

Appendix A15.4: Cultural Heritage Impact, Mitigation and Residual Impact Tables

1.1.1 Tables 1 and 2 below, identify significant and non-significant impacts during construction and operation on cultural heritage assets identified within the study area through the desk-based survey, walkover survey and targeted geophysical survey. They summarise the measures to mitigate these impacts and provide an assessment of residual impacts. Cultural heritage assets are listed sequentially by number. Those impacts of **Moderate** significance and above are considered to be significant in the context of the EIA regulations.

Table 1: Construction phase impacts, mitigation and residual impacts for cultural heritage assets within the study area

Asset no.	Asset Name	Designation	Value	Duration	Direct/ Indirect	Adverse/ Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
Archaeological Remains												
193	Dunkeld to Inverness Military Road, Ledpetty Lodge to Dowally (Site of)	None	Low	Permanent	Direct	Adverse	Construction of Detention Basin A2 and Access Track between ch600 and ch810, Fishing Bothy 1 Access Track between ch890 and ch1010; the widening of the carriageway between ch540 and ch600 and ch1050 and ch1450; the construction of the Dunkeld to Rotmell (C502) Junction between ch3050 and ch3220; the widening of the carriageway between ch3220 and ch3750; the Dowally Farm Retaining Wall and carriageway between ch4180 and ch4290; the Dowally - Kindallachan Side Road between ch4290 and ch4680 and the mammal underpass at ch4300 may result in the loss of any surviving	Minor	Slight	Archaeological trial trenching (Mitigation Item P03-CH2) and Archaeological excavation (Mitigation Item P03-CH3), in advance of construction, including programmes of post-excavation assessment, analysis and publication and dissemination commensurate with the significance of the results, and preparation and submission of ordered archives (Mitigation Item P03-CH16).	Negligible	Neutral

Asset no.	Asset Name	Designation	Value	Duration	Direct/ Indirect	Adverse/ Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
							<p>archaeological remains associated with this cultural heritage asset.</p> <p>While there is a low potential for the survival of archaeological remains where the projected line of the military road and the existing A9 coincide, there is a higher potential for the survival of remains where the projected line of the military road follows farm tracks and minor roads.</p>					
207	Clachan More, two standing stones 100m WSW of Dowally Kirk	Scheduled Monument	High	Temporary	Direct	Adverse	Construction activities associated with the widening of the carriageway on embankment between ch4150 and ch4160 would introduce a temporary source of visual intrusion into the setting of this cultural heritage asset. However, views to the east are screened by a dense conifer hedge and modern buildings adjacent to the cultural heritage asset. Setting contributes little to this cultural heritage asset's value which resides in its material	Negligible	Slight	None Proposed	Negligible	Slight

Asset no.	Asset Name	Designation	Value	Duration	Direct/ Indirect	Adverse/ Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
							remains and any associated archaeological remains.					
213	Dowally, Possible Enclosure	None	Medium	Permanent	Direct	Adverse	Construction of the Dowally Farm Access Road and Swale D2 between ch4410 and ch4500 would result in the almost complete removal of any surviving archaeological remains associated with Dowally, Possible Enclosure within the scheme footprint.	Major	Large	Archaeological trial trenching (Mitigation Item P03-CH2) and archaeological excavation (Mitigation Item P03-CH3), in advance of construction, including programmes of post-excavation assessment, analysis and publication and dissemination commensurate with the significance of the results, and preparation and submission of ordered archives (Mitigation Item P03-CH16).	Negligible	Neutral
219	Dunkeld to Inverness Military Road, Guay to Kindallachan (Site of)	None	Low	Permanent	Direct	Adverse	Construction of the Dowally - Kindallachan Side Road between ch5300 and ch5950 would result in the loss of any surviving archaeological remains associated with this cultural heritage asset.	Minor	Slight	Archaeological trial trenching (Mitigation Item P03-CH2) and Archaeological excavation (Mitigation Item P03-CH3), in advance of construction, including programmes of post-excavation assessment,	Negligible	Neutral

Asset no.	Asset Name	Designation	Value	Duration	Direct/ Indirect	Adverse/ Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
										analysis and publication and dissemination commensurate with the significance of the results, and preparation and submission of ordered archives (Mitigation Item P03-CH16) .		
221	Kindallachan cairn	Scheduled Monument	High	Permanent	Direct	Adverse	The construction of the southbound carriageway and associated earthworks between ch5930 and ch5970 would result in the removal of the scheduled area as defined by HES, the mound forming the cairn and any associated archaeological remains. Scheduled Monument Consent will be required for these works.	Major	Large	An Archaeological Earthwork Survey to Historic England Level 3 standard (Historic England, 2017) (Mitigation Item P03-CH4) will be produced prior to a set piece excavation (Mitigation Item P03-CH6) and dissemination of the results via a staged reporting process as required will be undertaken along with the deposition of an ordered archive at the National Record of the Historic Environment (NRHE) (Mitigation Item P03-CH16) .	Major	Large
225	Kindallachan standing stone	Scheduled Monument	High	Permanent	Direct	Adverse	Widening of the carriageway in cutting between ch6180 and ch6190 and	Moderate	Moderate	Set piece excavation (Mitigation Item P03-CH6)	Moderate	Moderate

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							<p>construction of a retaining wall (Figure 15.1c) would remove a small area of the scheduled area as defined by HES and any archaeological remains associated with it within the footprint of the proposed scheme. The standing stone itself would not be affected. In addition, given its proximity to and possible relationship with Kindallachan Cairn (Asset 221) the loss of the cairn and any associated archaeological remains will impact on the setting of the asset.</p>			<p>informed by archaeological trial trenching (Mitigation Item P03-CH2) in advance of construction and dissemination of the results via a phased reporting process as required and deposition of an ordered archive at the NRHE (Mitigation Item P03-CH16).</p> <p>During construction the monument will be supported as required following discussion between HES and Transport Scotland's appointed contractor and the scheduled area will be clearly demarcated with protective fencing and appropriate signage. The proposed fenced area shall be confirmed with HES and will be located out with the scheduled area. In addition, prior to works commencing a photographic</p>		

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										survey of the standing stone and scheduled area will be undertaken and again on completion of the works to ensure that the condition of the scheduled area is returned to its previous state (Mitigation Item P03-CH7)		
232	Haugh of Kilmorich, Township (Site of)	None	Low	Permanent	Direct	Adverse	Construction of Haugh of Kilmorich Access Track on embankment between ch7050 and ch7100 may result in the removal of any archaeological remains associated with Haugh of Kilmorich, Township (Site of) within the footprint of the proposed scheme.	Minor	Slight	Archaeological trial trenching (Mitigation Item P03-CH2) and archaeological excavation (Mitigation Item P03-CH3) , in advance of construction, including programmes of post-excavation assessment, analysis and publication and dissemination commensurate with the significance of the results, and preparation and submission of ordered archives (Mitigation Item P03-CH15) .	Negligible	Neutral
233	Kilmorich/Guay, Possible Standing Stone (Site)	None	Negligible	Permanent	Direct	Adverse	Construction of the Haugh of Kilmorich Access Track on an embankment between	Moderate	Slight	Archaeological trial trenching (Mitigation Item P03-CH2) and	Negligible	Neutral

Asset no.	Asset Name	Designation	Value	Duration	Direct/ Indirect	Adverse/ Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
	of)						ch7050 and ch7100 would result in the partial removal of any archaeological remains associated with this cultural heritage asset.			Archaeological excavation (Mitigation Item P03-CH3), in advance of construction, including programmes of post-excavation assessment, analysis and publication and dissemination commensurate with the significance of the results, and preparation and submission of ordered archives (Mitigation Item P03-CH16).		
235	Westhaugh of Tulliemet, cross slab 180m SE of	Scheduled Monument	High	Temporary	Direct	Adverse	<p>Widening of the carriageway between ch7000 and ch7550 and the construction of a soil nailed slope with a structural face between ch7350 and ch7550 would introduce a source of temporary visual intrusion into the setting of the cross slab as a result of construction activities.</p> <p>While the footprint of the proposed scheme would not impact on the cross slab, given the proximity of it to the proposed carriageway there is</p>	Moderate	Moderate	During construction the monument will be supported as required following discussion between HES and Transport Scotland's appointed contractor and the scheduled area will be clearly demarcated with protective fencing and appropriate signage. The proposed fenced area shall be confirmed with HES and will be located out with the scheduled	Minor	Slight

Asset no.	Asset Name	Designation	Value	Duration	Direct/ Indirect	Adverse/ Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
							the possibility of accidental damage to the cultural heritage asset as a result of construction activities.			area. In addition, prior to works commencing a photographic survey of the standing stone and scheduled area will be undertaken and again on completion of the works to ensure that the condition of the scheduled area is returned to its previous state (Mitigation Item P03-CH7)		
236	Clach Glas, standing stone 130m WSW of Westhaugh of Tulliemet	Scheduled Monument	High	Temporary	Direct	Adverse	While construction activities associated with the widening of the carriageway between ch7800 and ch8250 and the construction of the Westhaugh of Tulliemet Access road at ch7700 would introduce a temporary source of visual intrusion into the setting of the standing stone, these activities would be largely screened by the Highland Main Line railway and existing farm buildings and would not detract from the value of the asset which resides in its material remains and any associated archaeological remains.	Negligible	Slight	None Proposed	Negligible	Slight

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242	Cuil-An-Duin, Wade's Road Culvert	None	Negligible	Permanent	Direct	Adverse	Widening of the carriageway at ch7900 would result in the almost complete removal of archaeological remains associated with this cultural heritage asset.	Moderate	Slight	Archaeological trial trenching (Mitigation Item P03-CH2) and Archaeological excavation (Mitigation Item P03-CH3), in advance of construction, including programmes of post-excavation assessment, analysis and publication and dissemination commensurate with the significance of the results, and preparation and submission of ordered archives (Mitigation Item P03-CH16).	Negligible	Neutral
248	Dunkeld to Inverness Military Road (Site of)	None	Low	Permanent	Direct	Adverse	Widening of the carriageway between ch6800 and ch7900 and the construction of Cuil-an-Duin Access Road between ch7940 and ch8210 would result in the loss of any surviving archaeological remains associated with this cultural heritage asset. While there is a low potential for the survival of	Minor	Slight	Archaeological trial trenching (Mitigation Item P03-CH2) and Archaeological excavation (Mitigation Item P03-CH3), in advance of construction, including programmes of post-excavation assessment, analysis and publication and dissemination commensurate with the	Negligible	Neutral

Asset no.	Asset Name	Designation	Value	Duration	Direct/ Indirect	Adverse/ Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
							archaeological remains where the projected line of the military road and existing A9 coincide, there is a higher potential for the survival of remains where the projected line of the military road follows farm tracks and minor roads.			significance of the results, and preparation and submission of ordered archives (Mitigation Item P03-CH16) .		
748	Kincraigie, homestead 170m NNW of	Scheduled Monument	High	Temporary	Direct	Adverse	<p>While construction activities associated with the widening of the carriageway and associated infrastructure between ch4600 and ch6200 would introduce a temporary source of visual intrusion into the setting of Kincraigie homestead, particularly into distant, partly screened views to the east; this would be seen in the context of the existing A9.</p> <p>While these views contribute to our understanding of the cultural heritage asset its value resides in its material remains and their contribution to our understanding of this class of monument.</p>	Negligible	Slight	None Proposed	Negligible	Slight
780	Dowally Roadside	None	Low	Permanent	Direct	Adverse	Construction of the Dowally – Guay Link	Major	Slight	Archaeological trial trenching	Negligible	Neutral

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	Memorial						Road on embankment and Dowally – Guay Overbridge between ch4670 and ch4710 would result in the complete removal of archaeological remains associated with this cultural heritage asset.			(Mitigation Item P03-CH2) and Archaeological excavation (Mitigation Item P03-CH3) , in advance of construction, including programmes of post-excavation assessment, analysis and publication and dissemination commensurate with the significance of the results, and preparation and submission of ordered archives (Mitigation Item P03-CH16) .		
783	Rotmell Farm, Curvilinear Features	None	Low	Permanent	Direct	Adverse	Construction of the main line in cutting between ch3200 and ch3250 would result in the partial removal of archaeological remains associated with this cultural heritage asset.	Minor	Slight	Archaeological trial trenching (Mitigation Item P03-CH2) and Archaeological excavation (Mitigation Item P03-CH3) , in advance of construction, including programmes of post-excavation assessment, analysis and publication and dissemination commensurate with the significance of the results, and	Negligible	Neutral

Asset no.	Asset Name	Designation	Value	Duration	Direct/ Indirect	Adverse/ Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
										preparation and submission of ordered archives (Mitigation Item P03-CH16) .		
784	Dowally Farm, Field Boundaries	None	Low	Permanent	Direct	Adverse	Construction of Detention Basin C between ch3900 and ch4040 would result in the almost complete removal of any archaeological remains associated with this cultural heritage asset such that the resource is clearly modified.	Moderate	Slight	Archaeological trial trenching (Mitigation Item P03-CH2) and Archaeological excavation (Mitigation Item P03-CH3) , in advance of construction, including programmes of post-excavation assessment, analysis and publication and dissemination commensurate with the significance of the results, and preparation and submission of ordered archives (Mitigation Item P03-CH16) .	Negligible	Neutral
785	Dowally Church, Field Boundary and Curvilinear Features	None	Low	Permanent	Direct	Adverse	Construction of the Dowally – Kindallachan Side Road and the combined bus stop/car parking facility between ch4120 and ch4250 would result in the almost complete removal of any archaeological remains associated	Major	Slight	Archaeological trial trenching (Mitigation Item P03-CH2) and Archaeological excavation (Mitigation Item P03-CH3) , in advance of construction, including programmes of post-excavation	Negligible	Neutral

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							with this cultural heritage asset such that the resource is totally altered.			assessment, analysis and publication and dissemination commensurate with the significance of the results, and preparation and submission of ordered archives (Mitigation Item P03-CH16) .		
786	Dowally Farm, Possible Enclosure and Pits	None	Low	Permanent	Direct	Adverse	Construction of the Dowally Farm Access Road between ch4290 and ch4410 would result in the partial removal of archaeological remains associated with this cultural heritage asset such that the resource is clearly modified.	Moderate	Slight	Archaeological trial trenching (Mitigation Item P03-CH2) and Archaeological excavation (Mitigation Item P03-CH3) , in advance of construction, including programmes of post-excavation assessment, analysis and publication and dissemination commensurate with the significance of the results, and preparation and submission of ordered archives (Mitigation Item P03-CH16) .	Negligible	Neutral
789	Kilmorich, Possible Settlement	None	Low	Permanent	Direct	Adverse	Construction of Haugh of Kilmorich Access Track and Compensatory Flood Storage 6 between	Moderate	Slight	Archaeological trial trenching (Mitigation Item P03-CH2) and Archaeological	Negligible	Neutral

Asset no.	Asset Name	Designation	Value	Duration	Direct/ Indirect	Adverse/ Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
							ch7050 and ch7240 would result in the partial removal of archaeological remains associated with this cultural heritage asset such that the resource is clearly modified.			excavation (Mitigation Item P03-CH3) , in advance of construction, including programmes of post-excavation assessment, analysis and publication and dissemination commensurate with the significance of the results, and preparation and submission of ordered archives (Mitigation Item P03-CH16) .		
790	Haugh Cottages, Rectilinear and Curvilinear Features	None	Low	Permanent	Direct	Adverse	Drainage and water course realignment and Compensatory Flood Storage 6 between ch7270 and ch7350 may result in the partial removal of archaeological remains associated with this cultural heritage asset leading to very minor changes to archaeological materials.	Minor	Slight	Archaeological trial trenching (Mitigation Item P03-CH2) and Archaeological excavation (Mitigation Item P03-CH3) , in advance of construction, including programmes of post-excavation assessment, analysis and publication and dissemination commensurate with the significance of the results, and preparation and submission of ordered archives	Negligible	Neutral

