21. Schedule of Environmental Commitments

21.1. Introduction

21.1.1. This chapter provides a summary of the mitigation measures identified in the Environmental Statement for implementation during design, prior to construction, during construction and/or during operation of the Proposed Scheme.

21.1.2. The Schedule of Environmental Commitments will be incorporated into the works construction contract documents and the appointed Contractor will be obliged to adhere to these requirements throughout the contract period. The construction commitments will be addressed through the Construction Environmental Management Plan (CEMP).

21.1.3. The measures are presented in the Schedule of Environmental Commitments tables below, with each table including the following information:

- Mitigation Measure Reference.
- Approximate Location.
- Timing of Measure.
- Mitigation Measure Description.
- Aim of the Measure.
- Any Specific Approvals or Consultation.

Table 21.1: General Standard Construction Mitigation

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-S1	Throughout Proposed Scheme	Pre-Construction & Construction	A Construction Environmental Management Plan (CEMP) will be prepared by the Contractor. The CEMP will set out how the Contractor intends to operate the construction site, including construction-related mitigation measures identified below in Tables 21.2 to 21.11. The relevant section(s) of the CEMP will be in place prior to the start of construction work. The CEMP will include, but not be limited to, subsidiary plans relating to: agricultural soils, geology and land contamination; surface water and groundwater (including a Flood Response and Pollution Incident Response Plan); ecology (including specific Species and Habitat Management Plans); landscape, cultural heritage, air quality and noise and vibration.	To provide a framework for the implementation of construction activities in accordance with the environmental commitments and mitigation measures in the ES. It will be developed and evolve to avoid, reduce or mitigate construction impacts on the environment and the surrounding community.	Consultation with the relevant local authorities, other statutory bodies and regulatory authorities (Refer to Tables 21.2-21.11).
SMC-S2	Throughout Proposed Scheme	Pre-Construction & Construction	Prior to construction an Environmental Coordinator and team of suitably qualified Environmental Clerk of Works (EnvCoW) (i.e. professionally qualified in a relevant environmental discipline) will be appointed by the Contractor. The EnvCoW(s) will report to the Environmental Coordinator and be present on site, as required, during the construction period to monitor the implementation of the mitigation measures identified and ensure that activities are carried out in such a manner to prevent or reduce impacts on the environment.	To monitor the implementation of the mitigation measures identified and ensure that activities are carried out in such a manner to prevent or reduce impacts on the environment.	Approval by Transport Scotland.
SMC-S3	Throughout Proposed Scheme	Pre-Construction & Construction	Throughout the construction period the Contractor will, as required, contribute towards the overall communications strategy for the A9 Dualling Programme.	To inform stakeholders and consultees through the construction period.	Consultation with the relevant local authorities, other statutory bodies and regulatory authorities, community councils and

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			As part of this the Contractor will appoint a Community Liaison Officer supported by a liaison team as necessary who will: · liaise with the following: relevant local authorities; other statutory bodies and regulatory authorities; community councils and relevant community groups; and businesses and residents in local communities affected by the construction works; · notify occupiers of nearby properties a minimum of two weeks in advance of the nature and anticipated duration of planned construction works that may affect them; · support the production of project communications such as the project website and newsletters; and · establish a dedicated freephone telephone helpline together with a dedicated email address and postal address for enquiries and complaints during the construction phase. The relevant contact numbers, email and postal addresses will as a minimum be displayed on signs around the construction site and will be published on the project website. Enquiries and complaints will be logged in a register and appropriate action will be taken in response to any complaints.		relevant community groups, and businesses and residents in local communities affected by the construction works
SMC-S4	Throughout Proposed Scheme	Construction	The Contractor will ensure that all site workers receive adequate training relevant to their role prior to working on the construction site, including specific environmental project inductions and 'toolbox talks' as required.	To ensure site workers are aware of best practice construction methods, mitigation measures and how they are implemented.	None required

Table 21.2: People and Communities – Community and Private Assets

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-CP1	Throughout Proposed Scheme	Pre-Construction & Construction	Access to/from residential, commercial and industrial and agricultural, forestry and sporting assets will be maintained throughout the construction period by means of signed diversions, where necessary. The estimated duration and location of these diversions will be communicated to affected parties, as required, before they are put in place.	To maintain access to/from residential, commercial and industrial and agricultural, forestry and sporting assets	None required
SMC-CP2	Throughout Proposed Scheme	Construction & Post-Construction	Existing access arrangements to agricultural and forestry land out-with the land made available (LMA) boundary will not be prevented by the construction works during or post construction, unless alternative access is provided for in the Road Orders.	To maintain access to/from residential, commercial and agricultural/forestry land.	None required
SMC-CP3	Throughout Proposed Scheme	Pre-Construction	Consultation with affected landowners and occupiers will be undertaken on the location and timing of planned construction works to reduce disturbance, where practicable, taking into account the overall construction programme.	To reduce disturbance on affected landowners.	Consultation with affected landowners and occupiers
SMC-CP4	All agricultural land	Pre-Construction	Notice of intention to commence construction work will be provided to owners and occupiers of agricultural land adjacent to the Proposed Scheme before works commence.	To ensure owners and occupiers of agricultural land adjacent to the Proposed Scheme are informed of the intention to commence construction work prior to works commencing.	None required
SMC-CP5	All agricultural land	Construction	Where practicable, temporary construction compounds that are required out-with the LMA boundary will not be sited on prime agricultural land or on areas of woodland and forestry.	To reduce potential impacts arising from temporary construction compounds on prime agricultural land or on areas of woodland and forestry.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
SMC-CP6	All agricultural land	Construction	Where appropriate, temporary fences will be provided during construction for the health and safety of the public and animals and to avoid trespass. Where required, fencing of working areas will be to a standard adequate for excluding any livestock kept on adjoining land. Access by non-authorised personnel will not be permitted, unless prior permission is granted by the Principal Contractor(s).	For the health and safety of the public and animals and to avoid trespass.	None required
SMC-CP7	All agricultural land	Construction	Where boundary features (e.g. fences, walls and hedges) require temporary or permanent alteration to allow construction, these will be reinstated with appropriate materials to provide a secure boundary.	To provide a secure boundary and reduce disruption to agriculture.	None required
SMC-CP8	Throughout Proposed Scheme	Construction	Soil resources will be managed in accordance with the 'Construction Code of Practice for the Sustainable Use of Soils on Construction Sites' (Defra, 2009) to ensure that soil mitigation measures are fully implemented and soil resources are protected. This will include the careful excavation, storage and replacement of topsoil and subsoil.	To ensure that soil mitigation measures are fully implemented and soil resources are protected	None required
SMC-CP9	All agricultural land	Construction	Reasonable precautions will be taken during construction to avoid the spreading of soil-borne pests and diseases; animal and crop diseases; tree pests and diseases; and invasive species. A biosecurity protocol will be developed by the Contractor in consultation with the Animal and Plant Health Agency, the Scottish Government's Environment and Forestry Directorate and the Scottish Government's Agriculture, Food and Rural Communities Directorate, taking cognisance of relevant UK and Scottish Government biosecurity guidance.	To avoid the spreading of soil-borne pests and diseases; animal and crop diseases; tree pests and diseases; and invasive species.	Consultation with the Animal and Plant Health Agency, the Scottish Government's Environment and Forestry Directorate and the Scottish Government's Agriculture, Food and Rural Communities Directorate
SMC-CP10	Throughout Proposed Scheme	Pre-Construction	Pre-construction drainage surveys will be undertaken to reduce the likelihood of damage or disturbance to	To reduce the likelihood of damage or disturbance to field and forestry drainage	Consultation with affected landowners and occupiers

