5 The Proposed Scheme

5.1 Introduction

5.1.1 This chapter provides a description of the proposed scheme design at the DMRB Stage 3 level of engineering design. The assessment of impacts and the mitigation measures proposed in the ES are based on the proposed scheme design as described in this chapter.

5.1.2 Background is also provided in this chapter on the anticipated procurement process, Transport Scotland's sustainable development policy for the A9, and on existing and projected traffic conditions.

5.2 Background

Scheme Procurement

5.2.1 The proposed scheme is expected to be procured by means of a Design and Build (D&B) type contract. Under the terms of this contract type, the Contractor will undertake both the detailed design and construction of the proposed scheme. Responsibility for operating and maintaining the trunk road would remain with the Scottish Government. Responsibility for operating and maintaining side roads would remain with Perth & Kinross Council on completion of the proposed scheme. Both the Scottish Government and Perth & Kinross Council may appoint agents to operate and maintain the respective road networks on their behalf.

5.2.2 Under a D&B type contract, a specimen (outline) design is prepared for the proposed scheme, which the appointed Contractor(s) can optimise as the detailed design is developed. Such optimisation must be within the constraints imposed by the ES including the Schedule of Environmental Commitments (Chapter 21), which contains the mitigation measures identified through the EIA process; Statutory Orders (such as land acquisition); and any specific limits set within the contract documents. This will ensure that the detailed design will be implemented in compliance with this ES.

5.2.3 Optimisation of the proposed scheme design will still be deemed to comply with this ES provided that any design changes have been subject to environmental review to ensure that the residual impacts would not be greater than those reported in this ES, and subject to Transport Scotland's acceptance of the design changes and the findings of any such review.

Sustainable Development Policy

5.2.4 Consideration of sustainable development issues have and will continue to form an important element of all activities undertaken in the proposed scheme's life cycle, including:

- project design and appraisal;
- procurement;
- construction;
- maintenance; and
- operation (and decommissioning).

5.2.5 The A9 Dualling SEA Post Adoption Statement (Transport Scotland, 2014) included a range of Environmental Design Principles; based on a review of relevant plans, policies and strategies. The agreed environmental principles were reported in full through the Post Adoption Statement. These environmental principles include several of particular relevance to sustainable development, with some key examples provided below:

- promote local/sustainable sourcing of materials;
- promote sustainable design and innovation to reduce material consumption;
- avoid and minimise waste generation; and

- maximise re-use of material resources and use of recycled materials.

5.2.6 The A9 Dualling Sustainability Strategy (Transport Scotland, 2016a) aims to deliver the A9 dualling programme as a model of modern infrastructure development, with sustainability embedded through all stages of the delivery process. The sustainability vision for the A9 dualling programme is to deliver:

> *'An A9 that connects people, business and communities, respects the natural environment of the corridor and makes a contribution to creating a successful and sustainable Scotland.'*

5.3 Traffic Conditions

5.3.1 The existing traffic conditions of the current A9 carriageway are noted in Section 2.5 (Local Context for Dualling) of Chapter 2 (Need for the Scheme), based on 2015 modelled data.

5.3.2 This base model represents a typical condition for a 2015 weekday in March and June between 07:00 and 19:00 hours. The existing A9 and all major junctions are represented within this model. The model denotes individual cars (split by in-work, non-work commute and non-work other purposes) with proportions representing standard cars, those towing trailers or caravan and motorhomes. Light and heavy good vehicles and bus/coaches are also represented. The demands in the 2015 model are based on local traffic counts (permanent counters and temporary junction turning counts).

5.3.3 The proposed scheme as part of the A9 Dualling Programme is classed as the 'Do-Something' scenario. Traffic forecasting techniques were applied to enable the traffic impacts of the A9 Dualling to be considered against the 'Do-Minimum' scenario (i.e. if the proposed scheme were not to proceed). Traffic projections were provided as the latest available (2014 version of the Transport Model for Scotland (TMfS)). TMfS is a strategic modelling tool, developed and made available by Transport Scotland for the purposes of assessing the influences of land use and transport policies on traffic demand. Table 5.1 provides the predicted traffic flows in year 2026, which is the expected first full year of operation for the proposed scheme, and year 2041 which will be 15 years onwards from the opening year and includes the effect of the full A9 dualling programme. Year 2041 is considered to represent the most robust (worst-case scenario) figures for the purposes of the EIA as reported in this ES.

