas, means that a dualled route could have adverse visual and setting effects on all sensitive receptors. River and railway crossings are unavoidable and new infrastructure would be required which could have a permanent adverse visual effect on the landscape. Any new structures would need to be carefully designed to be in-keeping with the local landscape character. The slopes of the river valleys and hills could be a constraint to dualling and although the open farmland is less of a constraint, adverse effects on the landscape of both are predicted. Dualling in this option has the potential to have a major adverse effect on the character of the landscape.

A96 Dualling Programme Tier 2 SEA Option Assessment

Inverurie Option B North

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Summary of key constraints and effects (including synergistic effects)	It is predicted that the high population centres of Inverurie, Port Elphinstone and Kintore will be difficult to completely avoid through route alignment, particularly in the central part of the option. As such, there is potential for demolition or land take impacts on properties, which are predicted to result in significant effects on population, depending on final route alignment which will take account of other constraints. In addition, the high population density means that there is greater potential to impact visual receptors to a new dualled route. There are a number of key constraints which are unavoidable within the option. These include the crossings and flood risk zones associated with the Rivers Don and Urie and their tributaries, almost all of which, cross the breadth of the option in several locations. Development in the floodplain of these watercourses as a result of new infrastructure requirements, would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors. In addition, although no national or local landscape features are present within the option, any new elevated structures required to cross these watercourses, or indeed the railway line which runs through the option, would have a permanent effect on the character of the landscape. The option is also heavily constrained by a large number of high value historic environment assets, and while there may be opportunities for avoidance of some assets, this could be to the detriment of others; as many of the Scheduled Monuments and Listed Buildings within the option are clustered around population centres, avoidance of these assets could also potentially impact properties. Harlaw Battlefield and Keith Hall GDL are on the outskirts of Inverurie and impossible to circumvent, especially if properties and flood risk zones within the option were to be avoided; there is a major risk of long term, permanent effects on these sites. Air quality in the option is fair, although predicted levels of some pollutants are close to limit levels and forecast future year traffic flows could potentially increase risk of air quality effects for sensitive receptors. Alignments within this option could present the opportunity to move strategic A96 traffic further from the current population centres via a northern bypass. In doing so however, there is risk of significant local impacts on prime agricultural land where it spans the breadth of the option on the outskirts of Inverurie – areas which are, coincidentally, the high value designated historic environment sites Harlaw Battlefield and Keith Hall GDL. There is some avoidance potential for ancient woodland and native woodland throughout the option, although sites could prove more difficult to avoid in the central area. Here, they collectively form a strip of woodland which spans over half of the option breadth, the other half being constrained by the River Don and its flood risk zones and Port Elphinstone; impacts on these sites are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species.		
Mitigation	The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option area. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation In this option, crossings and other accommodation works for core paths and NMU routes will be important in the design to mitigate the effects of crossing these facilities for pedestrians, cyclists and equestrians Impacts on soils and particularly loss of prime land for agriculture will be mitigated through avoidance of the best areas of land where possible and reviewing alignments to minimise fragmentation and severance effects on farm units together with provision of agricultural accommodation works such as vehicle underpasses The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk especially at the Rivers Urie and Don, their associated tributaries and floodplains. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of floodplain protection measures Future route alignments will be developed to avoid known sites of archaeological importance where practical. For any unavoidable cultural heritage receptor (especially Keith Hall GDL), a suitable strategy will be developed on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping		

A96 Dualling Programme Tier 2 SEA Option Assessment

Inverurie Option B Inner

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Biodiversity	**AWI -** Total cover 3.6% (96.9) semi-natural <0.1% (<0.1) plantation 3.6% (96.5) Roy <0.1% (0.4) **NWSS** - Total cover 4.3% (117.9) native woodland 4.1% (112.2) nearly-native woodland 0.2% (5.3) open land habitat <0.1% (0.5) **Aberdeenshire LNCS -** Kinkell Belt 0.7% (18.5) **Aberdeenshire SESA -** Total 3.1% (83.2) Inverurie - area S. of Urie Cottage.1.2% (31.9) Cairnhall 1.7% (46.7) Tuach Hill 0.2% (4.5)	Constraint sensitivity assessment - **Medium** **• National/ local designations and features present but not extensive in area/ number and could be avoided within the option extent** No Natura, SSSI or NNR sites within this option. The key sensitivity in this option is associated with avoidance and minimisation of impacts on AWI and NWSS woodland which are distributed throughout and are not extensive area constraints. Other constraints include the avoidance and minimisation of impacts on the locally designated conservation sites which, due to their distribution within the option, are not extensive area constraints.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** There is some avoidance potential for AWI and NWSS woodland throughout the option, although sites could prove more difficult to avoid along the western side of the option, where together they form areas which span almost half of the option breadth. Should either AWI or NWSS woodland prove unavoidable, dualling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species. There is good avoidance potential for the locally designated conservation due to their size and dispersal throughout the option.
Soils & Geodiversity	**Agricultural land classes 1 to 3.1** - Total Cover 13.4% (363) Grade 2 Arable Agriculture 0.007% (0.2) Grade 3.1 Arable Agriculture 13.4% (362.8) **Carbon-rich soil classification -** Class 0: 6.2% (168.9) Class 1: 79.3% (2151.8) Class 3: 11.8% (319.2) Class 4: 2.7% (72.1)	Constraint sensitivity assessment - **Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** The option is not extensively covered by prime agricultural land although agriculture remains important and a constraint will be avoidance and minimisation of impacts on the better quality land. The option is partly covered by carbon-rich soils and these represent an important constraint to dualling particularly on the southern side of the existing A96 route.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** Some avoidance potential for prime agricultural land as the constraint does not cross the option breadth in its entirety. Should prime agricultural land prove unavoidable, dualling impacts are predicted to be permanent and with potential to be significant at the local level. Despite limited extent of prime land the option area is important for agriculture and the risk of effect has therefore been assessed as moderate. Significant avoidance potential for carbon-rich soil as this is located at the edge of the 2km wide option boundary and significant impacts are not predicted to be likely.
Water & Flooding	**1:200 yr fluvial flood extent (surface area) -** Total cover 14.2% (384.4) **1:200 yr pluvial flooding (surface area)** - Total cover 8.3% (226.1) **Major watercourse crossings (Watercourses shown on 1:50k OS mapping)** - Likely to be constrained by a new River Don crossing. **Existing flood defence infrastructure** - Inverurie (Strathburn & Overburn) Flood Prevention Scheme Overburn Culvert, Inverurie Flood Prevention Scheme **No. of properties within 1:200yr flood extents** - 119 properties in fluvial floodplain	Constraint sensitivity assessment - **High** **• Features with limited capacity to accommodate change or which are already subject to pressures and degradation** Crossings and flood risk zones associated with the Rivers Don and/or Urie and their tributaries are likely to be the key positional constraints to dualling alignment options within the option. The River Don is unavoidable as it spans the breadth of the option in the north and, after the confluence with the River Urie at the eastern edge of the option area, it skirts this eastern edge, south. The River Urie tributary the Strathnaterick Burn in the north, and River Don tributaries the Bridgealehouse and Tuach Burns in the south, are also unavoidable as they span the breadth of the option. Risk from fluvial flooding both to the future dualled A96 route and to the high number of properties around Inverurie and Kintore which are currently in fluvial flood plain, are a key constraint. Sensitive properties and other receptors in areas near the current floodplains could be at risk from changes to floodplain extents as a result of dualling and become a constraint.	Risk of effect assessment - **Major** **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially** In this option, the Rivers Urie and/or Don, their associated tributaries and floodplains are unavoidable and dualling is likely to affect large fluvial flood risk areas. There is potential for significant permanent impacts on flooding through exacerbation of flood risk (to already existing and potentially new sensitive receptors) through dualling. This would affect large areas of floodplain and development within flood risk areas has the potential to result in significant impacts, for e.g. through loss of capacity.
Air	**Traffic flow/ demand data (as a proxy for local air quality where available)** - Current (2012) A96 trunk road Annual Average Daily Traffic (AADT) flows are c8,400 to 27,300 . These are forecast to increase to c15,200 to 27,700 by 2032 with a new dualled route in place Current (2011) levels of key air pollutants (PM10 and NO2) are within air quality objective levels and predicted to remain so for 2030 however monitored NO2 levels at sites in Inverurie town centre are close to objective levels	Constraint sensitivity assessment - **Medium** Air quality in the option boundary area is generally fair although predicted levels of PM10 are closer to objective limit levels and will be locally influenced by traffic using the existing A96 and other busy roads in the area around Inverurie and Kintore.	Risk of effect assessment - **Minor** **• Small changes to the baseline resource which are detectable but the underlying characteristics or quality of the baseline situation would be similar to pre-development conditions** Forecast future year (2032) traffic flows potentially increase risk of air quality effects for sensitive receptors in close proximity to the dualled route but also present opportunity to move traffic further from current population centre in Inverurie and Kintore than the existing A96 alignment. Effects (beneficial and adverse) would be dependent on detailed alignment and proximity to property.