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			field and forestry drainage systems during construction. Where required, the integrity of the drainage system will be secured in advance of construction. Repairing and reinstatement of drains affected by construction will be agreed with the landowner/occupier to ensure that land capability is maintained and the risk of flooding is not exacerbated.	systems during construction.	
SMC-CP11	Throughout Proposed Scheme	Pre-Construction	Water supplies for livestock will be identified pre-construction and where supplies are lost or access is compromised by any construction works, temporary and/or permanent alternative supplies will be provided as agreed with the landowner/occupier.	To reduce disruption to landowners/occupiers.	Consultation with affected landowners and occupiers
SMC-CP12	Throughout Proposed Scheme	Post-Construction	LMA that is declared surplus following completion of construction of the Proposed Scheme (including redundant road pavement and/or access tracks) will be offered back to former owners or their successors in accordance with the Crichel Down Rules.	To return surplus land to former owners or their successors in accordance with the Crichel Down Rules.	Consultation with affected landowners and occupiers
SMC-CP13	Throughout Proposed Scheme	Construction	Sporting or fishing rights which exist within working areas may not be accessible during the construction period. Where there are sporting or fishing rights adjacent to the working area, reasonable endeavours will be taken to minimise interference or enjoyment of them while recognising the primary objective to maintain a safe working environment for both contractors and users of the land and water.	To reduce interference or enjoyment of sport/fishing while maintaining a safe working environment for both contractors and users of the land and water.	None required
SMC-CP14	Throughout Proposed Scheme	Pre-Construction	Where stands of trees are to be affected an appropriate arboricultural and/or windthrow assessment will be undertaken pre-construction and appropriate mitigation employed for the purposes of safety of land and infrastructure.	To address safety risk to land within the Proposed Scheme and reduce impacts to forestry.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
SMC-CP15	Throughout Proposed Scheme	Post-Construction	On completion of works, any land required temporarily for construction works will be reinstated as far as practicable. A photographic and video survey is to be undertaken of any land to be returned to agriculture, to ensure all land is restored as near to its original state as is reasonably practicable.	To ensure appropriate restoration of land following completion of Proposed Scheme.	None required
n/a (note)	*n/a*	*n/a*	*Further to the above, the mitigation item W11 detailed in Table 21.5 (Road Drainage and Water Environment), also applies to avoiding effects to water supplies.*	*To ensure water supplies are maintained.*	*n/a (note)*
Project Specific Mitigation					
P12-CP16	Throughout Proposed Scheme	Pre-Construction, Construction & Post-Construction	Identification of land drains/drainage patterns and water supply prior to construction and measures applied for reinstatement where these are affected by the proposed works. Please note specific mitigation item P12-G17 from Table 21.4 which relates to drainage at Dalmagarry Farm.	To ensure that existing land drainage patterns and water supply are maintained.	Consultation with landowners.
P12-CP17	Throughout Proposed Scheme	Pre-Construction, Construction & Post-Construction	Planting of new areas of woodland equivalent to areas being cleared as far as practicable. Please note mitigation item P12-LV23 in relation to limiting loss of woodland.	To limit/offset removal of trees across the Proposed Scheme.	None required

Table 21.3: People and Communities – Effects on All Travellers

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-AT1	Throughout Proposed Scheme	Construction	As far as reasonably practicable, the construction programme will take into	To minimise length of closures or restrictions of access for NMUs.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			account the need to minimise the length of closures or restrictions of access for NMUs.		
SMC-AT2	Throughout Proposed Scheme	Construction	Where practicable, temporary diversion routes and/or assisted crossings will be provided to maintain safe access for NMUs throughout the construction works. Any closure or re-routing of routes used by NMUs would take cognisance of the 'Roads for All: Good Practice Guides for Roads' (Transport Scotland, 2013). These will be agreed in advance with the relevant local authorities and will be clearly indicated with signage as appropriate.	To maintain safe access for NMUs throughout the construction works.	Any closures will be agreed with Transport Scotland (Rights of Way), Cairngorm National Park Authority and/or The Highland Council (local and core paths).
SMC-AT3	ch13900 to ch14100	Pre-Construction	Where required and practicable, bus stops will be relocated prior to construction with a safe access route provided for NMUs. This will be undertaken in consultation with the relevant Roads Authority and public transport provider.	To maintain access to Public Transport facilities.	Consultation with the relevant Roads Authority and public transport provider
SMC-AT4	Throughout Proposed Scheme	Construction	The Contractor will produce a traffic management plan that will include measures to avoid or reduce disruption to the road traffic, and in accordance with the Traffic Signs Manual (Department of Transport, 2009). The plan will include consideration of the timing of works, the location of haul roads to reduce site traffic on the public roads and a well maintained traffic management system with sweeping of roads to reduce construction debris on the carriageway.	To avoid or reduce disruption to the road traffic.	None required
SMC-AT5	Throughout Proposed Scheme	Construction	Reasonable precautions will be taken by the Contractor to avoid or reduce road closures. No A9 lane closures will be permitted during peak hours (Mon to Fri) except in	To avoid or reduce road closures and resulting disruptions to traffic.	Approval required form Transport Scotland in the event of required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			exceptional circumstances which are approved by Transport Scotland.		A9 lane closures during peak hours.
SMC-AT6	Throughout Proposed Scheme	Construction	Road diversions will be clearly indicated with road markings and signage as appropriate. Any road closures will be notified in advance through road signage and appropriate signage will be provided for the duration of the closure.	To reduce disruption to the road users.	None required
SMC-AT7	Throughout Proposed Scheme	Construction	Appropriate lighting will be provided during any necessary night-time working, taking into account the requirements of **Mitigation Items SMC-E10 and SMC-LV4** (see Tables 21.6 and 21.7).	To mitigate potential impacts on driver stress such as fear of potential accidents due to inadequate lighting provision.	None required
SMC-AT8	NMU facilities	Construction	General principles for maintaining and improving access for NMUs include: · The requirements of the Equality Act 2010 and 'Roads for All: Good Practice Guides for Roads' (Transport Scotland, 2013) shall be incorporated into the Proposed Scheme wherever practicable; e.g. any bridges, ramps or footpaths shall take into account potential barriers to disabled people such as the gradient or surfacing. · Surfacing of any new paths including alongside roads shall be considered with regard to the type of user and should comply with current standards. · Safety of paths will be improved by providing barriers to segregate traffic from paths in accordance with the Road Restraints Risk Assessment Process. New cycleways/footpaths shall use non-frost susceptible materials to reduce risk of degradation. Where use of non-frost	To maintain access for NMUs and provide appropriate facilities based on use and improve access for NMUs.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			susceptible materials is not appropriate, a maintenance regime will be developed to avoid degradation of NMU paths.		
n/a (note)	*n/a*	*n/a*	*Further to the above, the mitigation items detailed in Table 21.7 (Landscape and Visual), Table 21.9 (Air Quality) and Table 21.10 (Noise and Vibration) will reduce the adverse amenity impacts on NMU and vehicle travellers during construction.*	*To reduce the adverse amenity impacts on NMU and vehicle travellers during construction.*	*n/a (note)*
Project Specific Mitigation					
P12-AT9	Throughout Proposed Scheme	Design, Pre-Construction, Construction and Operation	NMU route signage for NCN7 and along NMU routes where necessary.	To inform NMUs and motorised users of the locations of pedestrian, cycle and equestrian only routes, to direct NCN7 users and warn of pedestrians crossing, accompanied horses, and other hazards.	Consultation with SUSTRANS, The Highland Council, Scotways and British Horse Society

Table 21.4: Geology, Soils, Contaminated Land and Groundwater

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-G1	Throughout Proposed Scheme	Pre-Construction	Prior to construction, consultation will be undertaken with the relevant local authorities and SEPA regarding works in relation to land affected by contamination to support the obligations set out in 'Planning Advice Note 33: Development of Contaminated Land' (Scottish Government, 2000). Any remedial action undertaken in relation to land affected by contamination will be carried out under the appropriate remediation licencing.	To reduce impacts from contaminated land sources.	Consultation with The Highland Council and SEPA.
SMC-G2	Throughout Proposed Scheme	Pre-Construction	Prior to construction and where potential contamination has been identified, further site investigations sufficient to	To determine the extent and type of	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			determine the extent and type of contaminants present will be undertaken, as necessary, to inform identification of appropriate construction methods and any additional mitigation.	contaminants present and to inform identification of appropriate construction methods and any additional mitigation.	
SMC-G3	Throughout Proposed Scheme	Pre-Construction & Construction	Prior to construction, appropriate health and safety and waste management procedures for working with potentially contaminated soils will be established. Waste management procedures will include, but are not limited to: Waste Management Licence Regulations 1994 (as amended by Waste management licensing Amendment (Scotland) Regulations 2003), HSE Guideline Note MS13 Asbestos 1988 and the Health and Safety Commission Approved Code of Practice and Guidance Note. These procedures will be implemented as appropriate during construction.	To ensure appropriate health and safety and waste management procedures for working with potentially contaminated soils are followed.	None required
SMC-G4	Throughout Proposed Scheme	Construction & Operation	Risks to construction and maintenance staff working with/near contaminated land will be mitigated by the implementation of Mitigation Item G3 in combination with the adoption of appropriate systems of work, including personal protective equipment (PPE) as a last resort. In the event that unrecorded contamination is encountered, works should be stopped and the working procedures reassessed to confirm the working methods remain appropriate.	To reduce impacts from contaminated land sources and confirm the safety of construction and maintenance staff.	None required
SMC-G5	Throughout Proposed Scheme	Construction	Appropriate training of personnel involved in earthworks activities to implement a watching brief to identify potential presence of previously unidentified contamination.	To identify potential presence of previously unidentified contamination.	None required
SMC-G6	Throughout Proposed Scheme	Pre-Construction & Construction	Where required, landowner consultation and site visits will be undertaken to confirm the location and network of septic tanks. Where septic tanks are located within the LMA they	To mitigate the loss of any septic tanks.	Approval from landowners