Asset no.	Asset Name	Designation	Value	Duration	Direct/ Indirect	Adverse/ Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
										(Mitigation Item P03-CH16).		
791	West Haugh of Tulliemet, Curvilinear Features and Possible Field Boundaries	None	Low	Permanent	Direct	Adverse	Construction of Inch Farm Access Roads 1 and 2, West Haugh of Tulliemet Farm Access Track and West Haugh of Tulliemet Access between ch7510 and ch7720 would result in the almost complete removal of archaeological remains associated with this cultural heritage asset.	Major	Moderate	Archaeological trial trenching (Mitigation Item P03-CH2) and Archaeological excavation (Mitigation Item P03-CH3) , in advance of construction, including programmes of post-excavation assessment, analysis and publication and dissemination commensurate with the significance of the results, and preparation and submission of ordered archives (Mitigation Item P03-CH16).	Negligible	Neutral
Historic Buildings												
194	Ledpettie Wade Bridge	Category B Listed Building	Medium	Temporary	Direct	Adverse	Widening of the carriageway in a cutting between ch1630 and ch1710 would introduce a temporary source of visual intrusion in the setting of the bridge as a result of construction activities, however, this would not detract from the bridge's value which resides in its surviving historic fabric.	Negligible	Slight	None proposed	Negligible	Slight

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189	Farnyhaugh, Military Bridge	None	Medium	Temporary	Direct	Adverse	Construction of Detention Basin A and associated access road between ch150 and ch280 would introduce a temporary source of noise and visual intrusion into the setting of the cultural heritage asset.	Minor	Slight	None proposed	Minor	Slight
203	3, 4 Dowally Village	Category C Listed Building	Low	Temporary	Direct	Adverse	Widening of the carriageway in a slight cutting between ch3900 and ch4100; construction of the Dowally - Kindallachan Side Road between ch4050 and ch4100; and Detention Basin C between ch3900 and ch4040 would introduce a temporary source of noise and visual intrusion into the setting of the cultural heritage asset. However, this would not affect the visual relationship and group value of 3, 4 Dowally Village with 1 Dowally Village, 2 Dowally Village and Dowally Church.	Minor	Slight	None Proposed	Minor	Slight
205	1 Dowally Village	None	Low	Temporary	Direct	Adverse	Construction activities associated with the widening of the carriageway in a cutting between ch3900 and ch4100; construction of the Dowally -	Minor	Slight	None Proposed	Minor	Slight

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							Kindallachan Side Road between ch4050 and ch4200; and Detention Basin C between ch3900 and ch4040 would introduce a temporary source of noise and visual intrusion into the setting of 1 Dowally Village. However, this would not affect the visual and spatial relationship with 3, 4 Dowally Village, 2 Dowally Village and Dowally Church.					
206	2 Dowally Village	Category C Listed Building	Low	Temporary	Direct	Adverse	While widening of the carriageway and construction of Detention Basin C between ch4030 and ch4050 would introduce a temporary source of noise and visual intrusion into the setting of 2 Dowally Village as a result of construction activities, this would not affect the visual and spatial relationship of 2 Dowally Village and 3, 4 Dowally Village, 1 Dowally Village and Dowally Church.	Minor	Slight	None Proposed	Minor	Slight
208	Dowally Church	Category B Listed Building	Medium	Permanent	Direct	Adverse	Widening of the carriageway and construction of the Dowally - Kindallachan Side Road and combined	Minor	Slight	None Proposed	Minor	Slight

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							bus stop/car parking facility between ch4080 and ch4350 would introduce a new source of temporary noise and visual intrusion into the setting of Dowally Church as a result of construction activities. This would not affect the visual and spatial relationship between the asset and its surrounding graveyard, and with the adjacent settlement of Dowally.					
209	Dowally Farm, Farmhouse and Farmstead	None	Low	Temporary	Direct	Adverse	Widening of the carriageway on an embankment between ch4130 and ch4400; construction of Dowally Farm Retaining Wall between ch4150 and ch4210; Dowally Farm Access Road and Dowally Burn Culvert between ch4210 and ch4290; and Dry Mammal Underpass at ch4300 would introduce a temporary source of noise and visual intrusion into the setting of the farmhouse and farmstead as a result of construction activities.	Minor	Slight	None Proposed	Minor	Slight
212	Dowally Bridge	None	Low	Permanent	Direct	Adverse	Widening of the carriageway and	Major	Moderate	Historic building record undertaken	Negligible	Neutral

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							construction of the Dowally Burn Culvert and Dowally - Kindallachan Side Road between ch4250 and ch4270 would result in the removal of this cultural heritage asset.			to Historic England Level 2 standard (Historic England, 2016) (Mitigation Item P03-CH13) in advance of construction, including preparation of a report on the results of the survey and preparation and submission of an ordered archive (Mitigation Item P03-CH16) .		
216	Guay Farmhouse	Category B Listed Building	Medium	Permanent and Temporary	Direct	Adverse	Widening of the carriageway on embankment between ch5230 and ch5290 and construction of the Dowally – Kindallachan Side Road would result in the partial removal of the gable end of the farmhouse wing and remove a large portion of the farmyard. Construction activities associated with the widening of the carriageway between ch5200 and ch5500; the construction of the Dowally - Kindallachan Side Road and Guay Farmhouse Access Road between ch5150 and ch5350; and Guay Retaining	Moderate	Moderate	Historic building recording to Historic England Level 2 standard (Historic England, 2016) (Mitigation Item P03-CH9) , in advance of construction including preparation of a report on the results of the survey and preparation and submission of an ordered archive at the NRHE (Mitigation Item P03-CH16) . To mitigate the alteration of the gable end of Guay Farmhouses' Wing during construction the	Moderate	Moderate

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							Wall to the south-west between ch5260 and ch5320 would introduce a temporary source of noise and visual intrusion in the setting of the Farmhouse. There is also the potential for accidental damage to occur to the farmhouse as a result of construction activities.			alterations will be undertaken in two phases: the first phase being the alteration of the Wing; and the second phase being the implementation of measures to protect the longevity of the Wing (Mitigation Item P03-CH10). During construction the listed building is to be clearly demarcated with protective fencing and appropriate signage (Mitigation Item P03-CH11).		
226	Croftnascallag Farmstead	None	Low	Temporary	Direct	Adverse	While construction activities associated with the widening of the carriageway between ch6100 and ch6350 would introduce a temporary source of visual intrusion in distant views to the south-west, it would not affect our ability to understand and appreciate the cultural heritage asset.	Negligible	Neutral	None proposed	Negligible	Neutral
238	Westhaugh of Tulliemet Steading	Category B Listed Building	Medium	Temporary	Direct	Adverse	Widening of the carriageway between ch7500 and ch7900; the construction of a	Minor	Slight	None Proposed	Minor	Slight

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							soil nailed slope with a structural face between ch7350 and ch7700; and construction of Inch Farm Access Roads 1 and 2 and Westhaugh of Tulliemet Access Road between ch7500 and ch7710 would introduce a temporary source of noise and visual intrusion into the setting of the steading as a result of construction activities. However, the visual, spatial and functional relationship of the steading and Westhaugh of Tulliemet Farmhouse (Asset 240) would be maintained.					
240	Westhaugh of Tulliemet Farmhouse	Category C Listed Building	Low	Temporary	Direct	Adverse	While widening of the carriageway between ch7500 and ch8240; construction of a soil bailed slope with a structural face between ch7350 and ch7700; and Inch Farm Access Roads 1 and 2 and Westhaugh of Tulliemet Access Road between ch7500 and ch7710 would introduce a temporary source of noise and visual intrusion into the setting of the cultural heritage asset, the visual, spatial and	Minor	Slight	None Proposed	Minor	Slight

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							functional relationship with Westhaugh of Tullimet Steading (Asset 238) would be maintained.					
781	Westhaugh of Tullimet, Possible Military Bridge	None	Low	Permanent	Direct	Adverse	Widening of the carriageway at ch7700 would result in the removal of this cultural heritage asset.	Major	Moderate	Historic building record undertaken to Historic England Level 3 standard (Historic England, 2016) (Mitigation Item P03-CH12) , in advance of construction, including preparation of a report on the results of the survey and preparation and submission of an ordered archive (Mitigation Item P03-CH16) .	Negligible	Neutral
782	Cuil-an-Duin Retaining Wall	None	Low	Permanent	Direct	Adverse	Construction of Cuil-an-Duin Access Road between ch7980 and ch8080 would result in the removal of this cultural heritage asset.	Major	Moderate	Historic building photographic survey (Historic England, 2016) (Mitigation Item P03-CH14) , in advance of construction including preparation of a report on the results of the survey and preparation and submission of an ordered archive (Mitigation Item P03-CH16) .	Negligible	Neutral

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Historic Landscapes												
HLT 1	17 th – 19 th Century Rectilinear Fields and Farms	None	Low	Permanent	Direct	Adverse	<p>Construction of the proposed scheme would result in land-take from this HLT between ch1400 and ch1550, ch3200 and ch3270, ch3810 and ch5240, between ch5310 and ch6380, ch7090 and ch7290, ch7050 and ch7350 and ch7510 and ch7700.</p> <p>While land-take in these areas would remove some elements of the HLT such as field boundaries, this is a common landscape type along the A9, and the overall legibility of the HLT would not be affected.</p>	Negligible	Neutral	None proposed	Negligible	Neutral
HLT 2	Managed Woodland	None	Low	Permanent	Direct	Adverse	<p>Construction of the proposed scheme would result in the removal of small areas from this HLT between ch150 and ch290, ch610 and ch810, ch1620 and ch1720, ch6560 and ch6900, and between ch7260 and ch7720.</p> <p>Taking into account the small amount of land-take required resulting in the loss of current boundaries,</p>	Negligible	Neutral	None proposed	Negligible	Neutral

Asset no.	Asset Name	Designation	Value	Duration	Direct/ Indirect	Adverse/ Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
							and acknowledging that this is a common HLT along the A9, construction would not reduce the overall legibility of this HLT.					
HLT 3	19 th Century to Present Coniferous Plantation	None	Negligible	Permanent	Direct	Adverse	Construction of the proposed scheme would result in land-take resulting in the loss of current boundaries from this HLT between ch1890 and ch2090, ch2440 and ch2700, ch2740 and ch2910, ch3180 and ch3280, ch3690 and ch3810, ch4420 and ch4990, ch6830 and ch7090 and ch7990 and ch8180. The land-take in these areas would largely result from the widening of the existing road corridor and would not affect the legibility of this common and widespread HLT.	Negligible	Neutral	None proposed	Negligible	Neutral
HLT 4	19 th Century to Present Urban Area	None	Negligible	Permanent	Direct	Adverse	Construction of the proposed scheme would result in the removal of areas from this HLT between ch4050 and ch4320 and ch5290 and ch5350. The land-take in these areas would largely result from the widening of the existing road corridor and would not affect the legibility of	Negligible	Neutral	None proposed	Negligible	Neutral

Asset no.	Asset Name	Designation	Value	Duration	Direct/ Indirect	Adverse/ Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
							this common HLT.					
HLT 15	Transport	None	Negligible	Permanent	Direct	Adverse	Construction of the proposed scheme would result in alterations to the road layout related to the HLT; however, its legibility as a modern road would be maintained.	Negligible	Neutral	None Proposed	Negligible	Neutral

Table 2: Operation phase potential impacts, mitigation and residual impacts for cultural heritage assets

Asset no.	Asset Name	Designation	Value	Duration	Direct / Indirect	Adverse / Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
Archaeological Remains												
225	Kindallachan standing stone	Scheduled Monument	High	Permanent	Direct	Adverse	<p>The standing stone may form part of a wider prehistoric ritual landscape within Strath Tay. It is likely that it would have been intervisible with Kindallachan cairn, although it cannot be determined if they were contemporaneous with each other due to a lack of dating evidence for both assets. The removal of the cairn could, however, impact on our understanding of the standing stone as part of a prehistoric ritual landscape.</p> <p>In addition, the proposed scheme would remove a small part of the Scheduled area associated with the standing stone, and would introduce a new retaining wall to the west. A photomontage showing the likely appearance of the proposed scheme, including the retaining wall, in relation to the standing stone is shown in Figure 15.4.</p>	Moderate	Moderate	None Proposed	Moderate	Moderate

Asset no.	Asset Name	Designation	Value	Duration	Direct / Indirect	Adverse / Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
							As the existing A9 is already a dominant element in the setting of the standing stone, it is not considered that the proposed scheme would alter the setting of the monument significantly and it would continue to remain distinct from the highway corridor.					
235	Westhaugh of Tulliemet, cross slab 180m SE of	Scheduled Monument	High	Permanent	Direct	Adverse	While the existing A9 currently forms a dominant element in the setting of the cross slab, the proposed scheme would bring the A9 closer to it, and introduce a soil nailed slope with a structural face into the setting of the cultural heritage asset. It is not considered that these changes would affect the value of the cross slab, as this lies in its association with the Pictish people and their material culture, or our ability to understand it.	Minor	Slight	None Proposed	Minor	Slight
Historic Buildings												
189	Farnyhaugh, Military Bridge	None	Medium	Permanent	Direct	Adverse	Detention Basin A and associated access road will introduce new highways infrastructure in the setting of the bridge. This change would not affect the value of the military bridge which resides in its historic fabric and historic association.	Minor	Slight	None proposed	Minor	Slight
203	3, 4 Dowally Village	Category C Listed Building	Low	Permanent	Direct	Adverse	Operation of the proposed scheme would increase the dominance of highway infrastructure in the setting of 3, 4 Dowally Village with the introduction of Detention Basin C. However, this would not affect the asset's relationship with the settlement of Dowally or 1 Dowally Village, 2 Dowally Village and Dowally Church.	Minor	Slight	None Proposed	Minor	Slight
205	1 Dowally Village	None	Low	Permanent	Direct	Adverse	Operation of the proposed scheme would increase the dominance of highway infrastructure in the setting	Minor	Slight	None Proposed	Minor	Slight