A96 Dualling Programme Tier 2 SEA Option Assessment

Inverurie Option B Inner

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Population & Human Health	**Towns and principal centres of population** - Inverurie adjacent to A96 Kintore adjacent to A96 Port Elphinstone adjacent to A96 **Population -** 4815 properties Average Aberdeenshire household size 2012=2.47 people Therefore population density=4.4 people per Ha **Annual Average Daily Traffic (AADT) by section to nearest 100 vehicles** 2014 AADT: c8,400 to c27,300 2032 (Forecast) AADT: c15,200 to c27,700 **Core paths/ NMUs** - 39 Core Paths mainly located along the existing A96 and around Inverurie and Kintore	Constraint sensitivity assessment - **High** **• Extensive areas of settlement extending across option area** Key constraints will be avoidance of impacts on population centres as the number of properties is high in this option area. Sensitivity reflects the high number of properties and population density which acts to constrain the corridor, as well as constraints from a large number of NMU routes.	Risk of effect assessment - **Major** **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially** It is predicted that high population centres, will be difficult to avoid completely through route alignment due to the presence of the built up area of Inverurie, particularly in the central part of the option. Potential remains for demolition or land take impacts on properties, which are predicted to result in significant effects on population, depending on final route alignment which will take account of other constraints. Crossing a number of core paths is unavoidable as it spans the breadth of the option; impacts could be avoided through accommodation works in the road design.
Historic Environment	**Scheduled Monuments (x20) -** Midmill,long cairn,400m SSE of Tuach Hill - 950m E of A96 Castle of Hallforest - 650m W of A96 Deer's Den, roundhouses 195m and 250m S of - 10m W of A96 Aberdeenshire Canal, milestone 14 1/2 at Canal Cottage, Kintore - 720m E of A96 Kintore, symbol stone near church - 700m E of A96 Aberdeenshire Canal, milestone 15 at Bridgend House, Kintore - 150m E of A96 Fullerton, ring ditches & cairn circle 420m SE of - 20m NE of A96 Kinkell Church and burial ground - 850m E of A96 Broomend, henge, standing stones and symbol stone - 90m E of A96 The Bass and Little Bass, motte-and-bailey castle - 900m E of A96 Inverurie Cemetery, four symbol stones - 850m E of A96 Conyng Hillock, mound E of Parkview, Inverurie - 430m NE of A96 Dillyhill, enclosure 510m WNW of - 860m SW of A96 Brandsbutt Stone, symbol stone - 350m W of A96 East Blairbowie, standing stone 250m ENE of - 1,350m SW of A96 Drimmies,symbol stone - 30m E of A96 Balquhain Castle - 950m W of A96 Mains of Balquhain,stone circle 715m NE of - 450m W of A96 Bruce's Camp, hillfort - 700m W of A96 Drimmies,symbol stone - 30m E of A96 **Inventory Battlefields** - Harlaw 3.3% (90.2) **A Listed Buildings (x1)** - Town House, The Square, Kintore - 600m E of A96 **Gardens & Designed Landscapes** - Keith Hall 0.9% (23.2) **B Listed Buildings x30** **C Listed Buildings x9** **Aberdeenshire SMR -** 13x Regionally Significant 293x Standard	Constraint sensitivity assessment - **High** **• Nationally/ local important designations and features forming extensive constraints either through area covered and/ or number and distribution of sites** There are a large number of scheduled monuments within the option area (20) as well as part of Harlaw Battlefield, Keith Hall GDL, and A, B and C listed buildings. Avoidance may be challenging, and it may not be possible to reduce potential impacts on all designated assets. The Aberdeenshire Historic Environment Record shows 306 recorded sites within the option which will require further detailed assessment at later stages.	Risk of effect assessment - **Major** **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially** While there may be some opportunities for avoidance of some of the designated sites, this could be at the detriment of others. Particular pinch points have been identified at four locations: 1. Castle of Hallforest and Deer's Den roundhouses - scheduled monuments. Deer's Den is directly adjacent to the A96 and would present constraints to the development of dualling. 2. Fullerton ring ditches and cairn SM. This is directly adjacent to the A96 and would present constraints to the development of dualled routes. 3. Broomend henge, standing stones and symbol stone. This is directly adjacent to the A96 and would present constraints to the development of A96 dualling. 4. Complex of SMs at the northern end of the section comprising Dillyhill enclosure, East Blairbowie standing stone, Balquhain Castle, Mains of Balquhain stone circle and Drimmies symbol stone and Harlaw battlefield. These could present constraints to the development of route options, particularly relating to potential impacts on their setting. There are also 306 recorded assets on the Aberdeenshire HER, the nature, extent and significance of which are currently unknown. Further assessment will be required, and the results of this would likely present further constraint to route alignment options.