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			will be relocated and/or rebuilt subject to discussion and agreement with the affected landowner(s).		
SMC-G7	Throughout Proposed Scheme	Construction	The Contractor will adhere to appropriate guidance including the 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention, National Groundwater and Contaminated Land Centre Report NC/99/77'.	To prevent cross contamination and pollution from piling works undertaken in areas of land affected by contamination.	None required
SMC-G8	Throughout Proposed Scheme	Construction	Prior to disposal, soils will be assessed in line with the 'Waste Classification: Guidance on the Classification and Assessment of Waste' (Technical Guidance WM3) (Natural Resources Wales, SEPA, Northern Ireland Environment Agency, Environment Agency, May 2015) to determine whether they are hazardous or non-hazardous.	To determine whether disposed soils are hazardous or non-hazardous.	None required
SMC-G9	Throughout Proposed Scheme	Pre-Construction	To maximise the reuse of site-won materials on-site (and minimise the need for disposal of waste in line with the principles of the "Waste Hierarchy") whilst ensuring that no risks are posed to human health nor the water environment a soil reuse assessment will be undertaken prior to construction. The soil reuse assessment will identify any potential risks posed to both human health and the water environment from potentially contaminated soils reused throughout the Proposed Scheme.	To identify any potential risks posed to human health and the water environment. In addition, this mitigation item would maximise re-use of site-won materials on-site and minimise the need for disposal of waste in line with the principles of the "Waste Hierarchy" through re-use of excavation arisings (refer to Mitigation Item SMC-M3).	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
SMC-G10	Throughout Proposed Scheme	Construction	If peat is encountered during construction, it will be extracted, excavated, stored, with any off-site removal undertaken with cognisance of 'Development on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste' (Scottish Renewables and SEPA, 2012) and will comply with relevant waste management practices under The Waste Management Licensing (Scotland) Regulations 2011.	To comply with relevant waste management practices under The Waste Management Licensing (Scotland) Regulations 2011 and reduce impacts on peatlands.	Consultation with SEPA
SMC-G11	Throughout Proposed Scheme	Pre-Construction & Construction	Where concrete materials are proposed to be used, appropriate guidance such as 'Building Research Establishment (BRE) SD1:2005' and 'British Standard (BS) BS8500' should be followed to ensure that ground conditions are appropriate for the use of concrete at each given location.	To ensure that ground conditions are appropriate for the use of concrete at each given location.	None required
SMC-G12	Throughout Proposed Scheme (where necessary)	Pre-Construction, Construction & Post-Construction	Where potential pollutant pathways for ground gas have been identified, a ground gas monitoring program will be developed prior to construction in adherence to 'CIRIA 665 Assessing Risks Posed by Hazardous Ground Gases to Buildings'. This will include an assessment of gassing issues following receipt of additional ground gas monitoring results at selected boreholes. Appropriate working methods will be developed and adopted during below ground site construction works (including piling works and excavations). This should include as a minimum, gas monitoring undertaken prior to any entry into excavations, confined spaces or below ground structures and use of PPE as a last resort. If significant ground gas issues are identified during construction, further post construction monitoring will be undertaken and/or appropriate gas protection measures will be incorporated into the final design.	To mitigate against potential impacts on human health during construction and Off Site Receptors (Local residents, transient traffic (foot, road and rail traffic) in the surrounding area) due to ground gas.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
SMC-G13	Throughout Proposed Scheme	Construction	Unless it can be demonstrated by the Contractor via a Quantitative Risk Assessment that no water quality impacts will occur due to leaching from SuDS features, operational SuDS features should be lined. Any potential water quality impacts due to leaching from SuDS features will be addressed through the CAR process.	To mitigate against potential impacts on water quality due to leaching from SuDS features.	Consultation with SEPA
SMC-G14	Throughout Proposed Scheme	Construction	Where required, storage of excavated soils and made ground will be minimised on site (spatially and in duration) and all storage areas will be appropriately lined, with adequate drainage management in place.	To ensure that no polluted water percolates into the ground or contaminated run-off is generated.	None required
SMC-G15	Throughout Proposed Scheme	Pre-Construction	Risk assessments will be required before explosives can be used on site.	To minimise or control the impact of blasting on bedrock geology.	None required
n/a (note)	*n/a*	*n/a*	*Further to the above, the implementation of Mitigation Items detailed in Chapter 11 (Road Drainage and the Water Environment) and the measures detailed in Chapter 16 (Air Quality).*	*To mitigate the water pollution risk to groundwater and avoid the creation of a statutory nuisance associated with dust and air pollution when working with contaminated land.*	*n/a*
Project Specific Mitigation					
P12-G16	Tomatin House & Invereen Groundwater Abstractions	Pre-Construction, Construction and Post-Construction	A programme of monitoring (water quality sampling). The frequency and duration of sampling and the water quality parameters to be tested will be agreed with the landowners/users, SEPA and The Highland Council.	To monitor potential construction pollution.	Consultation with landowners/users, SEPA and The Highland Council

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
P12-G17	Invermoy	Design, Construction	The Contractor will: · accurately locate and map supply lines prior to construction; · take measures to prevent damage to supply lines and to avoid pollution during supply line diversions, excavations and groundworks; · provide an alternative water supply if supply lines are to be temporarily disrupted by the works; and · consult with the owners/users of the affected private water supplies to ensure the effects of any disruption are minimised.	To ensure disruption to private water supplies at Invermoy	Consultation with landowners/users
P12-G18	Throughout Proposed Scheme	Pre-Construction, Construction (where required), Post-Construction	The contractor will: · revisit the Method C assessment for the proposed filter drains as more detailed GI and groundwater level data becomes available at detailed design; · should the Method C assessment indicate there is a Medium to High Risk to groundwater, further site specific assessment will be carried out; and · if it is concluded that groundwater quality impacts are likely, the proposed filter drains will be lined or alternative appropriate mitigations implemented. Any potential water quality impacts due to leaching from SuDS features will be addressed through the CAR process.	To avoid impacts on groundwater quality from operational routine runoff.	Consultation with SEPA
P12-G19	Ponds 4 & 5	Pre-Construction	Further ground investigations, groundwater monitoring and assessment will be carried out pre-construction for those cuttings assessed as having a significant impact on groundwater levels and flows, namely Cuttings 7, 43, 64, 69 and 95. If the impacts are confirmed as significant, additional mitigation measures may be required, such as containing, channelling and directing groundwater to the down gradient side of the cutting, allowing the discharge to infiltrate back to ground.	To avoid impacts to groundwater flows and levels.	Consultation with SEPA/SNH