Table 5.1: AADT Traffic Flows for Killiecrankie to Glen Garry section (Two-way flows)

Location	Do-Minimum			Do-Something	
	Year 2015	Year 2026	Year 2041	Year 2026	2041
Killiecrankie to Aldclune	10,800	12,200	12,300	16,500	16,700
Aldclune to Pitagowan	9,700	10,900	11,100	14,800	15,200
Pitagowan to Glen Garry	8,900	9,800	10,000	13,000	13,500

5.4 Description of the Proposed Scheme

5.4.1 An overview of the proposed scheme design assessed within the ES is shown on Figure 5.1, which also shows chainages (ch) referred to in the following description.

5.4.2 As explained in Chapter 3 (Alternatives Considered), the preferred route for the proposed scheme was identified following the DMRB Stage 2 assessments, which included an assessment of the potential environmental constraints associated with a number of route options. This was then subject to iterative design development as summarised in Chapter 4 (Iterative Design Development), taking into account the recommendations of environmental specialists, input from the consultation process, and the results of traffic, structural, geotechnical and drainage studies.

5.4.3 The existing 21.6km single carriageway section of the A9 from Killiecrankie to Glen Garry is to be widened to a D2AP (dual carriageway rural all-purpose). It has been designed as a DMRB Category

7A road with a design speed of 120kph, in accordance with DMRB Volume 6, Section 1, Part 1, TD9/93 – Amendment No 1: Highway Link Design (Highways Agency et al, 2002). The dualling provides two lanes in each direction, separated by a central reserve and road verges; a more detailed description is provided in the following section.

A9 Mainline Carriageway Widening

5.4.4 The A9 Dualling: Killiecrankie to Glen Garry involves widening of the A9 over two distinct sections:

- North of Killiecrankie to south of Bruar, (ch700 to approximately ch11000), comprising predominantly northbound widening for approximately 10.3km in the north-west direction along the River Garry with an area of localised offline widening between ch8900 and ch10500.
- South of Bruar at Pitalodonich Underbridge to the existing dual carriageway at Dalnacardoch Wood (ch11000 to approximately ch22300), requiring construction of a bridge connecting to a localised offline grade separated junction at Bruar and then largely northbound widening with some southbound widening north-west of Calvine and then again north of Dalnamein to the northern project tie in to the existing dual carriageway. This section runs for approximately 11.3km.

5.4.5 The mainline will comprise of a dual carriageway with 2.5m verges and two lanes of 3.65m width in each direction, plus a 1m hardstrip to both the inside and outside lanes in each direction. The mainline will include a 2.5m wide central reservation (with widening for visibility where required) which will separate northbound and southbound traffic.

5.4.6 The existing A9 mainline has numerous direct accesses linking to side roads and to land and properties along the route. Once this is upgraded to dual carriageway the majority of these accesses will be stopped up to meet the desired design and safety standards. As explained in paragraphs 5.4.7 to 5.4.12 below, alternative access to and from the A9 mainline will be provided by two new grade separated junctions, five left in/left out at-grade junctions and via the existing road and access track network.

A9 Junction Provision

5.4.7 There are two grade separated junctions to be provided as part of the proposed scheme, as follows:

- Aldclune Junction (ch3700) consists of a new bridge alongside the existing Essangal Underbridge and slip roads to allow access to and from the A9 for both northbound and southbound traffic via at-grade junctions with the B8079 Killiecrankie to Bruar local authority side road.
- Bruar/Calvine Junction (ch11620) provides grade separation with merge and diverges in both directions for northbound and southbound traffic between the A9 and both the B847 Struan Hill and the B8079 Killiecrankie to Bruar side roads. This requires a new bridge to be constructed over the River Garry for the mainline carriageway and a new junction underbridge as part of the proposed slip road arrangements, while the existing bridge over the River Garry will be utilised as a southbound merge slip road for the proposed scheme.