A96 Dualling Programme Tier 2 SEA Option Assessment

Inverurie Option B Inner

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Landscape	**Landscape character types (Level 3)** Agricultural Lowlands of the North East **Local designations -** SMs - see Historic Environment	Indicative Landscape sensitivity assessment - **Low** **• Landscapes which by nature of their character would be able to accommodate change of the type proposed. Typically these would be: not designated and likely to contain few, if any, features and elements that could not be replaced.** There are no national landscape designations within the option. The landscape character comprises rolling terrain with small hills to the west of the option, settlements and a golf course to the east and woodland scattered throughout. The existing A96 runs through the centre of the option and is an established part of the local landscape which reduces its sensitivity, as do the highly visible overhead power lines which cross the option's northern and southern extents. The River Don spans the option breadth and the landscape would be sensitive to any new elevated structure required to cross it. There are many individual properties scattered through the option and it includes half the town of Inverurie to the east, the village of Port Elphinstone further south, and the town of Kintore at its southern extent. In addition, there are large number of historic environment assets which, due to their dispersal, may be difficult to avoid. It is considered that the landscape character could accommodate a dualled route without significant impact to its quality.	Risk of effect assessment – **Minor** **• Small changes to the baseline resource which are detectable, but the underlying characteristics or quality of the baseline resource would be similar under post-development conditions** It is predicted that properties and historic environment assets could be avoided through route alignment, however a dualled route could have adverse visual and setting effects on receptors; as the existing A96 is an established part of the local landscape throughout the option, risk of effects are predicted to be less. There is potential for adverse effects on the woodland scattered throughout the option as it may not be possible to avoid all areas. Crossing the River Don is unavoidable and new infrastructure would be required which could have a permanent adverse visual effect on the landscape. Any new structures would need to be carefully designed to be in-keeping with the local landscape character. The landscape character could be maintained and absorb a dualled route with potential minor effects as the existing A96 is an established part of the local landscape in throughout.
Summary of key constraints and effects (including synergistic effects)	It is predicted that, as this option generally follows the existing A96, the high population centres of Inverurie, Port Elphinstone and Kintore will be difficult to completely avoid through route alignment, particularly in the central part of the option. As such, there is potential for demolition or land take impacts on properties, which are predicted to result in significant effects on population, depending on final route alignment which will take account of other constraints. In addition, although a new dualled route would not be out of character in the landscape due to the fact that the existing A96 is an established feature, the high population density means that there is greater potential to impact visual receptors. There are a number of key constraints which are unavoidable within the option. These include the crossings and flood risk zones associated with the Rivers Don and Urie and their tributaries, almost all of which, cross the breadth of the option in several locations. Development in the floodplain of these watercourses as a result of new infrastructure requirements, would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors. In addition, although no national or local landscape features are present within the option, any new elevated structures required to cross these watercourses, or indeed the railway line which runs through the option, would have a permanent effect on the character of the landscape. The option is also heavily constrained by a large number of high value historic environment assets, and while there may be opportunities for avoidance of some assets, this could be at the detriment of others; as many of the Scheduled Monuments and Listed Buildings within the option are clustered around population centres, avoidance of these assets could also potentially impact properties. Although Harlaw Battlefield and Keith Hall GDL can be avoided as they lie on the edge of the option boundary, there are a number of pinch points where, in particular, clusters of scheduled monuments and their setting could constrain dualling alignments, especially where other environmental or topographical constraints must be taken into account. Air quality in the option is fair, although closer to Inverurie town centre, predicted levels of some pollutants are close to limit levels and forecast future year traffic flows could potentially increase risk of air quality effects for sensitive receptors. Alignments within this option could present the opportunity to move traffic on the A96 slightly further from the edge of the current population centres at Inverurie and to some extent Kintore. In doing so however, there is some risk of local effects from permanent loss of prime agricultural land where it spans almost the breadth of the option at its northern extent. There is some avoidance potential for ancient and native woodland throughout the option, although sites could prove more difficult to avoid in the central area. Here, they collectively form a strip of woodland which spans over half of the option breadth, the other half being constrained by the River Don and its flood risk zones and Port Elphinstone; impacts on these sites are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species.		
Mitigation	The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option boundary. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation In this option, crossings and other accommodation works for core paths and NMU routes will be important in the design to mitigate the effects of crossing these facilities for pedestrians, cyclists and equestrians Future route alignments will be developed to avoid known sites of archaeological importance where practical. For any unavoidable cultural heritage receptors, a suitable strategy will be developed on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist The SFRA has developed strategic flood risk mitigation which will be important for this option to reduce potential effects on floodplain capacity and changes in flood risk especially at the Rivers Urie and Don, their associated tributaries and floodplains. Key measures will include minimising the length of route in the floodplain, design of infrastructure for minimal loss of floodplain storage capacity and potentially provision of compensatory storage and/or provision of floodplain protection measures Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping		

A96 Dualling Programme Tier 2 SEA Option Assessment

Inverurie Option B South

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Biodiversity	**AWI** - Total cover 7.1% (189.0) semi-natural <0.1% (0.8) plantation 6.7% (177.9) Roy 0.4% (10.3) **NWSS** - Total cover 6.1% (162.4) native woodland 5.7% (151.0) nearly-native woodland 0.3% (7.0) open land habitat 0.2% (4.4) **Aberdeenshire LNCS -** Kinkell Belt <0.1% (<0.1) **Aberdeenshire SESA -** Total 1.9% (51.9) Inverurie- area S. of Urie Cottage.<0.1% (1.0) Cairnhall 1.7% (46.7) Tuach Hill 0.2% (4.1)	Constraint sensitivity assessment - **Medium** **• National/ local designations and features present but not extensive in area/ number and could be avoided within the option extent** No Natura, SSSI or NNR sites within this option. The key sensitivity in this option is associated with avoidance and minimisation of impacts on AWI and NWSS woodland which are distributed throughout the study area and are not extensive area constraints. Other constraints include the avoidance and minimisation of impacts on the locally designated conservation sites, two of which are situated at the outer edges of the option. Cairnhall SESA is located in the centre of the southern part of the option area, however it is not an extensive area constraint.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** Although there is some avoidance potential for both AWI and NWSS woodland, together they form several areas of woodland which span almost the breadth of the option, proving difficult to avoid. Should either AWI or NWSS woodland be unavoidable, dualling impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species. There is good avoidance potential for the locally designated conservation due to their size and dispersal throughout the southern part of the option.
Soils & Geodiversity	**Agricultural land classes 1 to 3.1** - Total Cover 7.4% (198.2) Grade 2 Arable Agriculture 0.007% (0.2) Grade 3.1 Arable Agriculture 7.4% (198) **Carbon-rich soil classification -** Class 1: 84.6% (2258.6) Class 3: 12.6% (335.9) Class 4: 2.8% (74.8)	Constraint sensitivity assessment - **Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** The option is not extensively covered by prime agricultural land although agriculture remains important and a constraint will be avoidance and minimisation of impacts on the better quality land. The option area is partly covered by carbon-rich soils and these represent an important constraint to dualling particularly on the southern side of the existing A96 route.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** Some avoidance potential for prime agricultural land as the constraint does not cross the option breadth in its entirety. Should prime agricultural land prove unavoidable, dualling impacts are predicted to be permanent and with potential to be significant at the local level. Despite limited extent of prime land the option area is important for agriculture and the risk of effect has therefore been assessed as moderate . Significant avoidance potential for carbon-rich soil as this is located at the edge of the 2km wide option boundary and significant impacts are not predicted to be likely.
Water & Flooding	**1:200 yr fluvial flood extent (surface area)** - 11.2% (299.1) **1:200 yr pluvial flooding (surface area)** - Total cover 7.1% (189.8) **Major watercourse crossings (Watercourses shown on 1:50k OS mapping)** - Likely to be constrained by a new River Don crossing. **Existing flood defence infrastructure** - Inverurie (Strathburn & Overburn) Flood Prevention Scheme Overburn Culvert, Inverurie Flood Prevention Scheme **No. of properties within 1:200yr flood extents** - 34 properties in fluvial floodplain	Constraint sensitivity assessment - **Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** Crossings and flood risk zones associated with the River Don and its tributaries are likely to be the key positional constraints to dualling alignment options within the option. The River Don is unavoidable as it spans the breadth of the option area in the north and, after the confluence with the River Urie, it skirts the south eastern edge of the option. The River Urie tributary the Strathnaterick Burn in the north, and River Don tributaries the Bridgealehouse and Tuach Burns in the south, are also unavoidable as they span the breadth of the option. Risk from fluvial flooding both to the future dualled A96 route and to the properties around Inverurie and Kintore which are currently in fluvial flood plain, are a key constraint. Sensitive properties and other receptors in areas near the current floodplains could be at risk from changes to floodplain extents as a result of dualling and become a constraint.	Risk of effect assessment - **Moderate** **• Typically medium to long term effects which are unlikely to be avoidable, but will generally reduce over time and/ or can be substantially mitigated** Although crossing the River Don in the north of the option is unavoidable, there is potential to avoid its floodplain after its confluence with the River Urie, to the eastern edge of the option area. Tributaries of the Rivers Urie and Don are unavoidable in both the northern and southern extents of the option. Development within the flood risk areas associated with these crossings, has the potential to result in significant impacts, for e.g through loss of capacity, however there is some scope for mitigation at watercourse crossings through appropriate design of structures. Should fluvial floodplains of these watercourses be affected by dualling, there is potential for permanent impacts through exacerbation of fluvial flood risk to existing and potentially new sensitive receptors.
Air	**Traffic flow/ demand data (as a proxy for local air quality where available)** - Current (2012) A96 trunk road Annual Average Daily Traffic (AADT) flows are c8,400 to 27,300 . These are forecast to increase to c15,200 to 27,700 by 2032 with a new dualled route in place Current (2011) levels of key air pollutants (PM10 and NO2) are within air quality objective levels and predicted to remain so for 2030 however monitored NO2 levels at sites in Inverurie town centre are close to objective levels	Constraint sensitivity assessment - **Medium** Air quality in the option area is generally fair although predicted levels of PM10 are closer to objective limit levels and will be locally influenced by traffic using the existing A96 and other busy roads in the area around Inverurie and Kintore.	Risk of effect assessment - **Minor** **• Small changes to the baseline resource which are detectable but the underlying characteristics or quality of the baseline situation would be similar to pre-development conditions** Forecast future year (2032) traffic flows potentially increase risk of air quality effects for sensitive receptors in close proximity to the dualled route but also present opportunity to move traffic further from current population centre in Kintore than the existing A96 alignment. Effects (beneficial and adverse) would be dependent on detailed alignment and proximity to property.