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			The potential volume of groundwater seeping into the above cuttings will also be considered in relation to the design of the cutting drainage and potential groundwater abstraction CAR licensing. Further investigations will also be carried out in the vicinity of the Lynebeg ponds to fully understand the groundwater regime in this area, and to inform the engineering design of the cuttings and proposed replacement pond.		
P12-G20	Throughout Proposed Scheme	Pre-Construction, Construction (where required), Post-Construction.	To mitigate any effects on GWDTEs: Land clearance and soil stripping should be minimised within the temporary construction areas of the LMA, to minimise loss of GWDTE habitat. Where temporary construction areas are cleared the restoration and landscaping of these areas should reflect the original topography and vegetation as far as is practical to encourage the re-establishment of GWDTE habitats. Pre-construction groundwater monitoring will be carried out at a representative sample of high and moderate groundwater dependency GWDTEs to determine whether they are true GWDTEs. This will comprise a minimum of ten samples over a 6 month period, with at least five taken during the summer period. As a minimum monitoring should be carried out in relation to the following GWDTE habitat polygons: A381, A323, A319, B090, B093, B100, B107, C148, C147, C144, C188, C140, C017, C033, C163, C179, BH05, BH06, BH15, BH22, BH24, BH25, DB_B085, BH15e, JM001, JM011, JM025, JM024, JJ017, JM026, JM027, CC038, CC037, CC034, CC030. Where GWDTEs will be affected by groundwater drawdown in the vicinity of cuttings, any groundwater entering cuttings will be directed to the down gradient side and allowed to infiltrate. Where possible the location and frequency of these discharges will be designed to replicate the natural groundwater flow as closely as possible. This mitigation	To minimise any effects on GWDTEs	Consultation with SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			shall apply to the following polygons as a minimum: A066, C183, C184 (two polygons), C185. Where GWDTES are located downslope of proposed road embankments, permeable fill material will be used in the embankment construction wherever possible, to maintain groundwater flows. Cross formation drains will be used where practicable to facilitate groundwater through flow. This mitigation shall apply to the following polygons as a minimum: CC034, CC037, CC038. Should a spring issue within the footprint of the scheme this will be dealt with using standard construction practice, however the outflow will be located where it is able to feed the same downslope GWDTE habitat wherever possible. Details of the individual GWDTE habitats where the above outline mitigations are proposed are detailed in Technical Appendix A10.3. The precise design mitigation for each GWDTE will be devised during the detailed design stage. Monitoring during construction to be determined in consultation with SEPA. Post-construction monitoring will be carried out (a minimum of ten measurements over a twelve month period, for a minimum of three years) until it is demonstrated that receptors are not impacted. Should post-construction monitoring reveal residual impacts, consultation with SEPA will be carried out to determine feasible mitigation measures.		
P12-G21	Throughout the Proposed Scheme	Pre-Construction, Construction (where required)	It is proposed that all soil and peat excavated as part of the Proposed Scheme will be re-used for on-site landscaping purposes, with no excess peat identified. This should continue to be the preferred reuse option. Should the refined design identify an excess of peat consideration should be given to additional reuse options, both onsite and offsite in preference to disposal. Consultation with landowners and statutory stakeholders will continue to	To reduce impacts on soil and peat loss through peat re-use	Consultation with SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			confirm where peat will be stored and re-used as part of the pre-construction phase. Information on WML requirements should be provided by the contractor at detailed design stage as part of the detailed Soil and Peat Management Plan to ensure compliance for any temporary storage, transportation and re-use of soil and peat on-site.		
P12-G22	Throughout the Proposed Scheme	Pre-Construction, Construction (where required)	Where soil and peat needs to be temporarily stored and/or naturally dried within the scheme area, pollution prevention requirements have be considered to avoid impacts to surface and groundwater bodies and to comply with 'Development on Peatland: Guidance on the Assessment of Peat Volumes, Reuse of Excavated Peat and the Minimisation of Waste' (Scottish Renewables and SEPA, 2012) and relevant waste management practices under The Waste Management Licensing (Scotland) Regulations 2011. This includes the standard and specific mitigation items included within this chapter and Chapter 11, including: · **SMC-G10** To comply with relevant waste management practices under The Waste Management Licensing (Scotland) Regulations 2011 and reduce impacts on peatlands; · **SMC-G14** To ensure that no polluted water percolates into the ground or contaminated run-off is generated; · **SMC-W4** In relation to construction site runoff and sedimentation, the Contractor will adhere to GPPs/PGGs (SEPA, 2006-2017) and other good practice guidance (Table 11.1); and · **P12-W18** Prior to construction the Contractor shall produce a Surface Water Management Plan (SWMP) (or similar such document) that will be submitted to SEPA for approval as part of the CAR authorisation process for site discharges.	To prevent pollution impacts on the water environment from the temporary storage and handling of soil and peat.	Consultation with SEPA

Table 21.5: Road Drainage and the Water Environment

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-W1	Throughout Proposed Scheme	Pre-Construction & Construction	The Contractor will comply with the requirements of the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended) (also known as the CAR Regulations) in relation to water features which require engineering work and construction activities. Works within or adjacent to water features may require a CAR licence, registration or compliance with the General Binding Rules (GBRs). Where required, a CAR application would be made to SEPA and this would include detailed information on the proposed activity, the potential impacts to the water environment, mitigation measures included in the design and a detailed construction methodology for all engineering activities.	To mitigate construction impacts on the water environment.	CAR applications require approval from SEPA
SMC-W2	Throughout Proposed Scheme	Pre-Construction & Construction	In relation to flood risk the Contractor will implement the following mitigation measures during construction: · the Flood Response Plan (as part of the CEMP, refer to **Mitigation Item SMC-S1**) will set out the following mitigation measures to be implemented when working within the functional floodplain (defined here as the 0.5% AEP (200-year) flood extent): - routinely check the MET office Weather Warnings and the SEPA Floodline alert service for potential storm events (or snow melt), flood alerts and warnings relevant to the area of the construction works. - during periods of heavy rainfall or extended periods of wet weather (in the immediate locality or wider river catchment) river levels will be monitored using, for example, SEPA Water Level Data when available or visual inspection of water features. The Contractor will assess any change from base flow	To reduce the risk of flooding impacts on construction works.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			condition and be familiar with the normal dry weather flow conditions for the water feature, and be familiar with the likely hydrological response of the water feature to heavy rainfall (in terms of time to peak, likely flood extents) and windows of opportunity to respond should river levels rise. - should flooding be predicted, works close or within the water features should be immediately withdrawn (if practicable) from high risk areas (defined as: within the channel or within the bankfull channel zone - usually the 50% (2-year) AEP flood extent). Works should retreat to above the 10% AEP (10-year) flood extent) with monitoring and alerts for further mobilisation outside the functional floodplain should river levels continue to rise. · plant and materials will be stored in areas outside the functional floodplain where practicable, with the aim for temporary construction works to be resistant or resilient to flooding impacts, to minimise/prevent movement or damage during potential flooding events. Where this is not possible, agreement will be required with the EnvCoW; · temporary drainage systems will be implemented to alleviate localised surface water flood risk and prevent obstruction of existing surface runoff pathways; and · where practicable, haul routes will be located out of the functional floodplain. When in the floodplain stockpiling of material must be carefully controlled with limits to the extent of stockpiling within an area to prevent compartmentalisation of the floodplain and stockpiles should be away from water feature banks (not within 10m of the water feature banks). This is in order to limit floodplain encroachment, associated increased flood risk and sediment entering the water feature.		

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
SMC-W3	Throughout Proposed Scheme	Pre-Construction, Construction & Post-Construction	The Contractor will implement appropriate controls for construction site runoff and sedimentation including: · avoiding unnecessary stockpiling of materials and exposure of bare surfaces, limiting topsoil stripping and phasing to areas where bulk earthworks are immediately programmed; · installation of temporary drainage systems/SuDS systems (or equivalent) including pre-earthworks drainage, to reduce potential for contaminated runoff to water features; · treatment facilities to be scheduled for construction early in the programme, to allow settlement and treatment of any pollutants contained in site runoff and to control the rate of flow before water is discharged into a receiving watercourse; · adherence to CIRIA guidance 'C648 Control of Water Pollution from Linear Construction Projects', SEPA guidance 'WAT-SG-29 Temporary Construction Methods' and relevant sections of 'BS6031:2009 Code of Practice for Earthworks'; · other runoff and erosion control measures to include as appropriate: - use of silt fences, check dams, settlement lagoons, soakaways and other sediment trap structures; - maintenance and regrading of haulage route surfaces where issues are encountered with the breakdown of the existing surface and generation of fine sediment; - provision of wheel washes more than 10m from water features and appropriate disposal of dirty water; - limit uncontrolled run-off from exposed bare areas and newly paved areas;	To implement appropriate controls for site runoff and sedimentation and reduce impacts on the water environment.	If flocculants are considered necessary to aid settlement of fine suspended solids, such as clay particles, the chemicals used must first be approved by SEPA. Where required, temporary discharge consents to be obtained from SEPA through the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended).