5.4.8 There are five left in/left out at-grade junctions to be provided as part of the proposed scheme, as follows:

- left in/left out at-grade junction to Shierglas Farmhouse and Quarry Access (ch5420);
- left in/left out at-grade junction to Garrybank (ch6250);
- left in/left out at-grade junction to Balnastuartach/Invervack/Tomban Accesses (ch9850);
- left in/left out at-grade junction to Dalreoch and Dalnamein (ch19600); and
- left in/left out at-grade junction to Dalreoch and Dalnamein (ch20200).

Side Road Amendments/Upgrades

5.4.9 Side roads will be upgraded as necessary to provide access from the existing road network to the mainline of the proposed scheme via the proposed grade separated junctions. Upgrades may involve simple resurfacing or may require realignment and other improvements.

5.4.10 Table 5.2 details the side road upgrades forming part of the proposed scheme. Chapter 8 (People and Communities - Community and Private Assets) outlines the expected diversions residents and commercial/industrial businesses would undergo as a result of the side road amendments.

Table 5.2: Proposed side road amendments

Side road name	Approximate mainline chainage and Figure reference	Cross-section
B8079 at Aldclune Junction	ch4300 (see Figure 5.1c)	As existing: varying verges, 6.8m carriageway
B8079 at Bruar Junction	ch11620 (see Figure 5.1f)	Varying verges, 1.0m hard strip, 7.4m carriageway
B847 at Bruar Junction	ch11620 (see Figure 5.1f)	As existing: 2.0m verge, 8.0m carriageway
U521 at Calvine	ch13600 (see Figure 5.1g)	As existing: 5.5m carriageway with passing place
U521 at Dalnamein	ch19700 (see Figure 5.1j)	1.0m verge, 5.5m carriageway

Access to Land and Properties

5.4.11 A number of rural properties, including farms, are located along the proposed scheme. Through consultation with residents and landowners, revised accesses are proposed to tie into the existing road network or onto the A9 main carriageway via the five left in/left out, at-grade junctions described above.

5.4.12 Table 5.3 details the revised access track provision forming part of the proposed scheme.

Table 5.3: Proposed access track amendments

Access track road name	Approximate mainline chainage and Figure reference	Typical Cross-section
Old Faskally Underpass	ch1180 (see Figure 5.1a)	As existing: 0.5m verges, 3.5m carriageway
Allt Chluain Underpass	ch3350 (see Figure 5.1b)	As existing: 0.5m verges, 3.5m carriageway
Clunebeg	ch4100 (see Figure 5.1c)	0.5m verges, 3.5m carriageway
Shierglas	ch5600 (see Figure 5.1d)	2.0m verges, 5.5m carriageway
Glackmore	ch5600 (see Figure 5.1d)	0.5m verges, 3.5m carriageway
Garrybank Property	ch6200 (see Figure 5.1d)	As existing: 0.5m verges, 3.5m carriageway
Garrybank	ch6250 (see Figure 5.1d)	0.5m verges, 3.5m carriageway
Allt Bhaic/SSSI	ch9200 (see Figure 5.1e)	0.5m verges, 3.5m carriageway
Invervack/Balnastuartach/ Tomban	ch9800 (see Figure 5.1e)	0.5m verges, 3.5m carriageway (left in/left out turning – 1m verge, 5.5m carriageway)
Pitaldonich Underpass	ch112500 (see Figure 5.1f)	0.5m verge, 3.5m carriageway
Tomchitchen	ch124300 (see Figure 5.1f)	1.0m verge, 3.5m carriageway
Clunes Underpass	ch158500 (see Figure 5.1h)	1.0m verge, 3.5m carriageway
Dalnamein Underpass	ch18900 (see Figure 5.1i)	1.0m verge, 4.0m carriageway
SuDS accesses	Various (See Figure 5.1)	0.5m verge, 3.5m carriageway

Pedestrian, Cyclist and Equestrian Provision

5.4.13 Alternative (replacement) and new Non-Motorised User (NMU) path alignments, which include provision for pedestrians, cyclists and equestrians, have been considered throughout the design process and form part of the proposed scheme design. The NMU Access Strategy (Transport Scotland, 2016b) sets objectives for the proposed scheme, and this has been considered throughout the design development of the proposed scheme. This links back to Objective 3 outlined in Section 2.4

(A9 Dualling Programme Review) (Chapter 2: Need for the Scheme), providing the ability to 'facilitate active travel within the corridor' of the proposed scheme.