A96 Dualling Programme Tier 2 SEA Option Assessment

Inverurie Option B South

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Population & Human Health	**Towns and principal centres of population** - Inverurie adjacent to A96 Kintore adjacent to A96 Port Elphinstone adjacent to A96 **Population** - 1408 properties Average Aberdeenshire household size 2012=1.3 people Therefore population density= 1.3 people per Ha **Annual Average Daily Traffic (AADT) by section to nearest 100 vehicles** 2014 AADT: c8,400 to c27,300 2032 (Forecast) AADT: c15,200 to c27,700 **Core paths/ NMUs** - 23 Core Paths mainly located along the existing A96 and around Inverurie and Kintore	Constraint sensitivity assessment - **Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** Key constraints will be avoidance of impacts on population centres as the number of properties is relatively high in this option area. The option sensitivity reflects the number of properties and population density which acts to constrain the corridor to some degree, as well as constraints from a large number of NMU routes.	Risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** It is predicted that small population centres, which are dispersed throughout the option, could be generally avoided through route alignment (although there is more constraint in the southern end of the option near Kintore). Potential remains for demolition or land take impacts on some isolated properties depending on final route alignment which will take account of other constraints. Crossing a number of core paths is unavoidable as they span the breadth of the option near Insch; impacts could be avoided through accommodation works in the road design.
Historic Environment	**Scheduled Monuments (x15) -** St Apolinaris' Chapel and burial ground Bruce's Camp, hillfort - 700m W of A96 Aberdeenshire Canal, milestone 14 1/2 at Canal Cottage, Kintore - 720m E of A96 Aberdeenshire Canal, milestone 15 at Bridgend House, Kintore - 150m E of A96 Balquhain Castle - 950m W of A96 Broomend, henge, standing stones and symbol stone - 90m E of A96 Castle of Hallforest - 650m W of A96 Deer's Den, roundhouses 195m and 250m S of - 10m W of A96 Drimmies, symbol stone - 30m E of A96 East Blairbowie, standing stone 250m ENE of - 1,350 SW of A96 Fullerton, ring ditches & cairn circle 420m SE of - 20m NE of A96 Inverurie Cemetery, four symbol stones - 850m E of A96 Kintore, symbol stone near church - 700m E of A96 Mains of Balquhain, stone circle 715m NE of - 450m W of A96 Midmill, long cairn 400m SSE of Tuach Hill - 950m E of A96 **A Listed Buildings (x1) -** Town House, The Square, Kintore - 600m E of A96 **B Listed Buildings x10** **C Listed Buildings x4** **Aberdeenshire SMR -** 9x Regionally Significant 223 x Standard	Constraint sensitivity assessment - **High** **• Nationally/ local important designations and features forming extensive constraints either through area covered and/ or number and distribution of sites** There are a large number of scheduled monuments within the option area (15), as well as an A listed building and a number of B and C listed buildings. Avoidance may be challenging, and it may not be possible to reduce potential impacts on all designated assets. The Aberdeenshire Historic Environment Record shows 232 recorded sites within the option. These will require further detailed assessment at later stages.	Risk of effect assessment - **Major** **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially** There are a large number of high value scheduled monuments (16) within the option, as well as 16 A, B and C listed buildings. While there may be some opportunities for avoidance of some of these, this could be at the detriment of others. Particular pinch points have been identified at four locations: 1. Castle of Hallforest and Deer's Den roundhouses - scheduled monuments. Deer's Den is directly adjacent to the A96 and would present constraints to the development of A96 dualling. 2. Fullerton ring ditches and cairn scheduled monument. This is directly adjacent to the A96 and would present constraints to the development of dualling options. 3. Broomend henge, standing stones and symbol stone. This is directly adjacent to the A96 and would present constraints to the development of dualling options. 4. Complex of scheduled monuments at the northern end of the section comprising Dillyhill enclosure, East Blairbowie standing stone, Balquhain Castle, Mains of Balquhain stone circle and Drimmies symbol stone. These could present constraints to the development of A96 dualling particularly relating to potential impacts on their setting. There are also 231 recorded assets on the Aberdeenshire HER, the nature, extent and significance of which are currently unknown. Further assessment will be required, and the results of this would likely present further constraint to route alignments.
Landscape	**Landscape character types** - Agricultural Lowlands of the North East **Local designations -** SMs - see Historic Environment	Indicative Landscape sensitivity assessment - **Medium** **• Landscapes which by nature of their character would be able to partly accommodate change of the type proposed. Typically these would be: comprised of commonplace elements and features creating generally unremarkable character but with some sense of place.** There are no national landscape designations within the option. The landscape character comprises rolling, agricultural land with small hills and woodland areas through the option. The existing A96 is an established part of the local landscape in the southern extent which reduces its sensitivity, as do the highly visible overhead power lines which cross the option's northern and southern extents. The River Don spans the option breadth, as does a strip of woodland to the west of Port Elphinstone, and both may be difficult to avoid. The landscape would be sensitive to any new elevated structure required to cross the Rivers Don. There are many individual properties scattered through the option and it skirts the highly populated area of Inverurie to the west, with the town of Kintore located in the centre of its southern extent. In addition, there are large number of historic environment assets which, due to their dispersal, may be difficult to avoid. It is considered that the landscape character could accommodate a dualled route without significant impact to its quality.	Risk of effect assessment – **Moderate** **• Loss of, or alteration to key features of the baseline resource such that post development characteristics or quality would be partially changed** It is predicted that properties and historic environment assets could be avoided through route alignment, however a dualled route could have adverse visual and setting effects on receptors, however as the existing A96 is an established part of the local landscape in the south, risk of effects here are predicted to be less. There is potential for adverse effects on the woodland scattered throughout the option as it may not be possible to avoid all areas. Crossing the river Don is unavoidable and new infrastructure would be required which could have a permanent adverse visual effect on the landscape. Any new structures would need to be carefully designed to be in-keeping with the local landscape character. There is potential for adverse effects on landscape in both the hilly terrain and the more open landscape in the option. However, the landscape character of the area could be maintained and absorb a dualled route with potential moderate effects as the existing A96 is an established part of the local landscape in the south.