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			- covering and bunding, if required, of soil stockpiles; - provision of peripheral cut-off ditches to intercept runoff from outside the working area such that it does not encroach on the working area; - regular inspection and monitoring of receiving water features; and - any other appropriate measures required following consultation/CAR licencing discussions with SEPA. · temporary discharge consents to be obtained from SEPA through the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), where required; and · rehabilitation of exposed areas (seeding and planting) throughout the construction period as soon as possible after the work has been completed.		
SMC-W4	Throughout Proposed Scheme	Pre-Construction & Construction	In relation to in-channel working the Contractor will implement the following mitigation measures: · compliance with SEPA Good Practice Guidance such as 'WAT-SG-29 Temporary Construction Methods', 'WAT-SG-25 River Crossings', 'WAT-SG-23 Bank Protection Rivers and Lochs' and WAT-SG-28 Guidance for Intakes and Outfalls' and CIRIA guidance 'C689 Culvert Design and Operation'; · compliance with SEPA PPGs including 'PPG 1 General Guide to the Prevention of Pollution', 'PPG 5 Works or Maintenance on or Near Water', 'PPG 6 Working at Construction or Demolition Sites'. · in compliance with the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended), prepare construction method statements for any in-channel working, for approval by SEPA; · compliance with the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended),	To reduce impacts on the water environment during in-channel working.	Method statements for any in-channel working require approval by SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			authorisation requirements (applying for licences for relevant in-channel works in advance of construction); · undertaking in-channel works during low flow periods (i.e. when flows are at or below the mean average) as far as practicable to reduce the potential for sediment release and risk of scour and using appropriate methods to reduce the risk of pollution; · minimise length of channel disturbed and size of working corridor; · sediment fences or bunds will be used where appropriate to prevent sediment being washed into water feature; · limit the amount of removal of the vegetated riparian corridor and woodland area retaining vegetated buffer zone wherever possible; and · limit the amount of tracking along the side of watercourses and avoid creation of new flow paths between exposed areas and new or existing channels.		
SMC-W5	Throughout Proposed Scheme	Construction	Where channel realignment is proposed the following mitigation measures will be implemented by the Contractor: · once a new channel is constructed, the flow should, where practicable, be diverted from the existing channel to the new course under normal/low flow conditions. In addition, diverting flow to a new channel should be timed to avoid forecast heavy rainfall events at the location and higher up in the catchment. The optimum time for constructing a new channel, where practicable, is in the spring and early summer months to allow vegetation establishment to help stabilise the new channel banks; · with offline realignments, the flow will be diverted with a steady release of water into the newly constructed	To reduce impacts on the water environment where channel realignment is proposed.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			realignment to avoid entrainment of fine sediment or erosion of the new channel; and · the length of the channel to be realigned will be minimised. Where realignments result in an increase or decrease of channel gradient, the following principles will be applied by the Contractor: · an increased gradient within the channel (resulting in higher stream energies) will require mitigation in the form of energy dissipation, which could include the creation of a step-pool sequence; boulder bed-checks; plunge pools at culvert outlets; and/or; increased sinuosity. · a decrease in gradient within the channel will require mitigation in the form of the construction of a low flow channel to minimise the impacts on locally varying flow conditions and reduce the risk of siltation of the channel.		
SMC-W6	Throughout Proposed Scheme	Construction	In relation to refuelling the Contractor will implement the following mitigation measures: · compliance with the Water Environment (Oil Storage) (Scotland) Regulations 2006 including the provision of bunded areas of sufficient storage capacity (at least 110% of maximum tank capacity) with impervious walls and floor lining for the storage of fuel, oil and chemicals; · compliance with SEPA 'PPG 2 Above Ground Oil Storage'; · appropriate measures, including site security, to avoid spillages (refer to **Mitigation Item SMC-W7**); and · compliance with the Pollution Incident Control Plan (refer to **Mitigation Item SMC-S1**) and SEPA 'PPG 21	To avoid spillages and reduce impacts on the water environment in relation to refuelling.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			Pollution Incident Response Planning' and 'PPG 22 Dealing with Spills'.		
SMC-W7	Throughout Proposed Scheme	Construction	In relation to oil/fuel leaks and spillages the Contractor will implement the following mitigation measures: · Best Practice Measures associated with storage of oils and fuel will be followed in compliance with The Water Environment (Oil Storage) (Scotland) Regulations 2006, SEPA 'PPG02 Above Ground Oil Storage' and 'PPG26 Safe Storage – Drums and Intermediate Bulk Containers'; · stationary plant will be fitted with drip trays and emptied regularly; · plant machinery will be properly checked prior to every use and maintained when appropriate; · spillage kits will be stored at key locations on-site; · compliance with the Pollution Incident Control Plan (refer to **Mitigation Item SMC-S1**) and SEPA 'PPG 21 Pollution Incident Response Planning' and 'PPG 22 Dealing with Spills'; and · where below ground oil storage is proposed, this must comply with SEPA's 'Code of Practice for Installers, Owners and Operators of Underground Storage Tanks (and Pipelines)'	To reduce impacts on the water environment in relation to oil/fuel leaks and spillages.	None required
SMC-W8	Throughout Proposed Scheme	Construction	In relation to chemical storage, handling and reuse the Contractor will implement the following mitigation measures: · compliance with the requirements of SEPA 'PPG 26 Safe Storage – Drums and Intermediate Bulk Containers'; · chemical, fuel and oil storage will be undertaken within a site compound, which will be located on stable	To reduce impacts on the water environment in relation to chemical storage, handling and reuse.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			ground at a low risk of flooding and >10m from any watercourse; · chemical, fuel and oil stores will be locked and sited on an impervious base within a secured bund of 110% of the storage capacity; and · pesticides, including herbicides, will only be used if there are no alternative practicable measures, and will be used in accordance with the manufacturer's instructions and application rates. Choice of pesticides should be those with least harm to the environment (i.e. least toxic and least persistent) suitable for the required purpose. Pesticide use near watercourses must comply with CAR GBR23.		
SMC-W9	Throughout Proposed Scheme	Construction	In relation to concrete, cement and grout the Contractor will implement the following mitigation measures: · concrete mixing and washing areas will - be located more than 10m from water bodies; - have settlement and re-circulation systems for water reuse; and - have a contained area for washing out and cleaning of concrete batching plant or ready-mix lorries. · wash-water will not be discharged to the water environment and will be disposed of appropriately either to the foul sewer (with permission from Scottish Water), or through containment and disposal to an authorised site; · undertaking potentially polluting activities more than 10m from surface water features where works specific to a water feature are not required, ensuring no pathways exist between potential sources and receptors; and · where concrete pouring is required within 10m of a water feature or over a water feature, appropriate	To reduce impacts on the water environment in relation to concrete, cement and grout.	Permission required from Scottish Water

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			protection will be put in place to prevent spills entering the channel (e.g. protective sheeting).		
SMC-W10	Site Compound/ Facilities	Construction	Sewage from site facilities will be disposed of appropriately either to foul sewer (with the permission of Scottish Water) or appropriate treatment and discharge agreed with SEPA in advance of construction in accordance with 'PPG04 Treatment and Disposal of Sewage'.	To ensure sewage from site facilities is disposed of appropriately.	Permission required from Scottish Water for disposal to foul sewer or SEPA, in advance of construction, for appropriate treatment and discharge to a watercourse
SMC-W11	Throughout Proposed Scheme	Construction	In relation to service diversions and disruptions from excavations and ground penetration, including severance of public and private water supplies through damage to infrastructure, the Contractor will: · locate and map all private or public water supply assets (including purchase of Scottish Water asset plans) and other service infrastructure prior to construction; · take measures to prevent damage to services and to avoid pollution during service diversions, excavations and ground works; and · provide an alternative water supply if services are to be temporarily disrupted by the works.	To mitigate service diversions and disruptions from excavations and ground penetration.	Consultation with SEPA
SMC-W12	Throughout Proposed Scheme	Construction	For works within areas identified as potentially containing contaminated land and sediment Best Practice Measures will be implemented to reduce risk of surface water pollution to an acceptably low level. This would include, where required: · further site investigation to determine the level of contamination, and · the installation of temporary treatment facilities to ensure protection of water quality and promote flow attenuation during construction.	To reduce risk of surface water pollution from areas identified as potentially contaminated land to an acceptably low level.	Details of any temporary treatment measures to be agreed with SEPA prior to commencement of construction