5.4.14 The paths that currently cross the existing A9 were derived from the Perth & Kinross Council (PKC) and Cairngorms National Park Authority (CNPA) Core Path Plans (PKC, 2012 and CNPA, 2015), Right of Way data from Scotways and local designated and undesignated paths identified by Jacobs through consultation. The path realignments and new alignments are summarised below and illustrated in Figure 9.2. Further details are provided in Chapter 9 (People and Communities - All Travellers):

- ch1190: Old Faskally Underpass realignment;
- ch1480: Allt Girnaig NMU realignment south;
- ch1540: Allt Girnaig NMU realignment north;
- ch1600-2600: NMU Killiecrankie local path realignment;
- ch6450: Garrybank underpass and steps;
- ch7680-8640: BAST 138 core path connection;
- ch9150-9830: NMU Invervack connection at Aldclune and Invervack Meadows SSSI;
- ch10630-11260: NMU Pitaldonich connection and access track;
- ch11250: new NMU Pitagowan connection across River Garry;
- ch11600: Bruar jug handle arrangement for cyclists;
- ch12320: B847 jug handle arrangement for cyclists;
- ch13420: Calvine Underpass (BAST 8 core path connection);
- ch16150: Clunes Mast Access Underpass;
- ch19800: NCR7 Bridge Realignment; and
- ch20500; Dalnamein Underpass.

Underbridge Structures

5.4.15 As indicated in the preceding paragraphs, underbridges will be required at certain locations, associated primarily with grade separated junctions or the need to maintain existing or provide new vehicular and/or NMU access under the A9.

5.4.16 The design of these structures will be informed by strategic design guidance prepared for the wider A9 dualling programme, and is anticipated to include the following key requirements:

- open aspect/open span arrangement;
- low bridge abutment heights;
- leaf piers not to be used; and
- where appropriate, patterned profile type finish on exposed vertical concrete surface.

5.4.17 As described in Chapter 4 (Iterative Design Development), the design of the proposed scheme retains the existing A9 crossing of the River Garry at Essangal (ch4300) as the southbound carriageway while a new structure would mirror the existing structure for northbound traffic. Figure 5.2 illustrates the design of the Essangal Underbridge.

5.4.18 Further north, the existing A9 structure crossing the River Garry at Pitaldonich (ch11300) would be retained as the southbound merge slip road of the dual carriageway while the proposed River Garry Underbridge would clear span the river to carry northbound and southbound traffic. Figure 5.3 illustrates the design of the River Garry Underbridge.

5.4.19 Appendix A11.8 (Watercourse Crossings Report), provides more information on the design approach for underbridge structures while Figures A11.8.1-A11.8.68, part of Appendix A11.8 (Volume 2 of the ES), provides indicative general arrangement drawings of each underbridge structure.

Earthworks

Cuttings and Embankments

5.4.20 Where the proposed scheme is higher or lower than the surrounding ground level, embankments or cuttings will be required. Reducing the gradient of embankments (referred to as 'grading out') has been considered along the route to reflect local landform and aspects such as surrounding land use or other environmental constraints. Similarly, cuttings have been designed taking account of their visibility for road users and others along the A9 corridor. Further information on the design of embankments and cuttings is provided in Chapter 13 (Landscape).

5.4.21 The locations (chainages) of cuttings and embankments are shown on Figure 5.1, and summarised in Appendix A5.1.

Earthworks Balance

5.4.22 A summary of the estimated earthworks quantities for construction of the proposed scheme is provided in Table 5.4, with further details of material use and management of waste during construction provided in Chapter 18 (Materials). The export quantity is material that is considered unsuitable to be re-used as engineering fill.

Table 5.4: Estimated earthworks volumes

Import/Export	Volume (m^3)
Total Acceptable Cut Available (excl. Topsoil)	1,658,600
Total Fill Required (excl. Topsoil)	1,846,600
Total Imported Fill required	188,000
Total Acceptable Topsoil Available	363,300
Total Topsoil Required	273,500
Surplus Acceptable Topsoil Available	89,800

Fencing and Environmental Barriers

Fencing

5.4.23 To secure the land area acquired for the implementation of the proposed scheme, temporary fencing will be erected prior to the commencement of construction, where appropriate. There is likely to be a requirement for stock-proof fencing in some areas, where pasture land bounds the proposed scheme.