A96 Dualling Programme Tier 2 SEA Option Assessment

Inverurie Option B South

SEA Topic	Key Designations (Description of Constraint incl % coverage of option area and coverage in Ha)	Level of Constraint	Risk of Effect
Summary of key constraints and effects (including synergistic effects)	It is predicted that small population centres, which are dispersed throughout the option, could generally be avoided through route alignment, although the southern part of this option is more constrained by the town of Kintore. Potential remains, however, for demolition or land take impacts on some isolated properties depending on final route alignment which will take account of other constraints. In addition, it is likely that the landscape character would be sensitive to change by the introduction of a new route through the terrain with some moderate long-term effects to the landscape and, in areas of higher population density, there is greater potential to impact visual receptors to a new dualled route. A key constraint in this option is the large number of high value historic environment assets, and while there may be opportunities for avoidance of some assets, this could be at the detriment of others. There are a number of pinch points where, in particular, clusters of scheduled monuments and their setting could constrain dualling alignments, especially where other environmental or topographical constraints must be taken into account. Although crossing the River Don in the north of the option is unavoidable, there is potential to avoid its floodplain after its confluence with the River Urie, to the eastern edge of the option. Tributaries of the Rivers Urie and Don are unavoidable in both the northern and southern extents of the option and any development in the floodplain of these watercourses as a result of new infrastructure requirements, would create the potential for significant permanent impacts on flooding through exacerbation of flood risk, to existing and potentially new sensitive receptors. In addition, although no national or local landscape features are present within the option, any new elevated structures required to cross these watercourses would have a permanent effect on the character of the landscape. Air quality in the option is fair, although closer to Inverurie town centre, predicted levels of some pollutants are close to limit levels and forecast future year traffic flows could potentially increase risk of air quality effects for sensitive receptors. Alignments within this option could present the opportunity to move strategic traffic on the A96 further south from the current population centres at Inverurie and to some extent Kintore. In doing so however, there is some risk of local impacts on prime agricultural land where it spans almost the breadth of the option at its northern extent. Although there is some avoidance potential for both ancient and native woodland throughout the option, together they form several areas of woodland which span almost the breadth of the centre of the option, proving difficult to avoid; here, impacts are predicted to be permanent and potentially significant, with possible secondary effects on woodland (including protected) species.		
Mitigation	The principle of avoidance should be adopted for key constraints including properties and designated areas identified in the option boundary. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform future route alignment studies and develop project specific mitigation Future route alignments will be developed to avoid known sites of archaeological importance where practical. For any unavoidable cultural heritage receptors, a suitable strategy will be finalised on a site by site basis in conjunction with Historic Scotland and the local authority Archaeologist Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on landscape, visual and cultural heritage receptors through sensitive design and location. Attention to horizontal and vertical alignment of the road will be required in managing the extent of earthworks and planting schemes which respect local woodland composition and structure will be adopted for scheme landscaping		

A96 Dualling Programme Tier 2 SEA Option Assessment

Option B: Approximately 115km long and 30510Ha in area.

SEA Topic	Key Designations Represented in Option (including variants) (Refer to Tables in Appendix X for % coverage and coverage in Ha) (note 1)	Level of Constraint	Risk of Effect
Biodiversity	This option spans the complete length of the corridor through Sections 3 to 10. As this option encompasses a variety of potential bypass options around Forres, Elgin and Inverurie a specific list of constraints is not presented here. Reference can be made to relevant sub-options in the preceding tables and the tables within Appendices H and I for specific constraints data.	Overall option constraint sensitivity assessment - **Medium** **• Natura sites may be present/ adjacent but likely to be small or in discrete locations that could be avoided within the option extent** The constraint sensitivity assessment ranges from **Medium** to **High** within the option. Key sensitivities in the option will be avoidance and minimisation of impacts on Ramsar, Natura, SSSI and locally designated conservation sites, as well as on AWI and NWSS woodland. The north of the option includes Ramsar, Natura, SSSI and locally designated conservation sites, although they are generally at the edge of the option boundary or limited in area, and therefore do not represent a significant constraint to dualling. This is not the case where the option crosses nationally and internationally designated sites associated with the River Spey at Fochabers. The centre and south of the option contain a SSSI site at the edge of the option boundary, and several large areas of locally designated conservation sites which may prove difficult to avoid, especially around the Glens of Foudland. The extent of AWI and NWSS woodland cover varies through the whole of the option area and there are large swathes where it spans the option breadth entirely. This high constraint occurs in the north, within the option's southern variant around Forres and within the option around the towns of Lhanbryde and Fochabers, as well as at The Bin Forest in the centre on the option.	Overall option risk of effect assessment - **Moderate/ Major** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** Risk of effect assessment ranges from **Minor to Major within the option** There is significant avoidance potential for Ramsar, Natura and SSSI sites as these are generally located at the outer edge of the 2km wide option boundary (or are very limited in spatial coverage) and significant impacts are predicted to be unlikely. The designated sites associated with the River Spey are unavoidable as they cross the entire breadth of the option, however with mitigation applied, the HRA has identified that potential impacts can be avoided or reduced such that no adverse effects on site integrity would be predicted. There is avoidance potential for most of the locally designated conservation sites within the option, however where they span its breadth and are unavoidable, dualling impacts are predicted to be permanent and potentially significant at the local level. The risk of impacts from dualling on AWI and SWSS woodland may be difficult to avoid as they are extensive in some areas of the option; more so within the option's southern variant around Forres, within the option around the towns of Lhanbryde and Fochabers, as well as at The Bin Forest. There is potential for significant effects, however it is predicted that these could be mitigated at least in part through, for example, sensitively designed mitigation planting.
Soils & Geodiversity	This option spans the complete length of the corridor through Sections 3 to 10. As this option encompasses a variety of potential bypass options around Forres, Elgin and Inverurie a specific list of constraints is not presented here. Reference can be made to relevant sub-options in the preceding tables and the tables within Appendices H and I for specific constraints data.	Overall option constraint sensitivity assessment - **Medium** **• Features with some capacity to accommodate change and which may already be subject to pressures and degradation** The constraint sensitivity assessment ranges from **Low** to **High** within the option. The option includes SSSI and GCR sites and whilst these are important designations they are not extensive in extent and do not represent a significant constraint to dualling. Key constraints will be avoidance and minimisation of impacts on carbon-rich soils and prime agricultural land. The north of the option is not constrained by carbon-rich soils, however the presence of large swathes of prime agricultural land around Forres and Elgin mean that the option, the northern variants in particular, is heavily constrained. The centre of the option has medium sensitivity due to the presence of carbon-rich soils, however prime agricultural land is not a significant constraint. Conversely, carbon-rich soils in the south of the option are not a significant constraint, but large areas of prime agricultural land commencing are. These commence around Colpy and extend to Kintore and the northern variant around Inverurie is more constrained than its comparators.	Overall option risk of effect assessment - **Moderate/ Major** **• Likely to directly affect an environmental designation, resource/ feature or other receptors, e.g. through spatial loss or a direct effect on critical aspects of the resource's functions** Risk of effect assessment ranges from **Moderate** to **Major** within the option. Significant avoidance potential for SSSI and GCR sites due to their small spatial extent and location within the option; significant impacts are not predicted. Carbon-rich soils may prove difficult to fully avoid throughout the option, in particular south of Fochabers and north of Inverurie, and there is some potential for significant effects from loss of peat. Prime agricultural land is unavoidable due to its extent and distribution in the northern and southern parts of the option, and the northern variants around Forres, Elgin and Inverurie are predicted to have greater potential for significant effects than their comparators. Dualling impacts are predicted to be permanent and potentially significant at the local level, with the potential for secondary effects on local land use, for example due to farm unit severance or fragmentation.