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			Details of any temporary treatment measures should be agreed with SEPA prior to commencement of construction, following CIRIA guidance including 'C648 Control of Water Pollution from Linear Construction Projects: Technical Guidance', 'C649 Control of Water Pollution from Linear Construction Projects: Site Guide, 'C753 The SuDS Manual' and 'C698 Site Handbook for the Construction of SuDS'.		
SMC-W13	Throughout Proposed Scheme	Operation	In relation to in-channel structures (general) the Contractor will implement the following mitigation measures: · SEPA's Position Statement to support the implementation of the Water Environment (Controlled Activities) (Scotland) Regulations 2005: WAT-PS-06-02: Culverting of Watercourses (SEPA, 2015d); · SEPA's Engineering in the Water Environment Good Practice Guide: Bank Protection Rivers and Lochs (WAT-SG-23) (SEPA, 2008a); · SEPA's Engineering in the Water Environment Good Practice Guide: Intakes and Outfalls (WAT-SG-28) (SEPA, 2008b); and · SEPA's Position Statement to support the implementation of the Water Environment (Controlled Activities) (Scotland) Regulations 2011: WAT-PS-07-02: Bank Protection (SEPA, 2012c). · Where bridges, new culverts and culvert extensions are proposed, the design follows good practice guidance including CIRIA's Culvert Design and Operation Guide, C689 (CIRIA, 2010); DMRB HA 107/04: Design of Outfall and Culvert Details (The Highways Agency et al., 2004); and SEPA's Good Practice Guide: River Crossings (SEPA, 2010b). Grey (hard) bank scour protection, at culverts and outfalls will be limited to that absolutely required and	To reduce impacts of in-channel structures on the water environment.	Consultation with SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			consideration given to alternative options, e.g. none or green (soft) bank protection. Requirements for grey bank protection to control/prevent scour (e.g. rock armour, rip-rap, gabion baskets) at culverts would be limited to that absolutely required and options for use of alternative solutions, such as none or green bank scour protection (e.g. vegetation, geotextile matting) would be preferred where practicable.		
SMC-W14	Throughout Proposed Scheme	Operation	In relation to outfalls the Contractor will implement the following mitigation: · The location of the outfalls along the water features would be refined within the CPO boundary as part of the detailed design. Outfalls have been recommended to be installed at locations that would not excessively alter channel flow and sedimentation patterns. Specific considerations include: - design to be compliant with best practice in CIRIA (2016) and DMRB Volume 4, Section 2, Part 7, Design of Outfall and Culvert Details and guidance in SEPA's Good Practice Guide: Intakes and Outfalls (SEPA, 2008b); - directing each outfall downstream to minimise impacts to flow patterns; - the outfall would not project into the channel; - avoid installation of outfalls at locations of known historical channel migration; - avoid positioned in flow convergence zones or where there is evidence of active bank erosion/instability; - directing an outfall away from the banks of a river to minimise any potential risk of erosion (particularly on the opposite bank); and	To reduce impacts of outfalls on the water environment.	Consultation with SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			- minimising the size/extent of the outfall headwall where possible to reduce the potential impact on the banks.		
SMC-W15	Throughout Proposed Scheme	Operation	In relation to culverts the Contractor will implement the following mitigation: · Detailed design shall mitigate flood risk impacts through appropriate hydraulic design of culvert structures. Flood risk shall be assessed against the 0.5%AEP (200-year) plus an allowance for climate change design flood event. Widening of the Proposed Scheme footprint may lead to loss of existing floodplain storage volume. Detailed design shall mitigate this where required by appropriate provision of compensatory storage. Where culvert extension is not practicable or presents adverse impact on the water environment, appropriately designed replacement culverts may be installed. · Detailed design shall mitigate impacts on the water environment through appropriate design of culvert structures and watercourse modifications (e.g. realignments) with respect to fluvial geomorphology, and both riparian and aquatic ecology. · Detailed design of culverts and associated watercourse modifications shall incorporate wherever practical: - allowance for the appropriate conveyance of water and sediment for a range of flows (including at low flow conditions); - maintenance of the existing channel gradient to avoid erosion at the head (upstream) or tail (downstream) end of a culvert; - avoidance of reduction of watercourse length through shortening of watercourse planform; - minimisation of culvert length;	To reduce impacts of culverts on the water environment.	Consultation with SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			- close alignment of the culvert with the existing water feature; - depressing the invert of culverts to allow for formation of a more natural bed (embedment of the culvert invert to a depth of at least 0.15m to 0.3m); and - roughening of culvert inverts to help reduce water velocities.		
SMC-W16	Throughout Proposed Scheme	Operation	In relation to channel realignment, the Contractor will implement the following mitigation: · Where channel realignment is proposed, the length of the realignment would be kept to a minimum, with the existing gradient maintained where possible. The realignment would be designed in accordance with channel type and gradient, and, if required, could include low flow channels and other designs to reduce the potential for siltation and may provide an opportunity to improve the geomorphology of the water feature.	To reduce impacts of channel realignment on the water environment.	Consultation with SEPA
SMC-W17	Throughout Proposed Scheme	Operation	In relation to drainage discharges the Contractor will implement the following mitigation measures: · The Proposed Scheme includes outfalls that discharge routine road runoff to receiving water features. In Scotland, SuDS are a legal requirement under the Controlled Activities Regulations (CAR) 2011 (as amended); a minimum of two levels of SuDS is intended to be included for all mainline outfalls, in agreement with SEPA and SNH. · SuDS would be designed in accordance with The SuDS Manual, CIRIA C753 (CIRIA, 2015) and SuDS for Roads (SCOTS, 2010) guidance. · Where it has been identified as necessary for road drainage to discharge to water features, mitigation	To reduce impacts of drainage discharges on the water environment.	Where required, authorisation for the road drainage discharge under CAR 2011 (as amended) would be obtained from SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			(types and combinations of SuDS components) would be designed to limit the volume of discharge and the risk to water quality. Where required, authorisation for the road drainage discharge under CAR 2011 (as amended) would be obtained from SEPA. · For each outfall, a 'treatment train' of SuDS would be incorporated to attenuate the road runoff to pre-development rates, reduce the polluting load carried within this runoff to acceptable levels and significantly reduce the risk of any accidental spillages. See Operation – Specific Mitigation for details. · All of the proposed SuDS systems for the outfalls from the mainline, junctions and side road connections would be designed with an impermeable liner where required to reduce any identified risk of pollution to groundwater, unless otherwise agreed with SEPA by the Contractor. The proposed SuDS for some selected local road drainage networks and access tracks would infiltrate into the ground. · SuDS retention ponds and detention basins would be sized to attenuate and store the 0.5% AEP (200 year) plus climate change flood event and restrict the outflow to the greenfield pre-development runoff rate of 50% AEP (2 year) flood event. SuDS systems would be located where practical outside the functional (0.5% AEP) floodplain. · To avoid sub-optimal operation of the road drainage network, maintenance of SuDS components would be necessary. Regular inspection to inform on maintenance frequency requirements would be required. Further information on maintenance requirements for the specific SuDS features is provided in Appendix A11.6 (Water Quality).		