5.4.24 On completion of the works, alternative methods of signifying property boundaries may include the planting of hedgerows or the construction of walls. However, it is important to note that much of the existing A9 is not fenced and a highway fence that would stretch the full length of the proposed scheme is not a requirement for an all-purpose A-class road.

Environmental Barriers

5.4.25 Environmental barriers are required to reduce the potential impacts of the proposed scheme at specific locations. Where a requirement has been identified within this ES, environmental barriers will be incorporated to provide mitigation for mammals (including otter and badger fencing) or noise attenuation. These are described respectively in Chapter 12 (Ecology and Nature Conservation) and Chapter 17 (Noise and Vibration).

Drainage Design and Watercourse Crossings

5.4.26 The drainage and watercourse crossing design of the proposed scheme takes consideration of the Water Environment (Controlled Activities) Regulations 2011 (CAR). These regulations require certain licences to be sought for design and construction activities affecting watercourses, including engineering works (culverts and bridges) and discharges (outfalls, attenuation and treatment). The watercourse crossings and drainage design have been discussed with the Scottish Environment Protection Agency (SEPA) in the context of CAR requirements.

5.4.27 It is currently intended that Transport Scotland will provide the Contractor(s) with draft CAR licence applications based on the DMRB Stage 3 design. The appointed Contractor(s) will have responsibility for submitting finalised applications and securing CAR authorisation based on their detailed design.

Drainage Design and Flooding

5.4.28 The drainage design for the proposed scheme has been developed in accordance with SuDS guidance and agreed through consultation with SEPA and Perth & Kinross Council outlined in Chapter 7 (Consultation and Scoping). In certain areas along the existing A9 there are lengths of filter drain in the verges that provide initial (one SuDS level) treatment for some of the runoff from the road and/or adjacent earthworks slopes. A minimum of two levels of SuDS is intended to be included for all mainline outfalls and a minimum of one level of treatment is proposed for access tracks and side roads.

5.4.29 The proposed drainage system assumes the use of combined surface and groundwater filter drains to provide most of the carriageway drainage. Exceptions to this include kerbed areas, such as junctions, lay-bys and bridge decks where gullies would be used to collect surface water. As part of the drainage system, a series of detention basins, wetlands and retention ponds are included in the DMRB Stage 3 design to attenuate the discharge of surface runoff to watercourses and remove pollutants through treatment processes.

5.4.30 Pre-earthworks drainage consisting of shallow filter drains or unlined ditches would be used to collect runoff from adjacent land and field drains. In accordance with DMRB, the design of PED would convey the 1.3% (75-year) Annual Exceedance Probability (AEP) (rainfall runoff event from the intercepted catchment. AEP refers to the chance that a flood of a particular size is experienced or exceeded during any year.

5.4.31 The road drainage system will accommodate a short duration, high intensity 10% Annual Exceedance Probability (AEP) (1-year) rainfall event, without surcharging. The design will also ensure the 20% AEP (5-year) rainfall event will not surcharge the system and flood the carriageway. A 20% allowance for the effects of climate change has been incorporated into the DMRB Stage 3 drainage design.

5.4.32 All runoff from the proposed scheme will be collected and treated via the proposed drainage system prior to discharge. All SuDS features are designed to treat and attenuate the peak flow from the new highway drainage system during a 0.5% AEP (200-year) rainfall event, including an allowance for climate change.

Watercourse Crossings

5.4.33 Wherever possible, watercourses will be maintained along their existing line. There are numerous existing watercourses that pass underneath the existing A9 carriageway, with culverts that will be required to be extended or replaced.

5.4.34 Appendix A11.8 (Watercourse Crossings Report), provides more information on the design approach for watercourse crossings while Figures A11.8.1-A11.8.68, part of Appendix A11.8 (Volume 2), provides drawings of each crossing.

5.4.35 The detailed design of these watercourse crossing structures would be developed by the appointed Contractor, subject to suitable provision being made for flood flows, ecological and geomorphological

mitigation, and compliance with the environmental commitments detailed within this ES. Additional information is provided in Chapter 11 (Road Drainage and the Water Environment) and Chapter 12 (Ecology and Nature Conservation).