A96 Dualling Programme Tier 2 SEA Option Assessment

Option B: Approximately 115km long and 30510Ha in area.

SEA Topic	Key Designations Represented in Option (including variants) (Refer to Tables in Appendix X for % coverage and coverage in Ha) (note 1)	Level of Constraint	Risk of Effect
Water & Flooding	This option spans the complete length of the corridor through Sections 3 to 10. As this option encompasses a variety of potential bypass options around Forres, Elgin and Inverurie a specific list of constraints is not presented here. Reference can be made to relevant sub-options in the preceding tables and the tables within Appendices H and I for specific constraints data.	Overall option constraint sensitivity assessment - **High** **• Features with limited capacity to accommodate change or which are already subject to pressures and degradation** The constraint sensitivity assessment ranges from **Medium** to **High** within the option. The northern part of the option is highly constrained by watercourse crossings and both fluvial and coastal flood risk zones. Muckle Burn and the Rivers Findhorn, Lossie and Spey and their floodplains are unavoidable as they span the whole of the option, including the north and south variants around Forres and Inverurie. In addition, many tributaries of these watercourses will require crossing as they, and their floodplains, also traverse the southern variants of the option around Forres and Inverurie; these include Burn of Mosset, Monaughty Burn/ Mosstowie Canal and Black Burn. However, the northern variants of the option around Forres and Inverurie are also constrained by coastal flood risk zones which often overlap with areas of fluvial flood risk; this is the case around Findhorn Bay to the north of Forres, and the area between Lossiemouth on the coast and the north of Elgin. The central part of the option is moderately constrained by the watercourse crossings and fluvial flood risk zones associated with the Rivers Isla, Deveron, Bogie and Urie; these, and many of their tributaries, are unavoidable as they span the whole of the option breadth. The southern part of the option is highly constrained by the watercourse crossings and fluvial flood risk zones associated with the Rivers Urie and Don and their tributaries. Although the River Don is unavoidable in all option variants around Inverurie, the northern option is more heavily constrained as it generally follows the course of the River Urie in this area. Therefore a key constraint throughout the option, will be risk from fluvial flooding to future dualled A96 route, to the significant number of properties currently in fluvial flood plains and to potential changes in the extent of flood plains as a result of dualling. Sensitive properties and other receptors in areas near current floodplains could be at risk from changes to floodplain extents as a result of dualling and also become a constraint.	Overall option risk of effect assessment - **Major** **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially** There is significant avoidance potential for coastal flood zones in the north of the option as they are located at the outer edge of the option boundary; this zone also overlaps with the fluvial flood zone, and it is likely that dualling would avoid it. Crossing several watercourses and their associated floodplains is unavoidable in the northern and southern parts of the option. These include the Rivers Findhorn, Lossie and Spey in the north and the Rivers Urie and Don in the south. Therefore there is potential for significant permanent impacts on flooding through exacerbation of fluvial flood risk (to existing and potentially new sensitive receptors) through dualling. This would affect the floodplains of all unavoidable watercourses, since crossings are needed and development in within flood risk areas has the potential to result in significant impacts, for e.g through loss of capacity. There is some scope for mitigation at watercourse crossings through appropriate design of structure.
Air	This option spans the complete length of the corridor through Sections 3 to 10. As this option encompasses a variety of potential bypass options around Forres, Elgin and Inverurie a specific list of constraints is not presented here. Reference can be made to relevant sub-options in the preceding tables and the tables within Appendices H and I for specific constraints data.	Overall option constraint sensitivity assessment - **Low** The constraint sensitivity assessment ranges from **Low** to **Medium** within the option. Air quality throughout most of the option is generally good and typical of rural areas. To the southern extent of the option however, air quality is fair and predicted levels of PM10 are closer to objective limit levels nearer Inverurie and Kintore. Air quality will be locally influenced by traffic using the existing A96 and other busy roads in the areas around the population centres throughout the option. These include Forres, Elgin, Lhanbryde and Fochabers in the north, Keith and Huntly in the centre and, Inverurie, Kintore and Aberdeen in the south.	Overall option risk of effect assessment - **Minor** **• Small changes to the baseline resource which are detectable but the underlying characteristics or quality of the baseline situation would be similar to pre-development conditions** Forecast future year (2032) traffic flows potentially increase the risk of air quality effects for sensitive receptors in close proximity to the dualled route, but the bypass variants also present the opportunity to move traffic further from current population centres than the existing A96 alignment. Effects (beneficial and adverse) would be dependent on detailed alignment and proximity to property.
Population & Human Health	This option spans the complete length of the corridor through Sections 3 to 10. As this option encompasses a variety of potential bypass options around Forres, Elgin and Inverurie a specific list of constraints is not presented here. Reference can be made to relevant sub-options in the preceding tables and the tables within Appendices H and I for specific constraints data.	Overall option constraint sensitivity assessment - Medium • Features with some capacity to accommodate change and which may already be subject to pressures and degradation The constraint sensitivity assessment ranges from Low to High within the option. Key constraints will be avoidance of impacts on the properties and population centres throughout the option, as well as impacts on NMU routes, and local trails and cycle routes. The north of the option has medium sensitivity due to its proximity to the large settlements of Forres and Elgin and their associated local trails and cycle routes. This part of the option is also constrained by Sustrans National Cycle Route 1 and long distance paths The Moray Coast Trail, The Dava Way and The Speyside Way. In particular, the southern variant around Elgin is less constrained than its comparators. The centre of the option is constrained by the population centres and NMU routes of Keith and Huntly, and by the long distance path The Isla Way. The option in the south is highly constrained by the densely populated areas of Inverurie and Kintore, as well as by the large number and density of NMU routes around these towns. In particular, the southern variant around Inverurie is less constrained than its comparators.	Overall option risk of effect assessment - **Moderate** **• Longer term permanent effects on non-designated resources/ features or other receptors, e.g. through spatial loss or indirect effects on critical aspects of the resource's functions** Risk of effect assessment ranges from **Minor** to **Major** within the option. It is predicted that isolated properties, clusters of properties and small population centres dispersed throughout the option, could generally be avoided through route alignment. Potential remains for demolition or land take impacts on some properties, particularly given the proximity of the option to the large settlements of Forres, Elgin, Fochabers, Keith, Huntly, Inverurie and Kintore; impacts will depending on final route alignment which will take account of other constraints. There is potential for core paths and other NMU routes to be avoided or otherwise accommodated through scheme design, even where they span the breadth of the option as is the case for Sustrans National Cycle Route 1 and the long distance paths The Moray Coast Trail, The Dava Way, The Speyside Way and the Isla Way. The southern variants around Elgin and Inverurie are predicted to have less potential for significant effects than their comparators.