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			· Regular maintenance of receiving water features and culverts to reduce the risk of blockages and associated flood risk. · Provision of scour protection at the drainage discharge outfall to protect the banks and bed of the receiving water feature and to limit erosion.		
Project Specific Mitigation					
P12-W18	Throughout Proposed Scheme	Pre-construction & Construction	Prior to construction the Contractor shall produce a Surface Water Management Plan (SWMP) (or similar such document) that will be submitted to SEPA for approval as part of the CAR authorisation process for site discharges. This document will include details of temporary construction drainage and sediment control measures and will take into consideration the phasing of works, topography, land available for treatment of surface water and the location of surface water features. A preliminary assessment of construction SuDs requirements has been carried out, involving calculation of indicative sizes of settlement basins and identification of land that may be of use to the Contractor for the purposes of surface water and sediment control. These land areas lie within the Proposed Scheme construction area boundary (Figure 5.12). .	To implement appropriate controls for site runoff and sedimentation and reduce impacts on the water environment.	Approval of the Surface Water Management Plan is required from SEPA. If flocculants are considered necessary to aid settlement of fine suspended solids, such as clay particles, the chemicals used must first be approved by SEPA. Where required, temporary discharge consents to be obtained from SEPA through the Water Environment (Controlled Activities) (Scotland) Regulations 2011 (as amended).
P12-W19	Throughout Proposed Scheme	Pre-construction	Monitoring protocols prior to and during the construction phase will be developed within a site specific Water Quality Monitoring Plan, which will be submitted to SEPA for approval prior to construction as part of the CAR	To measure the effectiveness of implemented mitigation	Approval of the Water Quality Monitoring Plan is required from SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			authorisation process for site discharges. This would include, but would not be limited to: · Appointment of a suitably qualified Environmental Clerk of Works (EnvCoW), who will review the scheduling of earthworks, storage of materials, implementation of drainage and surface water treatment measures, and undertake monitoring of water quality, as detailed in standard **Mitigation Items SMC-W1, SMC-W3, SMC-W4, SMC-W6, SMC-W7, SMC-W8, SMC-W9 and SMC-W10**; EnvCoW will be provided with the authority to stop works and implement remedial action with immediate effect. · The location of sampling points, frequency and duration of monitoring, sampling parameters, thresholds and protocols for the notification of Stakeholders in the event of failures will be agreed with SEPA. · The monitoring programme will include baseline monitoring prior to construction, and monitoring post construction where deemed necessary. · Upstream control locations will be included, in addition to the main downstream monitoring locations. · Water quality monitoring locations will be co-located with proposed aquatic ecology monitoring locations where practicable.	measures in protecting downstream water quality and aquatic ecological interests.	
P12-W20	Throughout the Proposed Scheme, in particular Allt Cosach Hydrostation Abstraction, Tomatin Distillery Abstraction, PWS Lynebeg Pond, PWS Lynebeg and PWS Lynemore	Pre-construction	A site specific Private Water Supply Protection Plan will be developed and submitted to SEPA for approval prior to construction. This will include, but will not be limited to: · Identification and mapping of all PWS sources and infrastructure that could be impacted by the Proposed Scheme.	To ensure the protection of surface water fed PWS.	Approval of the Private Water Supply Protection Plan is required from SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			· Development of a PWS water quality monitoring programme preconstruction, during construction and post construction. · Development of a PWS contingency plan including provision of an emergency hotline telephone and arrangements for an alternative temporary water supply (tankers or similar). · Providing affected properties with an alternative supply prior to construction. Consideration of options will be undertaken in consultation with the land owner and may include the use of a mains water supply, for example.		
P12-W21	Throughout the Proposed Scheme	Operation	In relation to culverts the Contractor will implement the following measures: · **Natural bed substrate:** for box culverts (i.e. with an artificial bed) a depressed invert set slightly below the existing bed level is require. This will allow space for natural bed substrates to be imported to form the bed level. For culverts less than 1.2 m diameter or height (internal height) the invert should be buried at least 15 cm below the natural bed level. For culverts 1.2 - 1.8 m diameter or height (internal height) the invert should be buried at least 20 cm below the natural bed level. For culverts greater than 1.8 m diameter or height (internal height) the invert should be buried at least 30 cm below the natural bed level. Baffles (precast or otherwise) may be required if there is a risk of the natural sediment flushing through at high flows. The culvert design should reflect the natural bed profile including bank to bank channel width, channel gradients and substrates where possible. Portal frames which do not possess an artificial bed do not require specific bed mitigation, but do still need an appropriate bed substrate;	To incorporate sustainable features and maintain flow and appropriate passage for wildlife.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			· **Low flow channel:** a low flow channel (sized appropriate to each watercourse) should be constructed within the culvert to maintain sufficient water depths and sediment transport through the culvert during normal flow conditions; · **Fish passage:** except where specifically stated, a 'buffer' zone will be created up and downstream of culverts to allow for the creation of habitats which will both enhance the watercourse, and incorporate features such as pools which will allow fish to rest before entering the culvert. The overall culvert design should not in any way impede fish passage up and downstream, and the gradient should reflect the surrounding landscape, overly steep or shallow gradient should be avoided where possible; · **Bank protection:** although each culvert should be considered separately, it is likely that some bed and bank protection will be required upstream at transition between the watercourse and culvert. Hard (grey) bank and bed protection should be avoided where possible. Rip-rap and boulders (or 'greener' solutions where possible) and planted stone and coir rolls are preferable to gabions; · **Transition:** appropriate inlet and outlet structures should be provided to ensure smooth hydraulic transition and avoid erosion. Headwall arrangements at the upstream and downstream ends of a culvert should be suitably keyed into the bed and banks of the watercourse, should be the shortest length possible, and should be appropriate to the local environment; · **Scour pool:** scour pools at the outlet of the culvert should be constructed to dissipate energy and provide resting areas for fish. This is especially important for steeper culverts (>3%) and/or where stream powers are high; and		