Traffic Signs and Lighting

Traffic Signs

5.4.36 Traffic signage required in the provision of the proposed scheme would be prepared to the relevant design standards. The detailed design of this element of the works would be the responsibility of the appointed Contractor(s), and subject to compliance with the contract documents. As part of the design process, the Contractor would consult Transport Scotland and the local roads authorities.

Lighting

5.4.37 A lighting appraisal was carried out as part of DMRB Stage 3 to assess the need and economic value of providing road lighting for the proposed scheme. The existing route is currently not lit, and generally from an environmental perspective it is preferable to avoid road lighting in rural areas, as this increases visual intrusion at night. Part of the proposed scheme falls within the CNPA where a policy is in place (Cairngorms National Park Partnership Plan Policy 1.3, CNPA, 2017) that aims to maintain and promote 'dark skies' as a special landscape quality.

5.4.38 The DMRB Stage 3 appraisal concluded that it is not necessary to provide lighting along the mainline or junctions of the proposed scheme. Lighting is only proposed through the structure at three underpasses; at Old Faskally Underpass (ch1190) and at either side of the Pitladonich Underbridge (ch11270 and ch11350).

5.5 Construction Methods and Programme

5.5.1 This section provides a brief overview of the envisaged construction programme and typical construction activities. Typical construction methods for these activities and the construction assumptions made for the purposes of this ES are provided in Appendix A5.1 (Construction Information).

5.5.2 This section sets out a possible construction sequence for the proposed scheme, however, the design and construction process adopted by the appointed Contractor may vary from that described in this outline methodology. The appointed Contractor would be permitted to change the construction process, timescales and duration of each works element provided that environmental impacts are no greater than those described in the ES, and that commitments given in the ES are adhered to (or measures providing equivalent mitigation, subject to agreement with Transport Scotland).

5.5.3 It is currently anticipated that construction will not commence before 2019 and for the purposes of this assessment, it is assumed that construction will start in January 2019.

Outline Construction Programme

5.5.4 To assist the EIA process, the duration of construction activities has been estimated. It is not possible to determine a precise timescale for each element of the works as this will ultimately be determined by a number of factors such as the commencement date of the works, and the construction methods proposed by the appointed Contractor. An outline of the possible timing for the works is indicated in Table 5.5.

Table 5.5: Indicative construction works timescales

Phase Number	Timescale
Phase 1	
Mobilisation	April 2019*
Installation of traffic management	June 2019
Construct Northbound Mainline – South Tie-In to ch4780, ch5620 to ch5840, ch5960-13260, ch14900-18880	July 2019 – March 2021
Construct Southbound Mainline – ch5000-5510, ch13420-14760, ch19090 to End	July 2019 – March 2021
Phase 2**	
Reconfiguration of traffic management	March 2021
Construct Southbound Mainline – South Tie-In to ch3860, ch4060-4670, ch5860-5960, ch6180-13150, ch15200-18760	July 2020 – March 2022*
Construct Northbound Mainline – ch4760-5620, ch13260-14900, ch18870 to End	March 2021 – March 2022
Phase 3	
Central Reserve works and Remaining Sections of Mainline	March 2022 – April 2022
Road opening	May 2022

*For the purposes of the assessment an indicative start date of April 2019 has been used.

**Phase 2 works to start in advance at the localised area of Allt Bhaic for programme purposes.

Typical Construction Activities

5.5.5 The key elements of the construction works have been broken down to facilitate the assessment of potential environmental impacts. The construction activities associated with the proposed scheme are outlined in Table 5.6.

Table 5.6: Typical construction activities

Section	Construction Activities
Possible Advance Works	• Environmental mitigation to be implemented in advance of the main construction contract. • Advance services diversions. • Archaeological investigations and excavations.
Roadworks	• Site establishment and plant compounds at strategic locations. • Accommodation works. • Temporary and permanent fencing. • Site clearance and demolition. • Temporary and permanent surface water outfalls. • Service diversions. • Pre-earthworks drainage. • Topsoil stripping and storage. • Earthworks (cuttings and embankments). • Drainage, service ducts and chambers. • Topsoil spreading, seeding and turfing. • Pavement construction. • Roadwork finishes including safety barriers, signs, road markings.
Structures	• Construction of river crossings. • Bridge construction. • Culvert construction. • Retaining wall construction.
Environmental	• Environmental earthworks and landscaping. • Landscape and ecological mitigation planting.