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Option B: Approximately 115km long and 30510Ha in area.			
SEA Topic	**Key Designations Represented in Option (including variants) (Refer to Tables in Appendix X for % coverage and coverage in Ha) (note 1)**	**Level of Constraint**	**Risk of Effect**
Historic Environment	This option spans the complete length of the corridor through Sections 3 to 10. As this option encompasses a variety of potential bypass options around Forres, Elgin and Inverurie a specific list of constraints is not presented here. Reference can be made to relevant sub-options in the preceding tables and the tables within Appendices H and I for specific constraints data.	Overall option constraint sensitivity assessment - **Medium** **• National/ local designations and features present but not extensive in area/ number and could be avoided within the option extent** The constraint sensitivity assessment ranges from **Low** to **High** within the option. Constraints will include avoidance and minimisation of impacts many historic environment assets including scheduled monuments, an inventory battlefield, listed buildings, gardens and designed landscapes, conservation areas and local historic designated sites. Avoidance may be challenging, and it may not be possible to reduce potential impacts on all designated assets given that their dispersal may cause pinch points when other constraints are taken into account. In the north of the option scheduled monuments are widely dispersed, and there are clusters of listed building within the population centres, including in the conservation areas of Forres, Elgin and Fochabers. GDLs are generally located at the edge of the option and do not present a significant constraint to dualling. The northern variant around Forres is highly constrained by listed buildings and its proximity to the historic core of Forres, whereas the southern variant is highly constrained by a complex of high value assets at Dallas Dhu Distillery. In the centre of the option, scheduled monuments and are again widely dispersed and clusters of listed buildings are located in the conservation areas of Huntly; Gordon Castle is located to the northern edge of the option. The south of the option is highly constrained by a large number of scheduled monuments as well as by many listed buildings; especially within the towns of Inverurie and Kintore. The size and location of Harlaw inventory battlefield and Keith Hall mean that the northern variant around Inverurie is more highly constrained than its comparators. Throughout the option, there are a great number of local designated archaeological sites identified in the Aberdeenshire and Moray Sites and Monuments Record. These are dispersed throughout the option area and will require further detailed assessment at later stages.	Overall option risk of effect assessment - **Moderate/ Major** **• Typically long term, permanent effects which are unlikely to be avoidable and may be difficult to mitigate, even partially** Risk of effect assessment ranges from **Minor** to **Major** within the option. There is some avoidance potential for many of the historic assets within the option, however avoidance of some of these assets could be at the detriment of others, and potential impacts on the setting of all assets will need to be carefully considered. Generally, there is good avoidance potential for scheduled monuments and listed buildings in the north of the option, however there is the potential for setting impacts on high value assets around Dallas Dhu Distillery, and the garden and designed landscapes of Brodie Castle and Darnaway Castle. Similarly, there is good avoidance potential for scheduled monuments and listed buildings in the centre of the option and the potential for setting impacts on Gordon Castle GDL and Fochabers Conservation Area. In the south of the option however, the higher number and density of scheduled monuments and listed buildings means a greater risk of direct and/ or indirect effects. More specifically there is the potential for effects on assets around Colpy, associated with Williamston House and Newton House GDLs. The northern variant around Inverurie presents greater potential risk of effects on Harlaw Battlefield and Keith Hall GDL than its comparators. Aberdeenshire and Moray Sites and Monuments Records show a great number of recorded sites within the option, the nature, extent and significance of which are currently not known. Further assessment will be required, and the results of this could present further constraints to development.

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Option B: Approximately 115km long and 30510Ha in area.

SEA Topic	Key Designations Represented in Option (including variants) (Refer to Tables in Appendix X for % coverage and coverage in Ha) (note 1)	Level of Constraint	Risk of Effect
Landscape	This option spans the complete length of the corridor through Sections 3 to 10. As this option encompasses a variety of potential bypass options around Forres, Elgin and Inverurie a specific list of constraints is not presented here. Reference can be made to relevant sub-options in the preceding tables and the tables within Appendices H and I for specific constraints data..	Indicative Landscape sensitivity assessment - **Medium** **• Landscapes which by nature of their character would be able to partly accommodate change; comprised of commonplace elements and features creating generally unremarkable character but with some sense of place.** The option includes several land character types although the existing A96 is an established part of the local landscape in this option. There are several population centres dispersed throughout the option and the bypass variants avoid the most densely populated areas. Properties in and around these population centres that currently do not have a view of, or only partially view, the existing A96 would be visual receptors to a new dualled road, and highly sensitive to any new features within this landscape. The presence of a number of Scheduled Monuments and listed buildings throughout the option adds to the overall landscape sensitivity and level of constraint due to the difficulty of avoiding indirect effects on their setting. The landscape in the north around Forres and Elgin is mainly flat, lowland agricultural character, with some large areas of woodland. Around Fochabers the character is more of an open, gently undulating landscape which includes the River Spey, and there are large areas of woodland in the area which cannot be avoided. In the centre of the option between Keith and the Glens of Foudland the landscape is of a hilly, open character with patches of woodland, individual dwellings and farms; some woodland would be unavoidable. Similarly, dualling in the area of The Bin Forest would be particularly challenging due to proximity of forest and adjacent hills. In the south of the option the landscape character is shaped by agriculture and although the more open landscape is less constrained in engineering terms, it is still sensitive to change, due to its openness. Generally, to introduce a new road into the landscape of this option would substantially change the character of the area. Near Colpy, the landscape is influenced by the Gardens and Design Landscapes (GDL) of Williamston House and Newton House, with potential for adverse visual impacts. Keith Hall GDL also contributes to a sensitive landscape east of Inverurie which would be directly impacted by Option B north in this section. Where the levels in the landscape change, its character will be very sensitive to any new infrastructure. This means that effects could arise as a result of any new elevated bridge structures required to cross the watercourses in the option, or the railway line which crosses the option in several locations.	Risk of effect assessment – **Moderate** **• Loss of, or alteration to key features of the baseline resource such that post development characteristics or quality would be partially changed** There are no national landscape designations within the option but there are a number of historic environment assets dispersed throughout so the design of the dualled route would need to take into account this sensitive landscape. The option also generally follows the alignment of the existing A96 trunk road which forms an established part of the local landscape. Although it is predicted that individual properties and small population centres could generally be avoided through route alignment to minimise visual effects, it would not be possible to introduce a new road features into the landscape around the more highly populated areas, without having an adverse effect on these settlements. Where the landscape character consists of undulating terrain with some farmland, it would be very sensitive to change due to its openness and there would be the potential for some moderate long-term effects. Where the landscape is hilly and challenging it will be more difficult to accommodate a dualled route. Crossing a number of watercourses, as well as crossing the railway, is unavoidable within the option and new infrastructure would be required. This would have a permanent visual impact on the landscape and although screening may be appropriate, any new structures would need to be carefully designed to be in-keeping with the local landscape character. In addition, the physical and visual impact on large areas of woodland which span the option and are impossible to avoid, would adversely affect the quality and character of the option's landscape area.