Asset no.	Asset Name	Designation	Value	Duration	Direct / Indirect	Adverse / Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
							of 1 Dowally Village including the introduction of Detention Basin C. However, this would not affect the asset's relationship with the settlement of Dowally or 3, 4 Dowally Village, 2 Dowally Village and Dowally Church.					
206	2 Dowally Village	Category C Listed Building	Low	Permanent	Direct	Adverse	Operation of the proposed scheme would increase the prominence of highway infrastructure in the setting of the 2 Dowally Village, including the introduction of Detention Basin C. Views of the proposed scheme would be restricted by existing buildings, and would not affect the asset's relationship with the settlement of Dowally or 1 Dowally Village, 3, 4 Dowally Village and Dowally Church.	Minor	Neutral	None Proposed	Minor	Neutral
208	Dowally Church	Category B Listed Building	Medium	Permanent	Direct	Adverse	While the operation of the proposed scheme and introduction of the Dowally - Kindallachan Side Road and bus turning and parking area would increase the dominance of highway infrastructure and noise in the setting of Dowally Church, this would not affect its value that resides in its historic fabric or spatial relationship with the settlement of Dowally, or 1 Dowally Village, 2 Dowally Village and 3, 4 Dowally Village.	Minor	Slight	None Proposed	Minor	Slight
209	Dowally Farm, Farmhouse and Farmstead	None	Low	Permanent	Direct	Adverse	The permanent presence of Dowally Farm Retaining Wall to the east and Dowally Farm Access Road to the north would represent a visual intrusion in the setting of this asset. This would not affect its value, which rests principally in its historic fabric.	Minor	Slight	None Proposed	Minor	Slight
216	Guay Farmhouse	Category B Listed Building	Medium	Permanent	Direct	Adverse	While the existing A9 forms a dominant element in the setting of the farmhouse, during operation the	Moderate	Moderate	To ensure the long-	Moderate	Moderate

Asset no.	Asset Name	Designation	Value	Duration	Direct / Indirect	Adverse / Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
							proposed scheme would be located on embankment adjacent to the south-facing gable end of the wing. In addition, the presence of the Dowally - Kindallachan Side Road and Guay Retaining Wall between ch5250 and ch5340 would bring the road closer to the building, and restrict views from it to the south-west over the River Tay floodplain.			term future of the farmhouse, a detailed strategy will be developed for the marketing of Guay Farmhouse after construction; for carrying out improvements as necessary and introducing planting and landscaping to ensure it remains an attractive and viable dwelling. (Mitigation Item P03-CH17).		
238	Westhaugh of Tulliemet, Steading	Category B Listed Building	Medium	Permanent	Direct	Adverse	While the existing A9 forms a dominant element in the setting of the steading, operation of the proposed scheme, including the Westhaugh of Tulliemet Farm Access Track and Westhaugh of Tulliemet Access at ch7500 to ch7710, would position a new access road within the open land between the steading and the A9.	Minor	Slight	None Proposed	Minor	Slight

Asset no.	Asset Name	Designation	Value	Duration	Direct / Indirect	Adverse / Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
							However, this would not affect the steading's value which resides in its historic fabric and architectural detail, or alter the visual, spatial and in its functional relationship with Westhaugh of Tulliemet Farmhouse (Asset 240).					
240	Westhaugh of Tulliemet Farmhouse	Category C Listed Building	Low	Permanent	Direct	Adverse	Westhaugh of Tulliemet Farm Access Track and Westhaugh of Tulliemet Access would introduce a new access road into the open land between the farmhouse and the A9. This change would not affect the value of the farmhouse which resides in its historic fabric, and its spatial and functional relationship with Westhaugh of Tulliemet Steading (Asset 238).	Minor	Neutral	None Proposed	Minor	Neutral
Historic Landscape												
HLT 1	17 th – 19 th Century Rectilinear Fields and Farms	None	Low	Permanent	Direct	Adverse	While elements such as field boundaries would be lost between ch1400 and ch1550, ch3200 and ch3270, ch3810 and ch5240, between ch5310 and ch6380, ch7050 and ch7350, and ch7510 and ch7700 resulting in limited local change to this HLT, its legibility within the study area and across the wider landscape would be maintained.	Negligible	Neutral	None Proposed	Negligible	Neutral
HLT 2	Managed Woodland	None	Low	Permanent	Direct	Adverse	During operation small areas of woodland will have been removed between ch150 and ch290, ch610 and ch810, ch1620 and ch1720, ch6560 and ch6900, and between ch7260 and ch7720. While this would result in limited change to this HLT its legibility as a common HLT along the A9 and within the study area would be maintained.	Negligible	Neutral	None Proposed	Negligible	Neutral
HLT 3	19 th Century	None	Low	Permanent	Direct	Adverse	During operation there will be little	Negligible	Neutral	None	Negligible	Neutral

Asset no.	Asset Name	Designation	Value	Duration	Direct / Indirect	Adverse / Beneficial	Impact	Impact Magnitude	Impact Significance	Mitigation	Residual Magnitude of Impact	Residual Significance of Effect
	to Present Coniferous Plantation						change to those parts of this HLT that are affected between ch1890 and ch2090, ch2440 and ch2700, ch2740 and ch2910, ch3180 and ch3280, ch3690 and ch3810, ch4420 and ch4990, ch6830 and ch7090 and ch7990 and ch8180.			Proposed		
HLT 4	19 th Century to Present Urban Area	None	Negligible	Permanent	Direct	Adverse	During operation there will be little change to those parts of this HLT that are affected between ch4050 and ch4320 and ch5290 and ch5350 and the legibility of this common HLT would be maintained.	Negligible	Neutral	None Proposed	Negligible	Neutral
HLT 15	Transport	None	Negligible	Permanent	Direct	Adverse	During operation the legibility of this landscape type will be maintained.	Negligible	Neutral	None Proposed	Negligible	Neutral

Table 3: Designated cultural heritage assets outside the 200m study area but within 2km of the proposed scheme included as part of the baseline

Asset No.	Asset Name	Designation	Value	Assessment
Archaeological Remains				
188	King's Seat, fort	Scheduled Monument	High	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography and mature woodland, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
633	Dunkeld House, standing stone 490m NE of	Scheduled Monument	High	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography and mature woodland, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
756	Logierait Churchyard, cross slab	Scheduled Monument	High	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography and built environment, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
759	Logierait, fort, souterrains, roundhouses, pits and enclosure	Scheduled Monument	High	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography and mature woodland no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
760	Tom na Croiche, castle	Scheduled Monument	High	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography, built environment and mature woodland no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
761	Cuil-an-Daraich enclosure 170m E of	Scheduled Monument	High	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
765	Tynreich Cottages, stone circle 55m	Scheduled Monument	High	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography and built

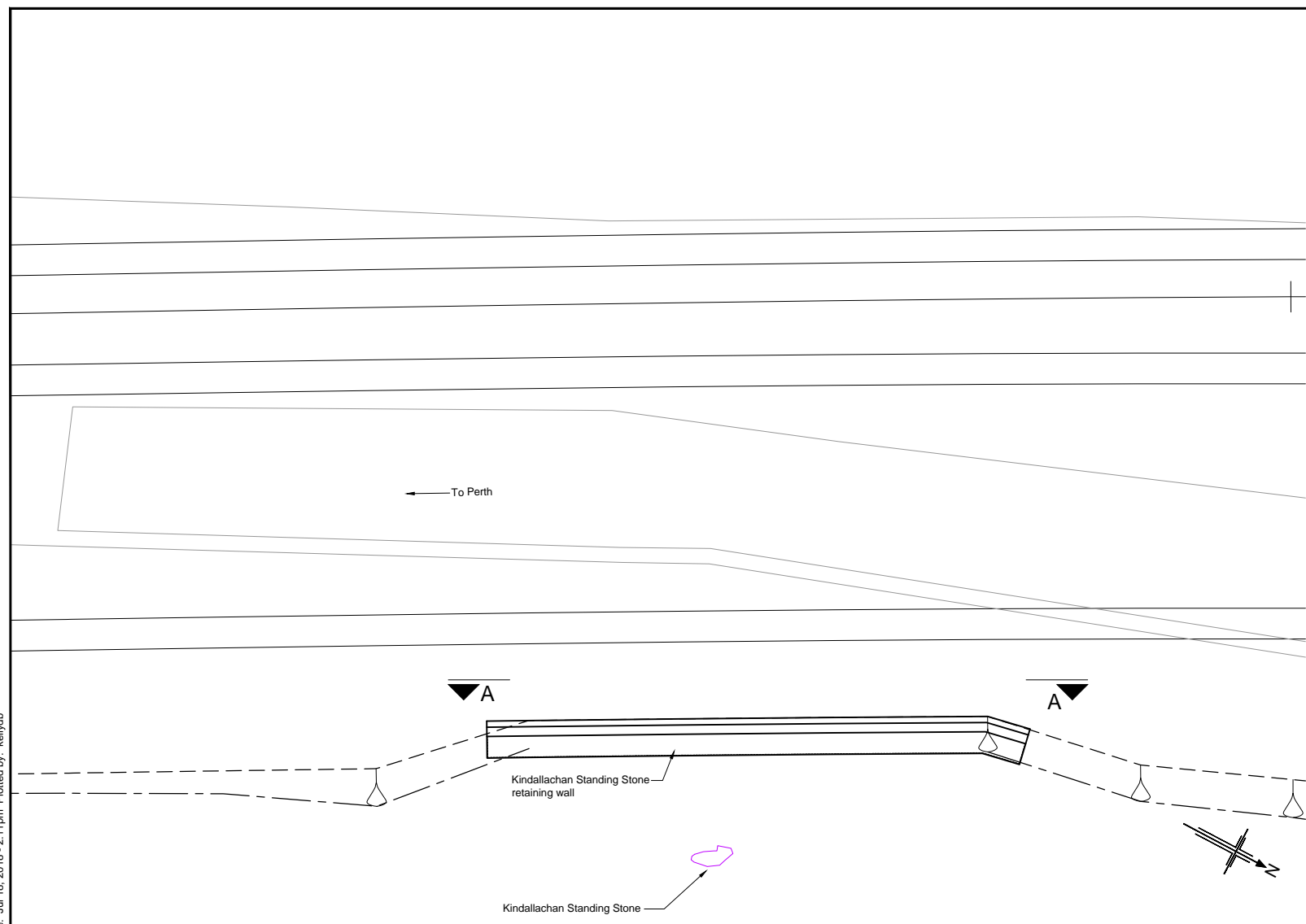
Asset No.	Asset Name	Designation	Value	Assessment
	SSW of			environment no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
Historic Buildings				
607	Dunkeld House, West Grotto	Category B Listed Building	Medium	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography and mature woodland, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
616	Lady Charlotte's Cave, Craig-y-Barns (Marked as Duchess's on O.S. Maps)	Category B Listed Building	Medium	Due to the lack of inter-visibility with the proposed scheme as a result of intervening woodland and topography, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
743	Dalguise Church	Category B Listed Building	Medium	Due to intervening mature woodland screening, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
744	Charleston, Dalguise	Category B Listed Building	Medium	Due to distance and intervening topography that largely screens the proposed scheme, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
745	Dalguise House, Stables	Category B Listed Building	Medium	Due to intervening mature woodland screening, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
746	Dalguise House	Category B Listed Building	Medium	Due to intervening mature woodland screening, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
747	Dalguise Railway Viaduct Over R. Tay	Category A Listed Building	High	Given the distance between this cultural heritage asset and the proposed scheme, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
749	Upper Kinnaird	Category B Listed Building	Medium	Due to intervening mature trees and garden vegetation that largely screens the proposed scheme, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
750	Kinnaird House	Category B Listed Building	Medium	Given the distance between this cultural heritage asset and the proposed scheme, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
751	Balmacneil Farm	Category C Listed Building	Low	Given the distance between this cultural heritage asset and the proposed scheme and intervening topography, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
752	Balnamuir Cottage and Toll House	Category C Listed Building	Low	Given the distance between this cultural heritage asset and the proposed scheme and intervening topography, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
753	Logierait Railway Viaduct Over R. Tay	Category A Listed Building	High	Due to the distance between this cultural heritage asset and the proposed scheme and intervening mature trees that largely screen the proposed scheme, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
754	Logierait Hotel	Category C Listed Building	Low	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
755	Logierait Churchyard	Category B Listed Building	Medium	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography and built environment, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.

Asset No.	Asset Name	Designation	Value	Assessment
757	Logierait Parish Church	Category B Listed Building	Medium	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography and built environment, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
758	Ferry Cottage	Category C Listed Building	Low	Due to the lack of inter-visibility with the proposed scheme as a result of its low lying location and the intervening A827 on embankment, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
762	Logierait Poorhouse, Including Gatepiers and Boundary Walls	Category C Listed Building	Low	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
763	Wester Auchnaguie Farmhouse	Category B Listed Building	Medium	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
764	Milton of Tullimet	Category B Listed Building	Medium	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.
766	Former Tullymet Baptist Chapel, by Ballinluig, Tullymet	Category C Listed Building	Low	Due to the lack of inter-visibility with the proposed scheme as a result of intervening topography and mature vegetation, no impacts are predicted on this cultural heritage asset or its setting as a result of the construction and operation of the proposed scheme.

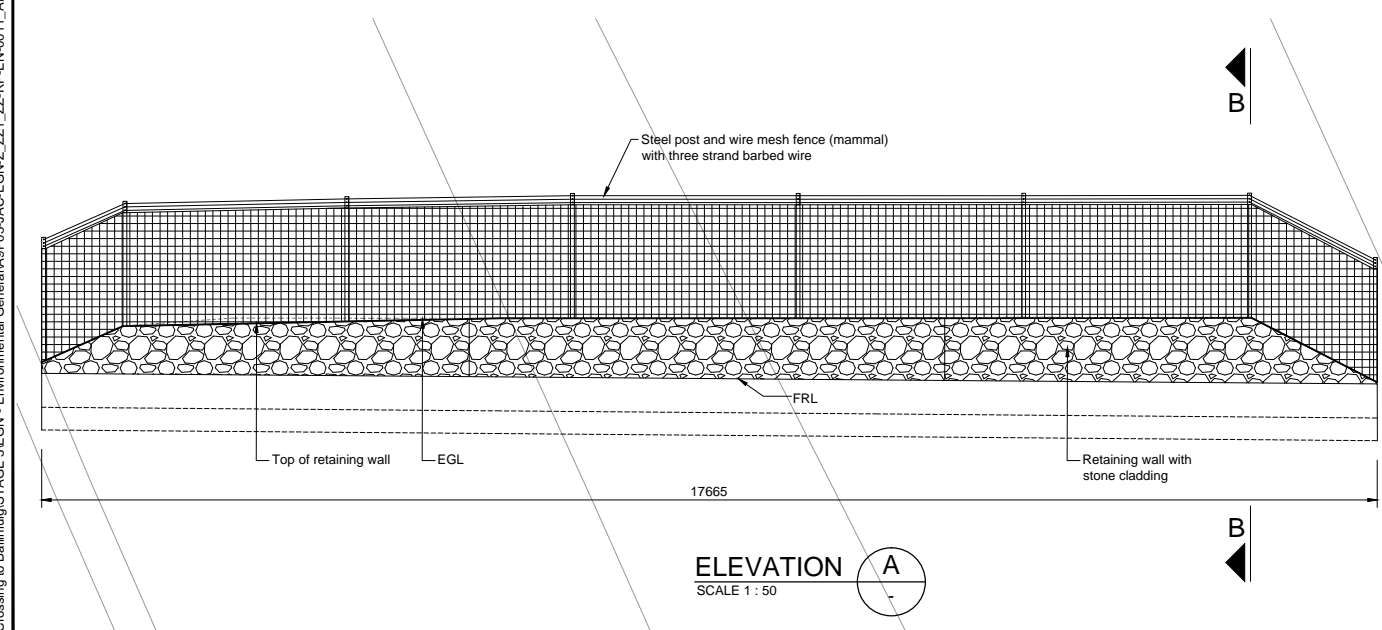
Annex A: Sketch showing Kindallachan Standing Stone and retaining wall structure