Section	Construction Activities
Temporary Works	• Temporary works to facilitate bridge construction. • Temporary carriageway to maintain traffic flows where roads are narrow or are affected by construction of the proposed scheme. • Narrow lanes, contraflows or lane / road closures. • River or stream diversions to facilitate culvert construction. • Temporary balancing ponds at drainage outfalls.

Construction Compounds

5.5.6 Construction compounds would provide workplace/welfare facilities (e.g. toilets, staff areas), and parking for office based staff and site operatives. In addition, stores and workshop areas (located within or near the compounds) would be provided for the construction phase.

5.5.7 The locations of construction compounds will be determined by the appointed Contractor depending on the phasing and execution of the works. Where possible, they would be located close to the proposed works where there is suitable access. As the potential location of such areas is currently unknown, it has not been possible to include an assessment of impacts of them within the ES.

5.5.8 The appointed Contractor may wish to acquire additional land for construction compounds outside the land identified in the Compulsory Purchase Order (CPO). This would also apply to any other land that may be required beyond the CPO for construction related activities such as temporary access routes/haul roads. In this case, a separate planning application or a number of planning applications may be required for the construction compounds and the environmental impacts would be considered as part of the planning process for the construction compounds.

Environmental Mitigation

5.5.9 The appointed Contractor would be required to implement all relevant environmental mitigation measures at the appropriate time. These would include a range of measures to avoid or reduce construction and operational impacts.

5.5.10 Where practicable, physical environmental mitigation features would be constructed soon after the completion of the main engineering elements. For example, earthworks slopes and verges would be topsoiled and seeded/planted early to minimise the risk of sediment-laden runoff, which may affect the carriageway drainage system and create a potential pollution risk to watercourses. Planting works and ecological habitat creation areas are seasonally dependent and these may be left until later in the construction period following completion of the main works.

5.5.11 Details of environmental mitigation for the proposed scheme is provided in Chapters 8-18 and summarised in Chapter 21 (Schedule of Environmental Commitments).

Land Acquisition

5.5.12 Most construction work would take place within the limit of the land made available (LMA) to the Contractor as defined within the contract documents. An indicative LMA has informed the habitat and woodland loss calculations undertaken for assessment purposes in this ES.

5.5.13 As explained above in paragraph 5.5.8, construction compounds may be located outwith the purchased land. The land made available would include land acquired under CPO, land to which the Scottish Ministers already has ownership of or access to, or other areas the Contractor has acquired by agreement to facilitate construction of the works.

5.5.14 The land to be acquired for the proposed scheme includes land necessary to construct the proposed scheme and associated infrastructure and to undertake essential environmental mitigation measures.

5.5.15 The Contractor may wish to utilise other areas of land not covered by the CPO. In such an instance, the Contractor would have to secure the use of these areas by agreement and through separate planning applications, where appropriate. As the requirement and potential location of such areas is currently unknown, it has not been possible to include an assessment of the effects of them within this ES.

5.6 References

Cairngorms National Park Authority (2015). Core Paths Plan.

Cairngorms National Park Authority (2017). Cairngorms National Park Partnership Plan 2017-2022 Consultation

Environmental Impact Assessment (Scotland) Regulations 2011 (as amended).

Highways Agency, Scottish Executive, Welsh Assembly Government and The Department for Regional Development (2005). DMRB Volume 6, Section 1, Part 2 (TD27/05) Cross-sections and Headrooms.

Highways Agency, Scottish Executive, Welsh Assembly Government and The Department for Regional Development (2006). DMRB Volume 6, Section 2, Part 1 (TD22/06) Layout of Grade Separated Junctions.

Perth & Kinross Council (2012). Core Paths Plan.

Transport Scotland (2016a). A9 Dualling: Perth to Inverness – Sustainability Strategy

Transport Scotland (2016b). Non-Motorised User (NMU) Access Strategy

Water Environment (Controlled Activities) (Scotland) Regulations 2011.