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Option B: Approximately 115km long and 30510Ha in area.

SEA Topic	Key Designations Represented in Option (including variants) (Refer to Tables in Appendix X for % coverage and coverage in Ha) (note 1)	Level of Constraint	Risk of Effect
Summary of key constraints and effects (including synergistic effects)	Biodiversity • There is significant avoidance potential for most Ramsar, Natura and SSSI sites as these are generally located at the outer edge of the 2km wide option study area (or are very limited in spatial coverage) and significant impacts are predicted to be unlikely. Effects on Natura sites will be considered through Habitats Regulations Appraisal (HRA) processes • The designated sites associated with the River Spey are unavoidable as they cross the entire breadth of the option; however, with mitigation applied, potential impacts may be avoided or reduced such that no adverse effects on site integrity would occur • A number of locally designated conservation sites are located within the option, and where they span its breadth and are unavoidable, for example around the Glens of Foudland, dualling impacts are predicted to be permanent and potentially significant at the local level • The risk of impacts from dualling on ancient and native woodland may be difficult to avoid as they are extensive in some areas of the option, and there is potential for significant effects. The risk is greater within the option's southern variant around Forres, within the option around the towns of Lhanbryde and Fochabers, as well as at The Bin Forest • Overall the risk of effects has been assessed as moderate/ major adverse (ranging from minor to major across the option) Soils and Geodiversity • Due to the location and small spatial extent within the option, SSSI and GCR sites have the potential to be avoided and significant impacts are not predicted • Carbon-rich soils may prove difficult to fully avoid throughout the option, in particular for small areas south of Fochabers and north of Inverurie, and there is some potential for significant effects from loss of peat although these are generally not extensive • Prime agricultural land is unavoidable due to its extent and distribution particularly in the northern and southern parts of the option, and the northern option variants around Forres, Elgin and Inverurie are typically predicted to have greater potential for significant effects than their comparators due to potential loss of prime agricultural land • Overall the risk of effects has been assessed as moderate/ major adverse (ranging from moderate to major across the option) Water and Flooding • There is significant avoidance potential for coastal flood zones in the north of the option due to its location at the outer edge of the option boundary; these zones also overlap with the fluvial flood zone in some areas, although it is likely that dualling would avoid these locations • Crossing several watercourses and their associated floodplains is unavoidable in the northern and southern parts of the option. These include the Rivers Findhorn, Lossie and Spey in the north and the Rivers Urie and Don in the south • There is potential for significant permanent impacts on flooding through exacerbation of fluvial flood risk (to existing and potentially new sensitive receptors) through dualling, and this would affect the floodplains of all unavoidable watercourses, since crossings are needed and development within flood risk areas has the potential to result in significant impacts, for example through loss of flood storage capacity. There is some scope for mitigation at watercourse crossings through appropriate design of structure • Overall the risk of effects has been assessed as major adverse (ranging from minor to major across the option) Air • Air quality throughout most of the option is generally good and typical of rural areas. Towards the southern extent of the option; however, air quality is fair and predicted levels of PM10 are close to objective limit levels nearer Inverurie and Kintore • Air quality will be locally influenced by traffic using the existing A96 and other busy roads in the areas around the population centres throughout the option. These include Forres, Elgin, Lhanbryde and Fochabers in the north, Keith and Huntly in the centre and, Inverurie, Kintore and the edge of Aberdeen in the south • Forecast future year traffic flows potentially increase the risk of air quality effects for sensitive receptors in close proximity to the dualled route, but the bypass variants also present the opportunity to move traffic further from current population centres than the existing A96 alignment • Effects on air quality would depend on detailed alignments and proximity to property and have been assessed as minor (beneficial and adverse) at this strategic level Population and Human Health • This is an online/ near online option broadly following the existing A96 trunk road route with local bypass sub-options to the north and south of Forres, Elgin and Inverurie • Key constraints will be avoidance of impacts on the properties and population centres throughout the option, as well as impacts on NMU routes, and local trails and cycle routes. It is predicted that isolated properties, clusters of properties and small population centres dispersed throughout the option, could generally be avoided through route alignment • Potential remains; however, for demolition or land take impacts on some properties, particularly given the proximity of the option to the large settlements of Forres, Elgin, Fochabers, Keith, Huntly, Inverurie and Kintore; impacts will depend on final route alignment which will take account of other constraints. Bypass options offer the potential to reduce adverse impacts on population currently affected by traffic using the existing A96 • There is potential for core paths and other NMU routes to be avoided or otherwise accommodated through scheme design, and the southern variants around Elgin and Inverurie are predicted to have less potential for significant effects than their comparators • Overall the risk of effects has been assessed as moderate adverse with some beneficial effects where options offer bypasses to towns. Effects range from minor to major across the option Historic Environment • Generally, scheduled monuments and listed buildings can be avoided in the north and centre of the option; however, avoidance of some of these assets could be at the detriment of others, and potential impacts on the setting of all assets will need to be carefully considered • For example, there is the potential for setting impacts on the garden and designed landscapes of Brodie Castle, Darnaway Castle and Gordon Castle GDLs and Fochabers Conservation Area, as well as on the high value assets around Dallas Dhu Distillery in the southern option variant around Forres • In the south of the option, the higher number and density of scheduled monuments and listed buildings means there is a greater risk of direct and/ or indirect effects. There is the potential for effects on assets around Colpy, associated with Williamston House and Newton House GDLs. The northern variant around Inverurie presents greater potential risk of effects on Harlaw Battlefield and Keith Hall GDL than its comparators • Aberdeenshire and Moray Sites and Monuments Records show a great number of recorded sites within the option, the nature, extent and significance of which are currently not known. Further assessment will be required, and the results of this could present further constraints to development • The overall risk of effects on historic environment features has been assessed as moderate/ major adverse (ranging from minor to major across the option) Landscape • There are no national landscape designations within the option study area but there are a number of historic environment assets dispersed throughout, and the design of the dualled route would need to take into account this sensitive landscape. The option also generally follows the course of the existing A96 trunk road which forms an established part of the local landscape • Although it is predicted that individual properties and small population centres could generally be avoided through route alignment to minimise visual effects, it would not be possible to introduce a new road feature into the landscape around the more highly populated areas, without having an adversely effect on these settlements		
Mitigation	Due to the complexity associated with the multiple local variants to Option B, option specific mitigation has not been presented in this table; a comprehensive table of mitigation measures is detailed in Section 8.2 of this report The principle of avoidance should be adopted for constraints identified. Where this is not possible more detailed environmental assessment as part of the DMRB process will inform route alignment studies and develop project specific mitigation The SFRA has developed strategic flood risk mitigation and will inform route alignment studies Later stages of DMRB design and assessment will likely require a landscape strategy which will help to mitigate effects of new structures on the visual impact of the strategy		

Notes to table

1. An overall level of constraint and risk of effect has been assessed for Option B and ranges of effects have been given to address the different effects of the local variants.

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