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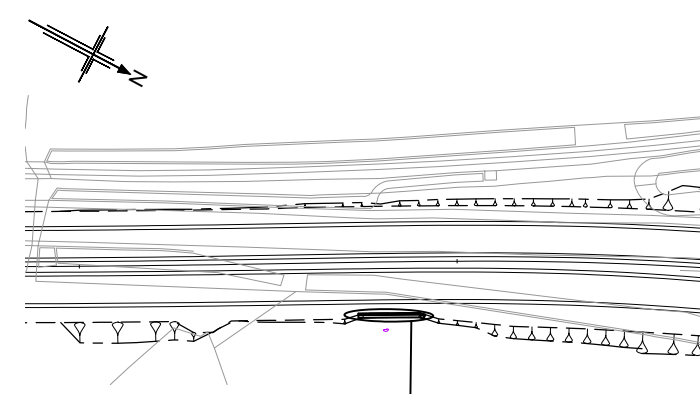
File: P:\Data\B2140003 A9 Tay Crossing to Ballinluig\STAGE 3\EGN - Environmental General\A9P03-JAC-EGN-ZZ1_ZZ-RP-EN-0011_APP_A11-4_FIGA.dwg Date: Jul 18, 2018 - 2:11pm Plotted by: kellydb



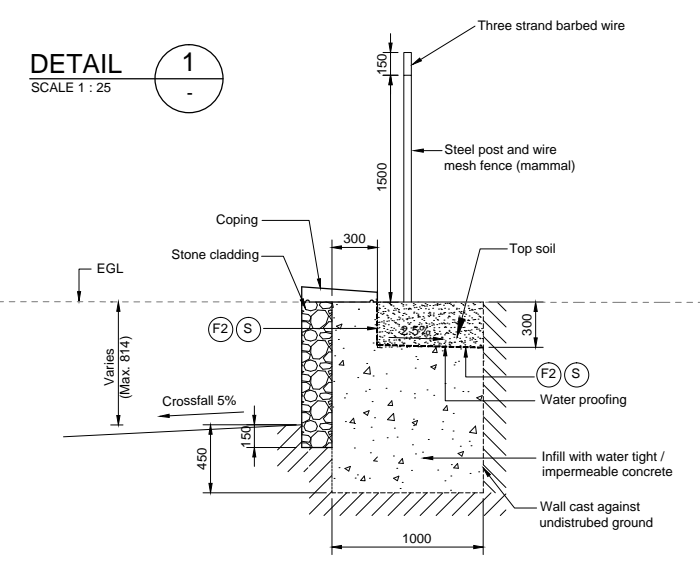
PLAN
SCALE 1:100



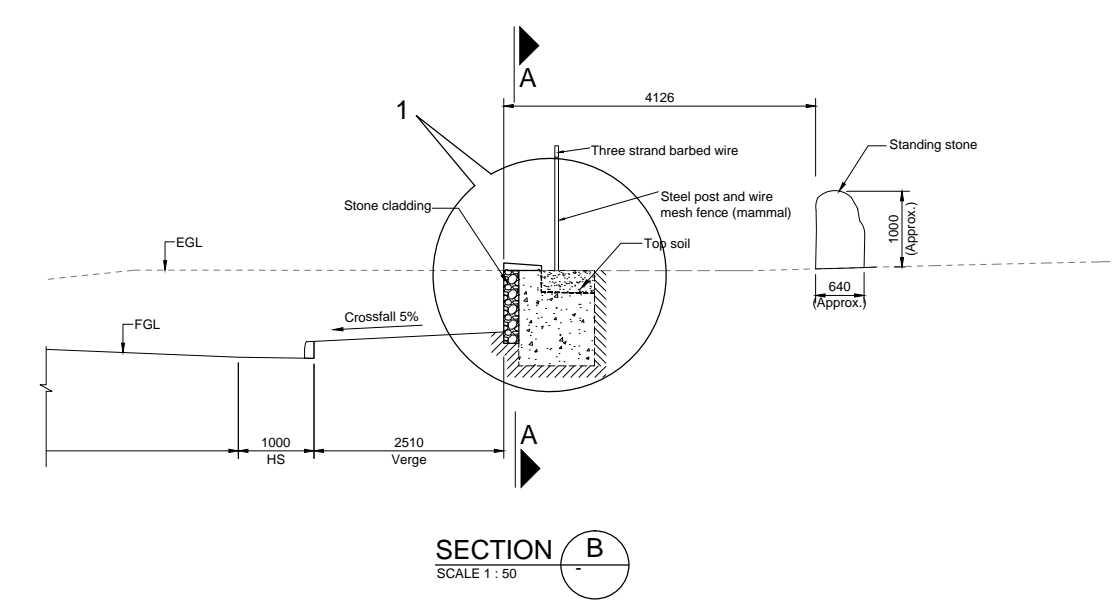
ELEVATION A
SCALE 1:50



KEY PLAN
SCALE 1:1000



DETAIL 1
SCALE 1:25



SECTION B
SCALE 1:50

- Notes:
- All dimensions are in millimetres unless noted otherwise.
 - All levels are in metres Above Ordnance Datum.
 - All chainages are in metres.
 - All exposed arrises to have 25x25 chamfers unless noted otherwise.
 - All details shown on this drawing are indicative only and subject to development.
 - Concrete finishes as noted below:
 - (F) - Formed
 - (U) - Unformed
 - Concrete protection to be as follows:
 - (S) - Surface impregnation in accordance with BD43 of the DMRB.
 - (A) - Spray applied waterproofing in accordance with CI. 2003 of the Specifications.
 - (B) - Waterproofing of all buried surfaces in accordance with CI. 2004 of the Specification.
 - Dimension of standing stone 1375x640x1000 (approximately).

P01	Jun. 2018	Environmental Statement Issue	US	KSR	MAM	MAM
Rev	Rev. Date	Purpose of revision	Drawn	Checked	Rev'd	Apprv'd

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**ENVIRONMENTAL STATEMENT
TAY CROSSING TO BALLINLUIG
KINDALLACHAN STANDING STONE
RETAINING WALL**

Drawing status		FOR INFORMATION	
Scale	AS SHOWN @ A1	DO NOT SCALE	
Jacobs No.	B2140003		
Drawing number	FIGURE A	Rev	P01

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Annex B: Supporting Information Relating to the Proposed Removal of Kindallachan Cairn

Scheduled Monument	Kindallachan, cairn
Index No:	SM1554
Grid Ref:	299484, 749726

Background

Kindallachan, cairn and its cultural significance

The designation of Kindallachan, cairn monument dates to 1935 when, arguably, the wider context of these monuments was less well understood. There is no Statement of National Importance provided by Historic Environment Scotland for the monument, so the following is based on our understanding of the monument based on current information.

The cultural significance of the monument appears to lie in its context, specifically its possible relationship with contemporary monuments in the vicinity. The location of the monument as a focal point or marker in the local landscape may have been important as part of a wider complex of monuments in Strath Tay.

The intrinsic character of the monument has been compromised by episodes of archaeological investigation, and land-use impacts, in particular the construction of the A9 and subsequent junction improvements at Kindallachan. Geophysical surveys undertaken in 2017 have indicated the potential for a kerb (or possibly ditch) around the monument, however no evidence for potential human burials was identified.

No associative character has been determined.

Archaeological Background

The monument comprises the remains of a natural mound (CBA, 1956), on the top of which is a stone short-cist. The mound is topped with a mature beech tree, and lies in a triangular piece of land between the existing A9 and the side road leading into Kindallachan. The triangular shape of the scheduled area reflects the surrounding roads, and it was reported that the mound was cut into during the realignment of the old A9 in the 1950s. Junction improvements in 2007 removed part of the western edge of the mound.

The short-cist was recorded during archaeological investigations in 1956, and although no dateable material was recovered it is considered that the monument is of likely Bronze Age date. It is suggested that the term 'cairn' assigned to the monument at Kindallachan could be inaccurate, as it does not appear to be a cairn in the traditional sense, i.e. it is a burial that has been inserted into a natural mound (McLaren, 1956), rather than a burial within an artificially constructed stone mound built to accommodate a burial. Cist burials were frequently used throughout the Bronze Age in Scotland, and were sometimes cut into natural mounds or earlier monuments, such as the use of a natural mound for the Early Bronze Age cemetery at Holly Road in Fife (Canmore ID: 31321) (Lewis and Terry, 2004) and the natural fluvioglacial mound at Woodend, Upper Tweeddale (Canmore ID 49904) (Ward, 2012).

The location of the short-cist, exploiting a prominent natural feature on the valley floor, is suggestive of the creation of a focal point, or visible marker, within the surrounding landscape. While the natural mound itself would have been a prominent feature prior to its use for a human burial, its use as a place for human burial in proximity to other prehistoric monuments, such as Kindallachan standing stone (SM 9618) and Clach Glas standing stone (SM 1515), may indicate a shift towards the role of prehistoric funerary monuments acting as local land markers and territorial totems. The palaeoenvironmental evidence from a possible grave excavated at the monument in 2007 (CFA, 2007) during junction improvement works, indicates that it was located in a wider managed landscape, with samples yielding evidence of managed vegetation and cereal production as well as rough ground and

native trees. It should be noted that the samples could not be securely dated to a prehistoric period, however they provide a suggestion of the landscape while this second possible grave was open.

The identification of a small deposit of burnt bone within the short-cist at Kindallachan, and a lack of associated grave goods, could indicate more of a 'token' burial here. Token deposits of burnt bone have been suggested as an expression of social identity beyond an individual's personal status during the Bronze Age in Scotland (Downes, 2012). In addition, the presence of the quartz pebble recorded in 1956 may parallel other early prehistoric burials in Scotland (Downes, 2012). For example, a quartz pebble was recovered from a late Neolithic to early Bronze Age double cremation at Beech Hill in Couper Angus (Canmore ID: 30982) (Stevenson, 1995) and from an early Bronze Age cist burial at West Linton, in the Scottish Borders (Canmore ID: 279596) (Hunter, 2000). The significance of quartz to prehistoric people is not fully understood, however it has been identified in a number of Bronze Age burials in Scotland and evidences a less tangible element of contemporary belief systems (Downes, 2012).

A number of comparable monuments have been identified in Perthshire, including the Dunfallandy bell cairn (SM2259); Sithean cairn (SM2383) near Blair Atholl; a possible Bronze Age cairn at Millhaugh (Canmore ID: 77382), and the Neolithic/Bronze Age kerb cairn at Beech Hill, Couper Angus (Canmore ID: 30983). While these monuments differ from Kindallachan being artificially constructed mounds, their siting on largely flat fluvio-glacial sands and gravels or an elevated scarp suggests that these locations were deliberately selected to provide visibility within the landscape.

Archaeological Investigations at Kindallachan Cairn

Field observations of Kindallachan Cairn in advance of the realignment of the A9 in 1956, and subsequent to the removal of a section of the mound, record the prominent, isolated earthwork as comprising a natural 'sand and gravel' mound (MacLaren, 1956). MacLaren also noted the exposed remains of a disturbed short cist. This burial type typically comprises a rectangular or square stone-lined grave containing a crouched inhumation or a cremation burial; a common funerary rite of the Bronze Age (Downes, 2012). The burial was located on top of the mound and was noted as being orientated north-west to south-east. Two stone slabs, approximately 1.1m in length, 0.69m in height and 0.23m in thickness were also identified. These were set parallel to each other with evidence of a 'notched' south-eastern end to accommodate the missing end slab. While these slabs were exposed, and protruded above ground-level, it was supposed the cist would have been entirely below ground prior to disturbance (MacLaren, 1956). Finally, excepting some unidentifiable burnt bone and a rounded quartz pebble, measuring 0.2m by 0.15m by 0.13m, it was reported no dateable finds were recovered from the cist (MacLaren, 1956; CBA, 1956).

In 2007, CFA Archaeology Ltd undertook a monitored topsoil strip and excavation of the area to the west of the cairn and identified a sub-rectangular pit-feature, measuring 1.9m by 1.1m (CFA, 2007, Figure 8). The feature appeared to reflect the shape of the cairn, and was orientated mirroring the short cist - north-west to south-east (CFA, 2008). While palaeoenvironmental analysis of the pollen from deposits contained within the feature did not provide a date or identify its function (CFA, 2007), and the interpretation of the feature of a grave is tentative, the size, shape and lack of conclusive funerary evidence, such as human remains and artefacts, are comparable to other possible Early Bronze Age graves identified in Scotland (CFA, 2008).

Geophysical survey (comprising magnetometry and resistivity) undertaken as part of the A9 Dualling project identified a possible kerb surrounding Kindallachan Cairn (AOC Archaeology Group, 2017). Typically, kerbs comprise a ring of prominent stones encompassing a cairn that are usually taller than the cairn remnants. The geophysical survey identified the possible kerb as a linear trend orientated north-west to south-east, to the south-west of the cairn. While additional areas of low resistance were also identified in proximity to the cairn, their archaeological interpretation is less certain and no further possible burials were identified (AOC Archaeology Group, 2017).

As outlined above, despite a number of archaeological investigations of the monument, little has been found to provide absolute clarity on its date and function. It is clear that the monument is related to funerary activity from the prehistoric period, and that the fact that it is a natural mound indicates that it was utilised due to its location as a prominent feature within the floodplain of Strath Tay and its associated intervisibility with other prehistoric monuments, such as Kindallachan standing stone

(SM9618). Therefore, the cultural significance of the monument appears to be vested in its relationship with other prehistoric monuments along Strath Tay; and also its relationship with short-cist burials inserted into natural features recorded in Scotland such as those recorded at Beech Hill in Couper Angus (Canmore ID: 30983). It has the potential to contribute to the understanding of the Bronze Age burial record across Scotland, and to also contribute towards our understanding of the use of natural features to accommodate burials at this time.

The Case for the A9 Dualling

The proposed scheme will result in unavoidable impacts on Kindallachan, cairn, and the monument would be removed in its entirety, and this constitutes a policy non-compliance issue. The purpose of the following sections of this document is to set out the national context for the A9 Dualling, using references to national policy that support the case for the project. It then considers the alternatives that were considered at the various stages of assessment, and why these were set aside, resulting in the decision to proceed with the proposed scheme.

Historic Environment Scotland Policy Statement (HESPS), Historic Environment Scotland, 2016

In terms of the policy set out in HESPS, it is considered that the proposed removal of the monument would constitute extensive intervention. It is noted in paragraph 3.19 of HESPS that: *'extensive intervention will only be allowed...where it will clearly generate public benefits of national importance which outweigh the impact on the national cultural significance of the monument. Such public benefits could come from, for examples, interventions which... will produce economic benefits once the works are completed'*.

In order to understand the need for the dualling of the A9, it is key to note that it is a vital link used by both local and long distance traffic. It is a major bus route and is used by freight traffic supporting key industries, such as food and drink, oil, waste and construction. The route is used by tourists as a means of reaching locations in Perthshire and the Highlands. It is considered that the upgrade of the A9 to dual carriageway would help assist economic growth in the north of Scotland. Dualling of the A9 would improve journey times, potentially saving costs for businesses, reducing driver stress and increasing safety, potentially making the surrounding areas more attractive as a short-term tourism destination.

The following section outlines key policy documents which support and promote the A9 Dualling Programme as a project of national importance that will produce economic benefits once the works are completed.

Strategic Transport Projects Review, Transport Scotland, 2009

The Strategic Transport Projects Review (STPR) supported the delivery of strategic outcomes identified in previous iterations of the National Transport Strategy (2006) and the National Planning Framework (2010), both of which have since been superseded. The outcomes of the STPR were structured on a tiered approach to investment. Maintaining safe, efficient and effective links on strategic corridors, including the A9, was seen as one of the key challenges of the STPR.

In terms of future network performance, the review categorised the strategic transport network into 20 corridors, four urban networks (Glasgow, Edinburgh, Dundee and Aberdeen), and two strategic nodes (Perth and Inverness). The review concluded that generally the network was performing to a high standard, however, a number of significant areas would require specific attention. This included 'Corridor 6 – Inverness to Perth':

- *'to reduce journey time and increase opportunities to travel between Inverness and Perth (and hence onwards to the Central Belt);*
- *to improve the operational effectiveness of the A9 as it approaches Perth and Inverness;*
- *to address issues of driver frustration relating to inconsistent road standard, with attention to reducing accident severity; and*

- *to promote journey time reductions, particularly by public transport, between the Central Belt and Inverness primarily to allow business to achieve an effective working day when travelling between these centres.’ (STPR, 2009, p.143).*

Scotland’s Cities: Delivering for Scotland, Scottish Government, 2011

This policy document sets out how to develop and enhance the most productive resources of Scotland’s cities. The key to this was the investment in infrastructure to ensure that:

‘Good connectivity within and between cities and their regions is the key to widening the reach of our cities within Scotland... Further reducing journey times between our cities, and particularly between Aberdeen, Inverness and the Central Belt will bring additional benefits.’ (p. 19)

Infrastructure Investment Plan (IIP), Scottish Government, 2015

The current IIP, published in 2015, provides a refresh to the previous 2011 IIP and gives an overview of the Scottish Government’s plans for infrastructure investment. The vision for the IIP was to deliver *‘sustainable economic growth through increasing competitiveness and tackling inequality, managing the transition to a lower carbon economy, enhancing public services, and supporting employment and opportunity across Scotland’.* (p.1)

The IIP is therefore focused on improving connections across, within and to/from Scotland. The IIP refers to the Scottish Government’s strategy to completing the dualling of the A9 between Perth and Inverness by 2025.

The IIP states that the Scottish Government’s targets *‘...underline the commitment to connecting Scotland’s cities with a high quality transport system that will generate economic growth and will ensure the road network between all Scottish cities is of dual carriageway standard.’* (p.69).

Scotland’s Economic Strategy, Scottish Government, 2015

This strategy document states that the purpose of the Scottish Government is to create a more successful country through increasing sustainable economic growth and tackling inequality. The Strategy was initially published in 2007, revised in 2011 in cognisance of the economic downturn, and further updated in 2015. The update focuses on creating a more successful country through increased competitiveness and sustainability of the Scottish economy. The strategy is based on the principle that investing in infrastructure is key to helping businesses to grow, innovate and create good quality employment opportunities.

The strategy acknowledges the importance of Scotland’s cities and towns as centres of growth and prosperity. In regards to investment in infrastructure the strategy states that it *‘is key to driving long-term improvements in competitiveness and in creating opportunities for everyone in society to benefit from these improvements’* (p.37). The A9 dualling programme is listed in the Economic Strategy as a major project which will help cities, towns and regions to drive growth and compete internationally.

National Transport Strategy (NTS), Scottish Government, 2016

The NTS is a refresh to the previous 2006 NTS that considers Scotland’s transport needs and outlines the long term strategy to meet the aims derived from ‘Scotland’s Transport Future’ (2004). The following three key strategic outcomes have been retained within the NTS to achieve this:

- *‘improve journey times and connections, to tackle congestion and the lack of integration and connections in transport which impact on high level objectives for economic growth, social inclusion, integration and safety;*
- *reduce emissions, to tackle the issues of climate change, air quality and health improvement which impact on high-level objectives for protecting the environment and improving health; and*

- *improve quality, accessibility, and affordability, giving people a choice of public transport where availability means better quality services and value for money, providing an alternative to the car.* (p.2)

The NTS also reaffirms (p.21) the Scottish Ministers' commitment to investing in the A9 dualling between Perth and Inverness by 2025.

National Planning Framework 3 (NPF3), Scottish Government, 2014

The Scottish Government published the third iteration of the NPF in June 2014 (Scottish Government, 2014). The NPF3 is a statutory document and a material consideration in planning decisions.

NPF3 guides Scotland's spatial development over the next 20 to 30 years setting out strategic development priorities to support the Scottish Government's central purpose to 'create a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth.' (paragraph 1.1) One of the key drivers for the revision has been to emphasise placemaking. It also focusses on the following four outcomes for Scotland:

- a low carbon place;
- a natural place to invest;
- a successful and sustainable place; and
- a connected place.

NPF3 describes spatial priorities for change in improving connections. It states in paragraph 5.20 that:

'The road network has an essential role to play in connecting cities by car, public transport and active travel...We will complete dualling of the trunk roads between cities, with dualling of the A9 from Perth to Inverness complete by 2025 and dualling of the A96 from Inverness to Aberdeen by 2030'. (p.55)

NPF3 states that the A9 dualling programme between Perth and Inverness will provide 'a step change in accessibility across the rural north', and 'increase business confidence and support investment through the region'. Paragraph 4.28 of NPF notes that the improvements will also help enhance access to Scotland's National Parks, strengthening communities, investment and supporting tourism.

NPF3 identifies 14 major transport, energy and environmental infrastructure projects that are of national significance to Scotland (called national developments), which are considered by Scottish Ministers to be essential to the delivery of the spatial strategy set out in NPF3. These are new projects and do not include existing commitments such as the A9 Dualling Programme. They are considered to assist in contributing to the Scottish Government's objective of building a Scotland that is wealthier and fairer; greener; safer and stronger; smarter and healthier.

The National Long Distance Cycling and Walking Network is a national development identified within NPF3 which has direct relevance to the study area for the proposed scheme.

Taking the above into consideration, it is clear that the dualling of the A9 has been identified as being integral to the economic growth of the north of Scotland, and that its successful completion would clearly generate public benefits of national importance. While the loss of Kindallachan, cairn would represent policy non-compliance in relation to Scottish Planning Policy, it is considered that the benefits outlined above outweigh the national cultural significance of this monument.

Alternatives Considered

In order to understand how the proposed scheme was arrived at, the following section outlines the alternatives options that were considered and set aside, with reasons for setting them aside provided. Full details relating to the Alternatives Considered are provided in the DMRB Stage 3 ES Chapter 3 (Alternatives Considered).

The proposed scheme for Tay Crossing to Ballinluig as assessed in the DMRB Stage 3 ES comprises online (southbound) widening of the existing A9 and provision of an overbridge providing connectivity to the northbound carriageway for the settlements of Dowally, Guay and Kindallachan. This is a result of decisions made following consideration of a range of alternative alignment options; and these are outlined below.

Preliminary Engineering Services (PES) and A9 Strategic Environmental Assessment (SEA)

The A9 PES and A9 SEA provided an equivalent assessment to the DMRB Stage 1 level of consideration for the A9 Dualling Programme, and considered three high-level, strategic alternative dualling options, as summarised in Table 4.

Table 4: Strategic Level Alternative Dualling Options

Strategic Option	Description
Online Widening	Dualling along the existing A9 single carriageway sections, to tie in with the existing dualled sections
Online Widening & Offline Dualling	Dualling along the existing A9 route, with localised offline dualling where constraints dictated
Alternative route(s)	Dualling via alternative routes to the existing A9.

Offline dualling to the west of the Highland Main Line railway from the Tay Crossing and with a tie-in at Ballinluig (known as the Back Route), which would have avoided impacts on Kindallachan, cairn was considered as one of the strategic options.

The studies identified that offline widening would result in significant loss of ancient woodland, floodplain and potentially significant landscape and visual impacts. They would have also resulted in impacts on Inchmagrannachan and Dalguise associated with the proximity and height of the route as it passes these communities. Therefore, online widening, generally following the route of the existing A9, was identified as the most suitable option.

The online dualling corridor was identified as a 200m wide corridor centred on the existing A9 that could be extended locally, depending on constraints encountered at later design development and environmental assessment stages.

DMRB Stage 2: Sifting of Preliminary Mainline Alignments

During the DMRB Stage 2 process, a review of the A9 PES and SEA assessments enabled the identification of potential mainline alignment options. A preliminary engineering design was then developed for each of these alternatives, applying a standard road cross-section and earthworks slope gradients, informed by available topographical survey information.

A number of sub-option alternatives were developed for various sections of the mainline alignments, and subject to high-level assessment against environmental constraints, engineering and economic criteria. Environmental constraints considered comprised:

- community and private assets: land-take, property demolition, and development sites;
- geology, soils and groundwater: geological Site of Special Scientific Interest (SSSI), Geological Conservation Review (GCR) sites and known contaminated land sites;
- road drainage and the water environment: watercourse crossings and SEPA 1:200-year flood extents;
- ecology and nature conservation: ecological designations comprising Special Areas of Conservation (SAC), SSSI, designated woodland (Ancient Woodland Inventory and National Woodland Survey of Scotland) and protected species;
- landscape and visual: landscape designations and character areas, landscape elements, visual receptors;

- cultural heritage: Scheduled Monuments, Listed Buildings, Battlefields, Conservation Areas and Gardens and Designed Landscapes;
- air quality and noise and vibration: distance to receptors; and
- effects on all travellers: impacts on Core Paths, Local Paths, Rights of Way and National Cycle Routes.

The sifting process involved a negative assessment of the options identified and generally was based on a qualitative description of the likely impacts. Where available, quantitative information was included and the assessment broadly considered the relative size and scale of impacts of each option. The negative assessment involved a high level assessment of impacts so as to determine which particular options could be removed due to them being significantly less advantageous than the other competing options that remain available.

Sifting Options Considered

To facilitate further sifting of northbound and/or southbound widening options, the route was considered as four sub-option sections to allow a combination of two or more of the simple mainline options. The sections are referenced by chainage (shortened to 'ch', for example ch1500), which is a reference to the number of metres from the starting point of the proposed scheme. These sections were:

- Section 1 - ch600 to ch1260;
- Section 2 - ch1260 to ch4690;
- Section 3 - ch4690 to ch5870; and
- Section 4 - ch5870 to ch8940.

The review of the 'simple' mainline options produced during the DMRB Stage 1 by the PES/SEA assessment were as follows:

- Option A - Parallel widening of the carriageway northbound;
- Option B - Parallel widening of the carriageway southbound;
- Option C - Symmetrical widening of the carriageway;
- Option D - Localised offline widening within the vicinity of West Haugh of Tulliemet, Haugh Cottages and Haugh of Kilmorich; and
- Option E - Localised offline widening within the vicinity of Kindallachan.

Key Sifting Considerations

Due to a need to keep the existing A9 open during construction and complications associated with widening existing structures, plus proximity to the Highland Main Line railway, symmetrical widening (Option C) in general was discounted. Option D was also discounted at this stage due to potential impacts on the floodplain.

One of the most constrained sections was between Guay and Kindallachan due to the combination of constraints imposed by the Highland Main Line railway and environmental features, including Kindallachan, cairn. After discounting Option C, two remaining online options (Option A and B) plus a localised offline option (Option E) were considered through the sifting assessment.

Northbound widening (Option A) was identified as being significantly less advantageous than the southbound widening option (Option B) due to proximity to the Highland Main Line railway.

The localised offline option (Option E) was identified as being significantly less advantageous than the southbound widening option due to the volume of earthworks required (surplus of 790,000m³), overall land-take of 20ha, severance and loss of native and ancient woodland (13.5ha), and landscape/visual

impacts (Tayside Lower Highland Glens Landscape Character Area; severance and loss of woodland; and views of earthworks from properties, paths, roads and the Highland Main Line railway).

It was determined that symmetrical and northbound options could not be progressed due to the constraint of the Highland Main Line railway, and the localised offline option was discounted due to potential significant impacts as noted above.

Consequently, all four mainline options that progressed to the DMRB Stage 2 assessment included southbound widening between Guay and Kindallachan, and all would have an adverse impact on Kindallachan, cairn. While these adverse impacts were recognised, this was considered unavoidable due to the stated constraints and limits explained above.

Sifting Outcomes

The outcome of these considerations was to define 14 sub-option sections, which were then assessed against topographical constraints, engineering constraints, and the environmental constraints listed in above.

The outcome of this assessment was a series of recommendations outlining the sections in which dualling should be considered on either the northbound or southbound carriageways of the existing route (or hybrid of both), to avoid significant constraints.

The recommendations and sub-options were then reviewed in a sifting assessment workshop in February 2015. Additionally, the potential impacts on Kindallachan, cairn were presented along with other cross project design considerations to the ESG in May 2015. The potential impacts on these scheduled monuments were presented as unavoidable and ESG members were able to provide comment on the proposal.

Four full length options (Options 1, 2, 3 and 4) were progressed to the formal DMRB Stage 2 assessment process reported via the Jacobs (2015) Report, A9 Dualling: Tay Crossing to Ballinluig, Sifting of Indicative Route Options Report.

Sifting of Tier 2 Side Road Options

Following the identification of the mainline route options for Tay Crossing to Ballinluig, a number of alternative access options were developed and sifted. 'Tier 2' accesses are those relating to C-classified roads or unclassified roads.

A Junction and Access Strategy, developed during DMRB Stage 1 as part of the PES/SEA assessment, identified options for Tier 2 accesses.

This confirmed that a combination of alternative access provision and left-in left-out junctions should be considered and the Tier 2 side road options were developed on this basis.

Tier 2 Side Road Options Sifting Outcomes

To determine the options to be taken forward to DMRB Stage 2 assessment, the Tier 2 side road options were assessed in accordance with the Tier 2 side road sifting Methodology. For the purposes of the side road sifting assessment and due to the similarity of the mainline options all side road options were designed in relation to only one mainline option – mainline route Option 4:

- Option 1 – Dowally Access – Side Roads A and B
- Option 2 – Dowally Access – Side Roads A and C
- Option 3 – Dowally Access – Side Roads E and B
- Option 4 – Dowally Access – Side Roads E and D
- Option 5 – Dowally Access – Side Roads B and G

- Option 6 – Dowally Access – Side Roads D and G
- Option 7 – Guay/Kindallachan – Side Roads H and I
- Option 8 – Guay/Kindallachan – Side Roads H and J
- Option 9 – Guay/Kindallachan – Side Roads H and K
- Option 10 – Guay/Kindallachan – Side Roads F and I
- Option 11 – Guay/Kindallachan – Side Roads F and J
- Option 12 – Guay/Kindallachan – Side Roads F and K
- Option 13 – Guay/Kindallachan – Side Road H
- Option 14 – Haugh of Kilmorich – Inch Farm – Side Road L
- Option 15 – Haugh of Kilmorich – Inch Farm – Side Road M

Each Tier 2 side road option was then assessed following the same environmental criteria as the mainline sifting process. Additional engineering criteria such as length and local routes were also considered in addition to the mainline sifting engineering criteria.

The options were then reviewed in a sifting assessment workshop in November 2015. Ten of the options were sifted out and two additional options were identified, assessed and subsequently sifted-out. Five side road options were retained and combined to provide four side road options. All four side road options included the same tie in to the existing side road network in proximity to Kindallachan, cairn, and all four side road options would have had the same adverse impact on Kindallachan, cairn.

The sifting of the Tier 2 accesses has been recorded via the Jacobs (2015b) Report 'A9 Dualling: Tay Crossing to Ballinluig – DMRB Stage 2 Scheme Assessment Sifting of Indicative Tier 2 Side Road Options Summary Report'.

Considering the side road options, a total of 16 mainline and side road route options emerged from this DMRB Stage 1 sifting assessment. These options remained available for further consideration at DMRB Stage 2 Assessment:

- Mainline Option 1 with Side Road Option 1, 2, 3 or 4;
- Mainline Option 2 with Side Road Option 1, 2, 3 or 4;
- Mainline Option 3 with Side Road Option 1, 2, 3 or 4; and
- Mainline Option 4 with Side Road Option 1, 2, 3 or 4.

DMRB Stage 2 Assessment of Route Options

The DMRB Stage 2 assessment process included desk-based assessment, site surveys, public consultation, and input from a range of statutory and non-statutory consultees and stakeholders.

Public consultation was undertaken, including public exhibitions presenting the route options and the potential impacts these would be likely to have on the environment. Feedback on the options and information on the local area obtained from these community engagement events was taken into consideration during the development of the DMRB Stage 2 options and, ultimately, in the selection of a preferred route option.

As part of the DMRB Stage 2 assessment process, Value for Money and Preferred Route Workshops were also held with the project team and Transport Scotland to inform selection of a preferred route option to be taken forward to DMRB Stage 3.

A total of 16 options were identified and evaluated at DMRB Stage 2 for this 8.2km section of the A9. The route options and side roads considered are summarised below.

Mainline Route Options 1-4

Mainline Route Options 1-4 all followed the general line of the existing A9, but varied in terms of whether the dualling would be provided by widening to the northbound side or southbound side. The section that includes Kindallachan Cairn (ch5200-7500) was the same for all route options as set out in Table 5.

Table 5: DMRB Stage 2 Proposed Mainline Route Option Alignments

Chainage (ch)	Option 1	Option 2	Option 3	Option 4
ch5200 to ch7500	Southbound Widening (Common to all options)			
Guay – Haugh Cottages	New side road connecting to left-in/left-out junction (Common to all options)			
	New side road and bridge over A9, connecting to left-in/left-out junction (Side Road Options 1 & 2 only)			

Side Road Options 1-4

The Side Road Options 1-4 at Guay-Kindallachan (ch5100-ch6000) were included to accommodate access to the communities of Guay and Kindallachan located on the east of the existing A9.

All Options included a new local road connecting to the existing U603 Guay to Tulliemet road before passing behind Guay Farmhouse providing a connection between Guay and Kindallachan and providing a left-in, left-out junction between the settlements.

Side Road Option 1 was identical to Side Road Options 2, 3 and 4 (i.e. as per the side road provision included in the assessed route option layouts).

Offline Options

During the consultation on the mainline route options and side road options, members of the local community raised concerns over the online mainline route options. These concerns included the proximity of the dual carriageway and access roads, safety, and perceived impact of road noise and vibration on residential receptors, air pollution, and increased flood risk due to loss of River Tay floodplain. An alternative offline alignment was suggested with the alignment located to the east of the communities of Dowally, Guay and Kindallachan. Two route options containing significant offline components were subsequently developed.

DMRB Stage 2 Findings

Through the DMRB Stage 2 process, Mainline Route Option 2 Side Road Option 2 was selected as the preferred route option to be taken forward to DMRB Stage 3. A brief summary of the decision process taking into account engineering, environmental and traffic and economic consideration is provided in the following paragraphs.

To recommend an overall preferred option for the project, three recommendations between the different options were made. These were:

- Recommendation 1 – Online vs Offline;
- Recommendation 2 – Mainline Option 2 vs Mainline Options 1, 3 and 4; and
- Recommendation 3 – Side Road Option 2 vs Side Road Options 1, 3 and 4.

Recommendation 1: Online vs Offline

Assessment of the offline route options was undertaken to an appropriate level to inform a comparison between online and offline route options. A summary of the findings and reasons for setting aside is provided below, and further details are provided in the Tay Crossing to Ballinluig Online vs Offline Route Option Comparative Assessment Report (Jacobs, 2016b).

Engineering

From an engineering perspective, the offline route options required the construction of two grade separated crossings to accommodate the retention of NMU connectivity, which were not required with the online route options. Furthermore, the offline route options required the construction of three significant new structures (Dowally – 66m span, Guay – 140m span and Kindallachan – 260m span) and a larger retaining wall, which were not required for the online route options.

Although the number of interfaces with public utilities associated with the offline route options would be less when compared with the online route options, there would be more difficulties associated with the construction of the structures on the offline route options and the extensive earthworks that are required.

Environmental

From an environmental perspective, the offline route options would have resulted in policy compliance in relation to cultural heritage, as there would have been no adverse impact on Kindallachan, cairn.

The assessment identified, however, that there would have been the requirement for greater land-take than the online route options, combined with the severance of farms, fields and forestry compartments. In addition, a greater number of property demolitions would also have been required including an uninhabited residential property and a number of poly-tunnels associated with a market garden and landscaping business.

Both the online and the offline route options would have resulted in permanent impacts on the River Tay SAC designated area. However, the offline route options would have the potential to result in more impacts, with some being of a greater magnitude than online route options, due to the severance and fragmentation of habitats.

The offline route options were assessed to have substantially greater landscape and visual impacts than the online options, due to the alignment deviating offline and away from the existing established transport corridor at the edge of the flat valley floor, to the relatively unspoiled and tranquil undulating higher ground of the valley slopes. The offline route options would have had a substantial adverse impact on landscape character and on numerous visual receptors, including residents of properties that had no visibility of the existing A9 when compared to the online route options. These impacts would have been greatest along the offline section and associated with three prominent elevated bridge structures with effective mitigation not achievable, which were not required for the online route options.

In relation to noise and vibration, the offline route options would have more adverse impacts on dwellings than the online route options. The offline route options would increase noise and vibration impacts at properties more remote from the existing A9 and that only currently experience low levels of noise from the existing side road network and A9.

The offline route options would result in more disposal of surplus material due to an increase in earthworks required to construct the offline route options compared to the online route options. There is also an increased materials impact due to the need to construct three significant structures and a larger retaining wall and an increased need to demolish properties, which were not required for the online route options.

The assessment identified that the offline route options would have had some benefits in comparison to the online options. In relation to flood risk, the offline options would encroach less into the River Tay 1 in 200-year functional floodplain resulting in an overall lower loss of flood storage when compared to the online route options.

Overall

The offline route options posed policy non-compliance issues with more environmental parameters: community and private assets, ecology and nature conservation, and cultural heritage; compared to cultural heritage only (impacts on Guay Farmhouse, Kindallachan Cairn and Kindallachan Standing Stone) for the online route options.

The range of costs for the offline route options was considerably greater than the range of costs for the online route options as they would have required the construction of three significant bridge structures.

Based on the assessment undertaken, it was recommended that the offline route options were not progressed for further consideration as the benefits of the offline route options are outweighed by the dis-benefits. The online route options were therefore identified as being preferred.

Recommendation 2: Mainline Option 2 vs Mainline Options 1, 3 and 4

Engineering

From an engineering perspective, there were some differences between mainline route options in terms of alignment, NMUs, geotechnics and earthworks and public utilities however these were not considered significant differentiators. The only significant engineering differentiator was in relation to constructability of Mainline Route Option 4 which required three traffic management crossovers compared to none for Mainline Route Option 2 as it entails southbound widening for its full length.

Environmental

From an environmental perspective, some differences between mainline route options were identified in terms of: community and private assets; all travellers; geology, soils and groundwater; ecology and nature conservation (including potential impacts on the River Tay SAC and ancient woodland); visual; cultural heritage (including potential impacts on Kindallachan, cairn); air quality; noise and vibration; materials; and policies, and plans. However, these were not considered to be significant differentiators.

Significant environmental differentiators were identified between mainline route options in relation to road drainage and the water environment and in terms of landscape:

- Mainline Route Option 4 would have the highest interaction with the baseline flood extents and Mainline Route Option 2 would have the lowest interaction. Taking into consideration the proposed mitigation measures for flood risk and other attributes of the water environment for Mainline Route Option 2, impacts would be expected to be mitigated during the DMRB Stage 3 design development for all side road options.
- Mainline Route Options 1, 2 and 3 were assessed to have a Moderate impact on the Lower Highlands Glen Landscape Character Area (LCA), and Mainline Route Option 4 was assessed as having no significant impacts.

Overall

Given the above significant differentiators, Mainline Route Option 2 was identified as being preferred to Mainline Route Options 1, 3 and 4. It was recommended that Mainline Route Options 1, 3 and 4 were therefore removed from further consideration.

Recommendation 3: Side Road Option 2 vs Side Road Options 1, 3 and 4

Engineering

From an engineering perspective, significant engineering differentiators were identified with respect to the requirement for an overbridge for Side Road Options 1 and 2 and long diversion times associated

with Side Road Options 3 and 4 as access would only be provided to one carriageway. The long diversion times were considered to be a significant differentiator between the side road options.

Environmental

From an environmental perspective, differences in terms of community and private assets, geology, soils and groundwater, ecology and nature conservation, cultural heritage, air quality, noise and vibration, effects on all travellers (non-motorised users), materials and policies and plans were identified but these differences were not considered to be significant differentiators between side road options. Significant environmental differentiators between side road options were identified for landscape, visual, view from the road and road drainage and the water environment:

- The inclusion of the overbridge associated with Side Road Options 1 and 2 would result in a greater landscape impact than Side Road Options 3 and 4, arising from the presence of the structure and a greater loss of farmland. Side Road Options 2 and 4 would require greater loss of Ancient Woodland habitat between Dowally and Guay than Side Road Options 1 and 3.
- Side Road Option 3 in combination with Mainline Route Option 4 was assessed as having the lowest overall visual impact, with Side Road Option 2 in combination with Mainline Route Option 2 having the highest visual impact due to the additional side road tie in at Guay and the visually prominent overbridge.
- Side Road Options 1 and 2 were assessed as having the greatest overall impact on views from the road, due to the side road overbridge. Side Road Option 3 was assessed as having the lowest impact as it did not include the overbridge and it did not have the additional side road tie in at Guay associated with Side Road Option 4.
- In terms of road drainage and water environment, potentially significant impacts were anticipated on all attributes of the water environment pre-mitigation. Specifically, in terms of flood risk, Side Road Options 1 and 2 would have the highest interaction with the baseline flood extents and Side Road Options 3 and 4 would have the lowest interaction.

Overall

As a result of the above significant differentiators, Side Road Option 2 was identified as being preferred to Side Road Options 1, 3 and 4 and consequently Side Road Option 1, 3 and 4 were removed from further consideration.

It was recommended that Side Road Option 2 was progressed but with an alternative overbridge arrangement, additional left-in left-out junction and reduced length of access road (to House of Bruar Warehouse).

Emerging Preferred Route Recommendation

Based on the above decision making process, the recommended emerging preferred route option was Mainline Route Option 2 with Side Road Option 2.

Development of the Proposed Scheme Design

The development and design of the Tay Crossing to Ballinluig scheme within DMRB Stage 3 assessment is described in detail in the ES, Chapter 4 (Iterative Design Development) and Chapter 5 (The Proposed Scheme).

On the basis of the Tay Crossing to Ballinluig DMRB Stage 2 assessment and the outcome of the recommendations agreed at the Preferred Route Workshop, Mainline Route Option 2 Side Road Option 2 was taken forward as the preferred route for the DMRB Stage 3 assessment.

It was recognised that there would be significant impacts on Kindallachan, cairn associated with the preferred route, and an archaeological geophysical survey was undertaken to try to better understand the nature of the monument, and the potential for unknown archaeological remains associated with it.

The results of the survey were reviewed, and attempts were made to reduce or avoid impacts on the monument if practicable. Development of the DMRB Stage 3 design minimised both central reserve and verge widths in the vicinity of the cairn, however despite this it was not possible to avoid the major magnitude of impact reported in the cultural heritage ES chapter. Further details are available in the ES Chapter 4 (Iterative Design Development), paragraphs 4.3.39 to 4.3.40.

Proposed Mitigation

Details relating to the proposed mitigation associated with Kindallachan, cairn are provided in the ES Chapter 15 (Cultural Heritage), paragraph 15.5.7. All proposed mitigation associated with the cairn will be subject to Scheduled Monument Consent being granted by Historic Environment Scotland, and any conditions set therein.

Proposed mitigation would comprise a Level 3 archaeological earthwork record (Historic England, 2017), that would be undertaken prior to a set piece excavation and dissemination of the results via a staged reporting process that would be undertaken along with the deposition of an ordered archive at the National Record of the Historic Environment (NRHE).

While being a secondary output to the dualling programme, the mitigation works would provide an opportunity to better understand the inherent character of the monument which is currently not well understood. While previous episodes of archaeological investigation and land-use impact have compromised the inherent character of the monument, there is the potential to determine whether the mound is of natural origin or not, if it is not natural, is it of Bronze Age or earlier date and what was its method of construction? In addition, excavation would establish whether there are other human burials within the monument. In turn, this could add to the contextual character of the comparable prehistoric monuments in the vicinity.

Archaeological excavations have the potential to contribute towards answering a number of research questions outlined in ScARF, in particular:

- Filling gaps in our knowledge of the chronology and development of Bronze Age monument complexes; and
- The relationship between monumental and non-monumental elements of the landscapes. What does this say about the interplay between culture and nature during the Bronze Age?

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Annex C: Supporting Information Relating to the Proposed Removal of Part of the Scheduled Area Surrounding Kindallachan Standing Stone

Scheduled Monument	Kindallachan, standing stone
Index No:	SM9618
Grid Ref:	NN 99383 49940

Background

Kindallachan, standing stone and its cultural significance

The monument comprises a single standing stone of prehistoric date, visible as an upstanding monument. The standing stone, known locally as the Druid's Stone, is situated in arable farmland at about 60m OD. The standing stone probably relates to ritual activity of Neolithic or Bronze Age date.

The monument is identified by HES as being of national importance because of its potential to contribute to an understanding of prehistoric ritual practices. Its importance is increased by its proximity to other monuments of potentially contemporary date,

The cultural significance of the monument appears to lie in its context, specifically its possible relationship with contemporary monuments in the vicinity. The location of the monument as a focal point or marker in the local landscape may have been important as part of a wider complex of monuments in Strath Tay.

In terms of its intrinsic character, geophysical surveys around the monument identified linear and pit features of potential archaeological significance, and these were located outside of the area that would be impacted on by the proposed scheme.

No associative character has been determined.

Archaeological Background

The standing stone is related to ritual activity of Neolithic and/or Bronze Age date, and it is identified as being of national importance due to its ability to inform us about ritual practice in early prehistory. This importance is increased by its proximity to other monuments of potentially contemporary date. In addition, the standing stone forms part of a wider prehistoric landscape within Strath Tay including the Clachan More standing stones at Dowally; Clach Glas standing stone at Westhaugh of Tulliemet; Tigh Na Ruaich stone circle at Ballinluig and Clach na Croiche standing stone at Balnaguard.

When the standing stone was originally erected it is likely that it would have been intervisible with Kindallachan, cairn a natural mound which is likely to have been utilised in the Bronze Age for human burial, located 210m to the south. In addition, the standing stone may well have been intended to be intervisible with the small prehistoric settlement at Kincaigie, located on high ground approximately 1km to the west. Notable also is the location of the standing stone close to the River Tay, the course of which is unlikely to have changed greatly since prehistory. This indicates a relationship between the river and the standing stone which is well attested along the River Tay with similar examples at Newtyle near Dunkeld, Clach na Croiche, Pitnacree and Haugh of Grantully.

Archaeological Investigations at Kindallachan, standing stone

Geophysical survey undertaken as part of the assessment concluded that no responses indicating definitive archaeological remains were located within the scheduled area surrounding the standing stone. The surveys did record possible archaeological features outside the scheduled area, comprising a number of linear and pit features.

The Case for the A9 Dualling

The proposed scheme will result in unavoidable impacts on Kindallachan, standing stone, and a small section of the designated area around the standing stone would be removed. The purpose of the following sections of this document is to set out the national context for the A9 Dualling, using references to national policy that support the case for the project. It then considers the alternatives that were considered at the various stages of assessment, and why these were set aside, resulting in the decision to proceed with the proposed scheme.

Historic Environment Scotland Policy Statement (HESPS), Historic Environment Scotland, 2016

In terms of the policy set out in HESPS, it is considered that the proposed removal of the monument would not constitute extensive intervention, however given that part of the scheduled area would be removed it is considered that paragraph 3.19 of HESPS is still relevant in that it states: 'extensive intervention will only be allowed...where it will clearly generate public benefits of national importance which outweigh the impact on the national cultural significance of the monument. Such public benefits could come from, for examples, interventions which... will produce economic benefits once the works are completed'.

In order to understand the need for the dualling of the A9, it is key to note that it is a vital link used by both local and long distance traffic. It is a major bus route and is used by freight traffic supporting key industries, such as food and drink, oil, waste and construction. The route is used by tourists as a means of reaching locations in Perthshire and the Highlands. It is considered that the upgrade of the A9 to dual carriageway would help assist economic growth in the north of Scotland. Dualling of the A9 would improve journey times, potentially saving costs for businesses, reducing driver stress and increasing safety, potentially making the surrounding areas more attractive as a short-term tourism destination.

The following section outlines key policy documents which support and promote the A9 Dualling as a project of national importance that will produce economic benefits once the works are completed.

Strategic Transport Projects Review, Transport Scotland, 2009

The Strategic Transport Projects Review (STPR) supported the delivery of strategic outcomes identified in previous iterations of the National Transport Strategy (2006) and the National Planning Framework (2010), both of which have since been superseded. The outcomes of the STPR were structured on a tiered approach to investment. Maintaining safe, efficient and effective links on strategic corridors, including the A9, was seen as one of the key challenges of the STPR.

In terms of future network performance, the review categorised the strategic transport network into 20 corridors, four urban networks (Glasgow, Edinburgh, Dundee and Aberdeen), and two strategic nodes (Perth and Inverness). The review concluded that generally the network was performing to a high standard, however, a number of significant areas would require specific attention. This included 'Corridor 6 – Inverness to Perth':

- *'to reduce journey time and increase opportunities to travel between Inverness and Perth (and hence onwards to the Central Belt);*
- *to improve the operational effectiveness of the A9 as it approaches Perth and Inverness;*
- *to address issues of driver frustration relating to inconsistent road standard, with attention to reducing accident severity; and*
- *to promote journey time reductions, particularly by public transport, between the Central Belt and Inverness primarily to allow business to achieve an effective working day when travelling between these centres.'* (STPR, 2009, p.143).

Scotland's Cities: Delivering for Scotland, Scottish Government, 2011

This policy document sets out how to develop and enhance the most productive resources of Scotland's cities. The key to this was the investment in infrastructure to ensure that:

'Good connectivity within and between cities and their regions is the key to widening the reach of our cities within Scotland... Further reducing journey times between our cities, and particularly between Aberdeen, Inverness and the Central Belt will bring additional benefits.' (p. 19)

Infrastructure Investment Plan (IIP), Scottish Government, 2015

The current IIP, published in 2015, provides a refresh to the previous 2011 IIP and gives an overview of the Scottish Government's plans for infrastructure investment. The vision for the IIP was to deliver *'sustainable economic growth through increasing competitiveness and tackling inequality, managing the transition to a lower carbon economy, enhancing public services, and supporting employment and opportunity across Scotland'*. (p.1)

The IIP is therefore focused on improving connections across, within and to/from Scotland. The IIP refers to the Scottish Government's strategy to completing the dualling of the A9 between Perth and Inverness by 2025.

The IIP states that the Scottish Government's targets *'...underline the commitment to connecting Scotland's cities with a high quality transport system that will generate economic growth and will ensure the road network between all Scottish cities is of dual carriageway standard.'* (p.69).

Scotland's Economic Strategy, Scottish Government, 2015

This strategy document states that the purpose of the Scottish Government is to create a more successful country through increasing sustainable economic growth and tackling inequality. The Strategy was initially published in 2007, revised in 2011 in cognisance of the economic downturn, and further updated in 2015. The update focuses on creating a more successful country through increased competitiveness and sustainability of the Scottish economy. The strategy is based on the principle that investing in infrastructure is key to helping businesses to grow, innovate and create good quality employment opportunities.

The strategy acknowledges the importance of Scotland's cities and towns as centres of growth and prosperity. In regards to investment in infrastructure the strategy states that it *'is key to driving long-term improvements in competitiveness and in creating opportunities for everyone in society to benefit from these improvements'* (p.37). The A9 dualling programme is listed in the Economic Strategy as a major project which will help cities, towns and regions to drive growth and compete internationally.

National Transport Strategy (NTS), Scottish Government, 2016

The NTS is a refresh to the previous 2006 NTS that considers Scotland's transport needs and outlines the long term strategy to meet the aims derived from 'Scotland's Transport Future' (2004). The following three key strategic outcomes have been retained within the NTS to achieve this:

- *'improve journey times and connections, to tackle congestion and the lack of integration and connections in transport which impact on high level objectives for economic growth, social inclusion, integration and safety;*
- *reduce emissions, to tackle the issues of climate change, air quality and health improvement which impact on high-level objectives for protecting the environment and improving health; and*
- *improve quality, accessibility, and affordability, giving people a choice of public transport where availability means better quality services and value for money, providing an alternative to the car.'* (p.2)

The NTS also reaffirms (p.21) the Scottish Ministers' commitment to investing in the A9 dualling between Perth and Inverness by 2025.

National Planning Framework 3 (NPF3), Scottish Government, 2014

The Scottish Government published the third iteration of the NPF in June 2014 (Scottish Government, 2014). The NPF3 is a statutory document and a material consideration in planning decisions.

NPF3 guides Scotland's spatial development over the next 20 to 30 years setting out strategic development priorities to support the Scottish Government's central purpose to 'create a more successful country, with opportunities for all of Scotland to flourish, through increasing sustainable economic growth.' (paragraph 1.1) One of the key drivers for the revision has been to emphasise placemaking. It also focusses on the following four outcomes for Scotland:

- a low carbon place;
- a natural place to invest;
- a successful and sustainable place; and
- a connected place.

NPF3 describes spatial priorities for change in improving connections. It states in paragraph 5.20 that:

'The road network has an essential role to play in connecting cities by car, public transport and active travel...We will complete dualling of the trunk roads between cities, with dualling of the A9 from Perth to Inverness complete by 2025 and dualling of the A96 from Inverness to Aberdeen by 2030'. (p.55)

NPF3 states that the A9 dualling programme between Perth and Inverness will provide 'a step change in accessibility across the rural north', and 'increase business confidence and support investment through the region'. Paragraph 4.28 of NPF notes that the improvements will also help enhance access to Scotland's National Parks, strengthening communities, investment and supporting tourism.

NPF3 identifies 14 major transport, energy and environmental infrastructure projects that are of national significance to Scotland (called national developments), which are considered by Scottish Ministers to be essential to the delivery of the spatial strategy set out in NPF3. These are new projects and do not include existing commitments such as the A9 Dualling Programme. They are considered to assist in contributing to the Scottish Government's objective of building a Scotland that is wealthier and fairer; greener; safer and stronger; smarter and healthier.

The National Long Distance Cycling and Walking Network is a national development identified within NPF3 which has direct relevance to the study area for the proposed scheme.

Taking the above into consideration, it is clear that the dualling of the A9 has been identified as being integral to the economic growth of the north of Scotland, and that its successful completion would clearly generate public benefits of national importance. While the loss of a small part of the scheduled monument, and taking into account that the standing stone would not be removed, does represent policy non-compliance in relation to Scottish Planning Policy, it is considered that the benefits outlined above outweigh the national cultural significance of this monument.

Alternatives Considered

In order to understand how the proposed scheme was arrived at, the following section outlines the alternatives options that were considered and set aside, with reasons for setting them aside provided. Full details relating to the Alternatives Considered are provided in the DMRB Stage 3 ES Chapter 3 (Alternatives Considered).

The proposed scheme for Tay Crossing to Ballinluig as assessed in the DMRB Stage 3 ES comprises online (southbound) widening of the existing A9 and provision of an overbridge providing connectivity to the northbound carriageway for the settlements of Dowally, Guay and Kindallachan. This is a result

of decisions made following consideration of a range of alternative alignment options; and these are outlined below.

Preliminary Engineering Services (PES) and A9 Strategic Environmental Assessment (SEA)

The A9 PES and A9 SEA provided an equivalent assessment to the DMRB Stage 1 level of consideration for the A9 Dualling Programme, and considered three high-level, strategic alternative dualling options, as summarised in Table 6.

Table 6: Strategic Level Alternative Dualling Options

Strategic Option	Description
Online Widening	Dualling along the existing A9 single carriageway sections, to tie in with the existing dualled sections
Online Widening & Offline Dualling	Dualling along the existing A9 route, with localised offline dualling where constraints dictated
Alternative route(s)	Dualling via alternative routes to the existing A9.

Offline dualling to the west of the Highland Main Line railway from the Tay Crossing and with a tie-in at Ballinluig (known as the Back Route), which would have avoided impacts on Kindallachan, standing stone was considered as one of the strategic options.

The studies identified that offline widening would result in significant loss of ancient woodland, floodplain and potentially significant landscape and visual impacts. They would have also resulted in impacts on Inchmagrannachan and Dalguise associated with the proximity and height of the route as it passes these communities. Therefore, online widening, generally following the route of the existing A9, was identified as the most suitable option.

The online dualling corridor was identified as a 200m wide corridor centred on the existing A9 that could be extended locally, depending on constraints encountered at later design development and environmental assessment stages.

DMRB Stage 2: Sifting of Preliminary Mainline Alignments

During the DMRB Stage 2 process, a review of the A9 PES and SEA assessments enabled the identification of potential mainline alignment options. A preliminary engineering design was then developed for each of these alternatives, applying a standard road cross-section and earthworks slope gradients, informed by available topographical survey information.

A number of sub-option alternatives were developed for various sections of the mainline alignments, and subject to high-level assessment against environmental constraints, engineering and economic criteria. Environmental constraints considered comprised:

- community and private assets: land-take, property demolition, and development sites;
- geology, soils and groundwater: geological Site of Special Scientific Interest (SSSI), Geological Conservation Review (GCR) sites and known contaminated land sites;
- road drainage and the water environment: watercourse crossings and SEPA 1:200-year flood extents;
- ecology and nature conservation: ecological designations comprising Special Areas of Conservation (SAC), SSSI, designated woodland (Ancient Woodland Inventory and National Woodland Survey of Scotland) and protected species;
- landscape and visual: landscape designations and character areas, landscape elements, visual receptors;
- cultural heritage: Scheduled Monuments, Listed Buildings, Battlefields, Conservation Areas and Gardens and Designed Landscapes;
- air quality and noise and vibration: distance to receptors; and

- effects on all travellers: impacts on Core Paths, Local Paths, Rights of Way and National Cycle Routes.

The sifting process involved a negative assessment of the options identified and generally was based on a qualitative description of the likely impacts. Where available, quantitative information was included and the assessment broadly considered the relative size and scale of impacts of each option. The negative assessment involved a high level assessment of impacts so as to determine which particular options could be removed due to them being significantly less advantageous than the other competing options that remain available.

Sifting Options Considered

To facilitate further sifting of northbound and/or southbound widening options, the route was considered as four sub-option sections to allow a combination of two or more of the simple mainline options. The sections are referenced by chainage (shortened to 'ch', for example ch1500), which is a reference to the number of metres from the starting point of the proposed scheme. These sections were:

- Section 1 - ch600 to ch1260;
- Section 2 - ch1260 to ch4690;
- Section 3 - ch4690 to ch5870; and
- Section 4 - ch5870 to ch8940.

The review of the 'simple' mainline options produced during the DMRB Stage 1 by the PES/SEA assessment were as follows:

- Option A - Parallel widening of the carriageway northbound;
- Option B - Parallel widening of the carriageway southbound;
- Option C - Symmetrical widening of the carriageway;
- Option D - Localised offline widening within the vicinity of West Haugh of Tulliemet, Haugh Cottages and Haugh of Kilmorich; and
- Option E - Localised offline widening within the vicinity of Kindallachan.

Key Sifting Considerations

Due to a need to keep the existing A9 open during construction and complications associated with widening existing structures, plus proximity to the Highland Main Line railway, symmetrical widening (Option C) in general was discounted. Option D was also discounted at this stage due to potential impacts on the floodplain.

One of the most constrained sections was between Guay and Kindallachan due to the combination of constraints imposed by the Highland Main Line railway and environmental features, including Kindallachan, standing stone. After discounting Option C, two remaining online options (Option A and B) plus a localised offline option (Option E) were considered through the sifting assessment.

Northbound widening (Option A) was identified as being significantly less advantageous than the southbound widening option (Option B) due to proximity to the Highland Main Line railway.

The localised offline option (Option E) was identified as being significantly less advantageous than the southbound widening option due to the volume of earthworks required (surplus of 790,000m³), overall land-take of 20ha, severance and loss of native and ancient woodland (13.5ha), and landscape/visual impacts (Tayside Lower Highland Glens Landscape Character Area; severance and loss of woodland; and views of earthworks from properties, paths, roads and the Highland Main Line railway).

It was determined that symmetrical and northbound options could not be progressed due to the constraint of the Highland Main Line railway, and the localised offline option was discounted due to potential significant impacts as noted above.

Consequently, all four mainline options that progressed to the DMRB Stage 2 assessment included southbound widening between Guay and Kindallachan, and all would have an adverse impact on Kindallachan, standing stone. While these adverse impacts were recognised, this was considered unavoidable due to the stated constraints and limits explained above.

Sifting Outcomes

The outcome of these considerations was to define 14 sub-option sections, which were then assessed against topographical constraints, engineering constraints, and the environmental constraints listed in above.

The outcome of this assessment was a series of recommendations outlining the sections in which dualling should be considered on either the northbound or southbound carriageways of the existing route (or hybrid of both), to avoid significant constraints.

The recommendations and sub-options were then reviewed in a sifting assessment workshop in February 2015. Additionally, the potential impacts on Kindallachan, standing stone were presented along with other cross project design considerations to the ESG in May 2015. The potential impacts on these scheduled monuments were presented as unavoidable and ESG members were able to provide comment on the proposal.

Four full length options (Options 1, 2, 3 and 4) were progressed to the formal DMRB Stage 2 assessment process reported via the Jacobs (2015) Report, A9 Dualling: Tay Crossing to Ballinluig, Sifting of Indicative Route Options Report.

Sifting of Tier 2 Side Road Options

Following the identification of the mainline route options for Tay Crossing to Ballinluig, a number of alternative access options were developed and sifted. 'Tier 2' accesses are those relating to C-classified roads or unclassified roads.

A Junction and Access Strategy, developed during DMRB Stage 1 as part of the PES/SEA assessment, identified options for Tier 2 accesses.

This confirmed that a combination of alternative access provision and left-in left-out junctions should be considered and the Tier 2 side road options were developed on this basis.

Tier 2 Side Road Options Sifting Outcomes

To determine the options to be taken forward to DMRB Stage 2 assessment, the Tier 2 side road options were assessed in accordance with the Tier 2 side road sifting Methodology. For the purposes of the side road sifting assessment and due to the similarity of the mainline options all side road options were designed in relation to only one mainline option – mainline route Option 4:

- Option 1 – Dowally Access – Side Roads A and B
- Option 2 – Dowally Access – Side Roads A and C
- Option 3 – Dowally Access – Side Roads E and B
- Option 4 – Dowally Access – Side Roads E and D
- Option 5 – Dowally Access – Side Roads B and G
- Option 6 – Dowally Access – Side Roads D and G
- Option 7 – Guay/Kindallachan – Side Roads H and I

- Option 8 – Guay/Kindallachan – Side Roads H and J
- Option 9 – Guay/Kindallachan – Side Roads H and K
- Option 10 – Guay/Kindallachan – Side Roads F and I
- Option 11 – Guay/Kindallachan – Side Roads F and J
- Option 12 – Guay/Kindallachan – Side Roads F and K
- Option 13 – Guay/Kindallachan – Side Road H
- Option 14 – Haugh of Kilmorich – Inch Farm – Side Road L
- Option 15 – Haugh of Kilmorich – Inch Farm – Side Road M

Each Tier 2 side road option was then assessed following the same environmental criteria as the mainline sifting process. Additional engineering criteria such as length and local routes were also considered in addition to the mainline sifting engineering criteria.

The options were then reviewed in a sifting assessment workshop in November 2015. Ten of the options were sifted out and two additional options were identified, assessed and subsequently sifted-out. Five side road options were retained and combined to provide four side road options. All four side road options included the same tie in to the existing side road network at Kindallachan and had no impact on Kindallachan, standing stone.

The sifting of the Tier 2 accesses has been recorded via the Jacobs (2015b) Report 'A9 Dualling: Tay Crossing to Ballinluig – DMRB Stage 2 Scheme Assessment Sifting of Indicative Tier 2 Side Road Options Summary Report'.

Considering the side road options, a total of 16 mainline and side road route options emerged from this DMRB Stage 1 sifting assessment. These options remained available for further consideration at DMRB Stage 2 Assessment:

- Mainline Option 1 with Side Road Option 1, 2, 3 or 4;
- Mainline Option 2 with Side Road Option 1, 2, 3 or 4;
- Mainline Option 3 with Side Road Option 1, 2, 3 or 4; and
- Mainline Option 4 with Side Road Option 1, 2, 3 or 4.

DMRB Stage 2 Assessment of Route Options

The DMRB Stage 2 assessment process included desk-based assessment, site surveys, public consultation, and input from a range of statutory and non-statutory consultees and stakeholders.

Public consultation was undertaken, including public exhibitions presenting the route options and the potential impacts these would be likely to have on the environment. Feedback on the options and information on the local area obtained from these community engagement events was taken into consideration during the development of the DMRB Stage 2 options and, ultimately, in the selection of a preferred route option.

As part of the DMRB Stage 2 assessment process, Value for Money and Preferred Route Workshops were also held with the project team and Transport Scotland to inform selection of a preferred route option to be taken forward to DMRB Stage 3.

A total of 16 options were identified and evaluated at DMRB Stage 2 for this 8.2km section of the A9. The route options and side roads considered are summarised below.

Mainline Route Options 1-4

Mainline Route Options 1-4 all followed the general line of the existing A9, but varied in terms of whether the dualling would be provided by widening to the northbound side or southbound side. The section that includes Kindallachan, standing stone (ch5200-7500) was the same for all route options as set out in Table 5.

Table 5: DMRB Stage 2 Proposed Mainline Route Option Alignments

Chainage (ch)	Option 1	Option 2	Option 3	Option 4
ch5200 to ch7500	Southbound Widening (Common to all options)			
Guay – Haugh Cottages	New side road connecting to left-in/left-out junction (Common to all options)			
	New side road and bridge over A9, connecting to left-in/left-out junction (Side Road Options 1 & 2 only)			

Side Road Options 1-4

The Side Road Options 1-4 at Guay-Kindallachan (ch5100-ch6000) were included to accommodate access to the communities of Guay and Kindallachan located on the east of the existing A9.

All Options included a new local road connecting to the existing U603 Guay to Tulliemet road before passing behind Guay Farmhouse providing a connection between Guay and Kindallachan and providing a left-in, left-out junction between the settlements.

Side Road Option 1 was identical to Side Road Options 2, 3 and 4 (i.e. as per the side road provision included in the assessed route option layouts).

Offline Options

During the consultation on the mainline route options and side road options, members of the local community raised concerns over the online mainline route options. These concerns included the proximity of the dual carriageway and access roads, safety, and perceived impact of road noise and vibration on residential receptors, air pollution, and increased flood risk due to loss of River Tay floodplain. An alternative offline alignment was suggested with the alignment located to the east of the communities of Dowally, Guay and Kindallachan. Two route options containing significant offline components were subsequently developed.

DMRB Stage 2 Findings

Through the DMRB Stage 2 process, Mainline Route Option 2 Side Road Option 2 was selected as the preferred route option to be taken forward to DMRB Stage 3. A brief summary of the decision process taking into account engineering, environmental and traffic and economic consideration is provided in the following paragraphs.

To recommend an overall preferred option for the project, three recommendations between the different options were made. These were:

- Recommendation 1 – Online vs Offline;
- Recommendation 2 – Mainline Option 2 vs Mainline Options 1, 3 and 4; and
- Recommendation 3 – Side Road Option 2 vs Side Road Options 1, 3 and 4.

Recommendation 1: Online vs Offline

Assessment of the offline route options was undertaken to an appropriate level to inform a comparison between online and offline route options. A summary of the findings and reasons for setting aside is provided below, and further details are provided in the Tay Crossing to Ballinluig Online vs Offline Route Option Comparative Assessment Report (Jacobs, 2016b).

Engineering

From an engineering perspective, the offline route options required the construction of two grade separated crossings to accommodate the retention of NMU connectivity, which were not required with the online route options. Furthermore, the offline route options required the construction of three significant new structures (Dowally – 66m span, Guay – 140m span and Kindallachan – 260m span) and a larger retaining wall, which were not required for the online route options.

Although the number of interfaces with public utilities associated with the offline route options would be less when compared with the online route options, there would be more difficulties associated with the construction of the structures on the offline route options and the extensive earthworks that are required.

Environmental

From an environmental perspective, the offline route options would have resulted in policy compliance in relation to cultural heritage, as there would have been no adverse impact on Kindallachan, standing stone.

The assessment identified, however, that there would have been the requirement for greater land-take than the online route options, combined with the severance of farms, fields and forestry compartments. In addition, a greater number of property demolitions would also have been required including an uninhabited residential property and a number of poly-tunnels associated with a market garden and landscaping business.

Both the online and the offline route options would have resulted in permanent impacts on the River Tay SAC designated area. However, the offline route options would have the potential to result in more impacts, with some being of a greater magnitude than online route options, due to the severance and fragmentation of habitats.

The offline route options were assessed to have substantially greater landscape and visual impacts than the online options, due to the alignment deviating offline and away from the existing established transport corridor at the edge of the flat valley floor, to the relatively unspoiled and tranquil undulating higher ground of the valley slopes. The offline route options would have had a substantial adverse impact on landscape character and on numerous visual receptors, including residents of properties that had no visibility of the existing A9 when compared to the online route options. These impacts would have been greatest along the offline section and associated with three prominent elevated bridge structures with effective mitigation not achievable, which were not required for the online route options.

In relation to noise and vibration, the offline route options would have more adverse impacts on dwellings than the online route options. The offline route options would increase noise and vibration impacts at properties more remote from the existing A9 and that only currently experience low levels of noise from the existing side road network and A9.

The offline route options would result in more disposal of surplus material due to an increase in earthworks required to construct the offline route options compared to the online route options. There is also an increased materials impact due to the need to construct three significant structures and a larger retaining wall and an increased need to demolish properties, which were not required for the online route options.

The assessment identified that the offline route options would have had some benefits in comparison to the online options. In relation to flood risk, the offline options would encroach less into the River Tay 1 in 200-year functional floodplain resulting in an overall lower loss of flood storage when compared to the online route options.

Overall

The offline route options posed policy non-compliance issues with more environmental parameters: community and private assets, ecology and nature conservation, and cultural heritage; compared to cultural heritage only (impacts on Guay Farmhouse, Kindallachan Cairn and Kindallachan Standing Stone) for the online route options.

The range of costs for the offline route options was considerably greater than the range of costs for the online route options as they would have required the construction of three significant bridge structures.

Based on the assessment undertaken, it was recommended that the offline route options were not progressed for further consideration as the benefits of the offline route options are outweighed by the dis-benefits. The online route options were therefore identified as being preferred.

Recommendation 2: Mainline Option 2 vs Mainline Options 1, 3 and 4

Engineering

From an engineering perspective, there were some differences between mainline route options in terms of alignment, NMUs, geotechnics and earthworks and public utilities however these were not considered significant differentiators. The only significant engineering differentiator was in relation to constructability of Mainline Route Option 4 which required three traffic management crossovers compared to none for Mainline Route Option 2 as it entails southbound widening for its full length.

Environmental

From an environmental perspective, some differences between mainline route options were identified in terms of: community and private assets; all travellers; geology, soils and groundwater; ecology and nature conservation (including potential impacts on the River Tay SAC and ancient woodland); visual; cultural heritage (including potential impacts on Kindallachan, standing stone); air quality; noise and vibration; materials; and policies, and plans. However, these were not considered to be significant differentiators.

Significant environmental differentiators were identified between mainline route options in relation to road drainage and the water environment and in terms of landscape:

- Mainline Route Option 4 would have the highest interaction with the baseline flood extents and Mainline Route Option 2 would have the lowest interaction. Taking into consideration the proposed mitigation measures for flood risk and other attributes of the water environment for Mainline Route Option 2, impacts would be expected to be mitigated during the DMRB Stage 3 design development for all side road options.
- Mainline Route Options 1, 2 and 3 were assessed to have a Moderate impact on the Lower Highlands Glen Landscape Character Area (LCA), and Mainline Route Option 4 was assessed as having no significant impacts.

Overall

Given the above significant differentiators, Mainline Route Option 2 was identified as being preferred to Mainline Route Options 1, 3 and 4. It was recommended that Mainline Route Options 1, 3 and 4 were therefore removed from further consideration.

Recommendation 3: Side Road Option 2 vs Side Road Options 1, 3 and 4

Engineering

From an engineering perspective, significant engineering differentiators were identified with respect to the requirement for an overbridge for Side Road Options 1 and 2 and long diversion times associated

with Side Road Options 3 and 4 as access would only be provided to one carriageway. The long diversion times were considered to be a significant differentiator between the side road options.

Environmental

From an environmental perspective, differences in terms of community and private assets, geology, soils and groundwater, ecology and nature conservation, cultural heritage, air quality, noise and vibration, effects on all travellers (non-motorised users), materials and policies and plans were identified but these differences were not considered to be significant differentiators between side road options. Significant environmental differentiators between side road options were identified for landscape, visual, view from the road and road drainage and the water environment:

- The inclusion of the overbridge associated with Side Road Options 1 and 2 would result in a greater landscape impact than Side Road Options 3 and 4, arising from the presence of the structure and a greater loss of farmland. Side Road Options 2 and 4 would require greater loss of Ancient Woodland habitat between Dowally and Guay than Side Road Options 1 and 3.
- Side Road Option 3 in combination with Mainline Route Option 4 was assessed as having the lowest overall visual impact, with Side Road Option 2 in combination with Mainline Route Option 2 having the highest visual impact due to the additional side road tie in at Guay and the visually prominent overbridge.
- Side Road Options 1 and 2 were assessed as having the greatest overall impact on views from the road, due to the side road overbridge. Side Road Option 3 was assessed as having the lowest impact as it did not include the overbridge and it did not have the additional side road tie in at Guay associated with Side Road Option 4.
- In terms of road drainage and water environment, potentially significant impacts were anticipated on all attributes of the water environment pre-mitigation. Specifically, in terms of flood risk, Side Road Options 1 and 2 would have the highest interaction with the baseline flood extents and Side Road Options 3 and 4 would have the lowest interaction.

Overall

As a result of the above significant differentiators, Side Road Option 2 was identified as being preferred to Side Road Options 1, 3 and 4 and consequently Side Road Option 1, 3 and 4 were removed from further consideration.

It was recommended that Side Road Option 2 was progressed but with an alternative overbridge arrangement, additional left-in left-out junction and reduced length of access road (to House of Bruar Warehouse).

Emerging Preferred Route Recommendation

Based on the above decision making process, the recommended emerging preferred route option was Mainline Route Option 2 with Side Road Option 2.

Development of the Proposed Scheme Design

The development and design of the Tay Crossing to Ballinluig scheme within DMRB Stage 3 assessment is described in detail in the ES, Chapter 4 (Iterative Design Development) and Chapter 5 (The Proposed Scheme).

On the basis of the Tay Crossing to Ballinluig DMRB Stage 2 assessment and the outcome of the recommendations agreed at the Preferred Route Workshop, Mainline Route Option 2 Side Road Option 2 was taken forward as the preferred route for the DMRB Stage 3 assessment.

It was recognised that there would be significant impacts on Kindallachan, standing stone associated with the preferred route, and an archaeological geophysical survey was undertaken to try to better understand the nature of the monument, and the potential for unknown archaeological remains associated with it.

The results of the survey were reviewed, and attempts were made to reduce or avoid impacts on the monument if practicable. This was done through the provision of relaxation from standards for horizontal curvature and stopping site distance, and a retaining wall on the southbound carriageway. This avoided the need for a cutting and limited the direct impacts on the Scheduled Monument to the loss of a small section of the scheduled area. Further details are available in Annex A of this Appendix and the ES Chapter 4 (Iterative Design Development), paragraph 4.3.41.

Proposed Mitigation

Details relating to the proposed mitigation associated with Kindallachan, standing stone are provided in the ES Chapter 15 (Cultural Heritage), paragraph 15.5.8. All proposed mitigation associated with the standing stone will be subject to Scheduled Monument Consent being granted by Historic Environment Scotland, and any conditions set therein.

Proposed mitigation would comprise a set piece excavation and dissemination of the results via a staged reporting process that would be undertaken along with the deposition of an ordered archive at the National Record of the Historic Environment (NRHE).

While being a secondary output to the dualling programme, the mitigation works would provide an opportunity to better understand the inherent character of the monument. Archaeological excavations have the potential to contribute towards answering a number of research questions outlined in ScARF, in particular:

- Filling gaps in our knowledge of the chronology and development of Bronze Age monument complexes; and
- The relationship between monumental and non-monumental elements of the landscapes. What does this say about the interplay between culture and nature during the Bronze Age?

References

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