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			· **Outfalls:** it is also important that the alignment of outfalls are designed to reduce scour around the structure and erosion of the adjacent river bed and banks. Discharge from the outfalls should be similar to the adjoining watercourse (see SEPA guidelines for more information).		
P12-W22	Throughout the Proposed Scheme	Operation	In relation to river realignments/diversions the Contractor will implement the following measures: · Bed gradient: maintaining the existing bed gradient will ensure the continuity of the existing sediment regime. Too low and excessive substrate may begin to deposit, blocking culvert entrances and/or reducing flood flow capacity, this also reduces sediment supply downstream. Too steep and excessive bank erosion and/or bed incision may begin to occur increasing sediment supply downstream (potentially depositing within culverts). Where the design of the road dictates a change to the bed gradient, mitigation will be necessary, which may include features such as step-pools, bed-checks and sediment traps; · Cross-section: the design of an appropriate low flow channel will also ensure the continuity of the existing sediment transport regime. A two-stage or multiple-stage cross-section can provide a wide range of benefits and preserve the existing low flow processes, allowing for natural adjustment and improve system resilience to low flow events. The multiple stage cross-section also encourages a range of habitats to form and accommodates flood flow capacity whilst ensuring a low flow channel is maintained; · Planform: the planform should reflect the existing channel where possible or restore historical planforms where the existing channel has been artificially modified; and	To incorporate sustainable features, maintain flow and enhance biodiversity.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			· Boundary conditions: existing substrates should be collected, stored (without contamination) and reinstated. Where re-use of is not possible, substrates should be matched to local material. The suitability of substrates should be considered using empirical observations made by a qualified geomorphologist, as well sediment transport calculations (where deemed appropriate) and local sources. Other mitigation features such as woody material, gravel features (bars), vegetation and riffle-pools should be considered to further enhance and restore habitats and natural processes to the watercourse in appropriate locations. The design of any realignments, especially including features such as steps or bed checks will need to ensure they are suitable (i.e. passable) for any potential migratory fish species present. Consultation with freshwater aquatic ecologists is essential at the outset. The need for a realignment in all cases should be avoided (or minimised) where possible. Unnecessary modification to a river channel may initiate instability as the channel attempts to recover to a natural course.		
P12-W23	Throughout the Proposed Scheme	Operation	In relation to watercourse bank and bed protection the Contractor will ensure: · where bank protection is required (e.g. culvert inlets and outlets, tight meander bends or vulnerable areas), this should be formed of naturally occurring materials, stone (e.g. rip-rap) and/or locally sourced hardwood wherever possible. If the channel requires more engineered solutions it should be sympathetic to the local landscape and habitats, and used in combination with a planting scheme to improve the aesthetics and long-term stability of the banks. The role of vegetation for channel stability should also not be underestimated	To incorporate sustainable features, maintain flow and enhance biodiversity.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			and consultation with the landscape architect should be undertaken at the earliest opportunity; and · where it is necessary to protect the bed from bed scour (incision) natural materials (boulders, ideally buried) should be used as opposed to smooth concrete to increase roughness, maintain flow diversity and reduce the risk of transferring the erosion downstream.		
P12-W24	Throughout the Proposed Scheme	Pre-construction & Construction	Where culverts are to be built online, early consideration is required of the design and implementation of temporary bypass channels. The design of any bypass diversion should also consider all the items listed above in **Mitigation Item P12-W22**, especially if intended to be in-situ for a long period of time. Other temporary works such as pipes or over-pumping should be used where a temporary bypass channel cannot be constructed.	To maintain flow continuity and allow unimpeded fish migration through the watercourse.	Consultation with SEPA
P12-W25	Dalmagarry Burn	Pre-construction & Operation	The Contractor shall ensure that the standard mitigation measures specified in **Mitigation Items SMC-W13 to SMC-W17 and P12-W21 to P12-W23** are applied. Given the significance of the realignment further mitigation is required to minimise any potential impacts. These include: · appropriate bankside planting; · installation of instream channel features to support the fish populations (i.e. undercut banks, woody debris etc.) and a wetland backwater utilising the downstream tie-in with the existing channel; · maximising connectivity with the adjacent floodplain to improve the natural functioning of the river system; · channel to possess a two-stage channel profile, with an appropriate low flow channel intended to connect with the second stage every year or two;	To reduce the risk of erosion, replicate the natural bed and improve functionality of the water feature.	CAR applications require approval from SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			· bed checks will be needed at appropriate locations (e.g. changes in bed gradient) to reduce the likelihood of incision occurring; and · boulders 300-600mm to be used to form bed features. The above will be agreed with SEPA via the CAR licencing process.		
P12-W26	Allt na Frithe	Pre-construction & Operation	In relation to the proposed Allt na Frithe culvert and associated realignment: · appropriate bed checks and step-pool features along the realignment and bank protection around the entrance and exit to the culvert are to be installed; · DMRB Stage 3 hydraulic modelling specifies the need for a cascade or similar feature to manage the flows entering the culvert. If confirmed at detail design, the currently proposed realignment should be extended upstream to reduce the impact of the gradient and potential impact on fisheries. The Proposed Scheme boundary has been extended upstream to allow for this; and · boulders approx. 200-300mm in diameter to be used to form bed features.	To reduce the risk of erosion, replicate the natural bed and improve functionality of the water feature.	None required
P12-W27	Allt Dubhag	Pre-construction & Operation	In relation to the proposed Allt Dubhag culvert and associated realignment: · DMRB Stage 3 hydraulic modelling specifies the need for a cascade or similar feature to manage the flows entering the culvert. If confirmed at detailed design, the currently proposed realignment should be extended upstream to reduce the impact of the gradient and potential impact on fisheries. The Proposed Scheme boundary has been extended upstream to allow for this. · Boulders approx. 100-200mm in diameter to be used to form bed features.	To reduce the risk of erosion, replicate the natural bed and improve functionality of the water feature.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
P12-W28	Caochan nah-Eaglais	Pre-construction & Operation	In relation to the proposed Caochan na h-Eaglais culverts and associated realignments: · boulders approximately 300-400mm in diameter to be used to form bed features. The steep gradients heightens the need for appropriate step-pool/bed check features along the realignment and bank protection around the entrance and exit to the culverts.	To reduce the risk of erosion, replicate the natural bed and improve functionality of the water feature.	None required
P12-W29	Allt na Loinne Moire	Operation	In relation to the proposed Allt na Loinne Moire culverts and associated realignment: · ensure appropriate bed checks and bank protection are installed; and · boulders approximately 200-300mm in diameter to be used to form bed features.	To reduce the risk of erosion, replicate the natural bed and improve functionality of the water feature	None required
P12-W30	Allt na Slanaich	Operation	In relation to the proposed Allt na Slanaich culvert and associated realignment: · appropriate bed checks and step-pool features along the realignment and bank protection around the entrance and exit to the culvert are to be installed; · the currently proposed realignment should be extended upstream to reduce the impact of the gradient and potential impact on fisheries. The Proposed Scheme boundary has been extended upstream to allow for this; and · boulders approx. 300-600mm in diameter to be used to form bed features.	To reduce the risk of erosion, replicate the natural bed and improve functionality of the water feature	None required
P12-W31	Allt Creag Bheithin		In relation to the proposed Allt Creag Bheithin culverts and associated realignments: · appropriate bed checks along the realignment and bank protection around the entrance and exit to the culvert are to be installed; and	To reduce the risk of erosion, replicate the natural bed and improve functionality of the water feature	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			· boulders approx. 200-300mm in diameter to be used to form bed features.		
P12-W32	Pond 5, Lynebeg South	Operation	To compensate from the loss of Pond 5 a new pond will be established immediately downhill of the existing pond. As per **Mitigation Item P12-E16** the new pond will be of a similar surface area to the original pond, but with sloping marginal shelves of gradient no greater than 1:8, ensuring the establishment of an extensive marginal wetland plant assemblage. The new pond may be lined to ensure water retention, subject to ground and soil conditions. In the event pond lining is required, a natural bentonite clay product will be used to ensure the sustained hydrological viability of the replacement pond. Where possible, the new pond will be 'seeded' with translocated material from the existing pond (seed bank, sediment, and/or vegetation where practical) to encourage rapid establishment of similar successional characteristics as the pond being lost. The pond will otherwise be designed following good practice principles as described by SEPA Guidance on good practice in the management and creation of small waterbodies in Scotland. The operational SuDS ponds are not to be considered as compensation for the loss of natural ponds. However, they will be designed and planted to maximise their biodiversity.	To maintain biodiversity	SEPA and SNH
P12-W33	Pond 12, Tigh an Allt North	Pre-construction & Operation	At detailed design the embankment toe drainage will be modified to ensure the existing inflows and outflows to Pond 12 are maintained.	To maintain pond water levels and biodiversity	None required
P12-W34	Allt Creag Bheithin	Pre-construction & Operation	In relation to the Allt Creag Bheithin flood compensation storage areas: The Contractor will construct the storage areas and associated culverts as per the Proposed Scheme. The Contractor shall ensure that the standard mitigation	To reduce the risk of flooding impacts	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			measures specified in **Mitigation Items SMC-W1 to SMC-W4, SMC-W13 to SMC-W17 and P12-W21 to P12-W23** are applied. In addition, the Contractor shall: · Restore the storage areas in accordance with the landscape and ecological mitigation plans (given in Figures 13.8a-t of Chapter 13) · Adhere to the principles set out in the peat and soil management plan (Appendix A10.2).		

Table 21.6: Ecology and Nature Conservation

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-E1	Throughout Proposed Scheme	Pre-Construction	Pre-construction surveys will be undertaken to verify and, where required, update the baseline ecological conditions set out in the ES. The scope of the pre-construction surveys will be confirmed with SNH prior to them being undertaken	To update the baseline ecological conditions set out in the ES.	SNH
SMC-E2	Throughout Proposed Scheme	Pre-Construction	Prior to construction a suitably qualified (or team of suitably qualified) Ecological Clerk of Works (ECoW) will be appointed and will be responsible for implementation of the Ecological Management Plan. The ECoW will: · provide ecological advice over the entire construction programme, at all times as required; · undertake or oversee pre-construction surveys for protected species in the areas affected by the Proposed Scheme; and ensure mitigation measures are implemented to avoid and reduce impacts on ecological features; and	To ensure the implementation of the Ecological Management Plan.	Consultation with the relevant salmon fisheries board.

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			· monitor the implementation of the mitigation measures during the construction phase to ensure compliance with protected species legislation and commitments within the ES. The ECoW will be a member of the Chartered Institute of Ecology and Environmental Management (CIEEM) and will have previous experience in similar ECoW roles. All ECoWs will be approved by Transport Scotland to be appropriately qualified for the role. The ECoW will be appointed in advance of the main construction programme commencing to ensure pre-construction surveys are undertaken and any advance mitigation measures required are implemented.		
SMC-E3	At watercourses throughout Proposed Scheme	Construction	Noise and vibration will be reduced by working back from the river bank where possible or working within a dry area to avoid implications to fish, such as behavioural changes e.g. avoidance of areas or physical damage e.g. to hearing. In addition, soft-start techniques will be applied to piling work procedures to enable sensitive species to evacuate the area.	To protect fish species from noise and vibration.	None required.
SMC-E4	At watercourses throughout proposed scheme	Construction	Where areas are required to be temporarily dewatered to permit construction activities, fish will be removed by means of electrofishing and relocated prior to dewatering.	To protect fish species during de-watering of watercourse sections and in-stream works.	CAR Licence approved by SEPA
SMC-E5	At watercourses throughout proposed scheme	Construction	Water flow/passage will be sufficiently maintained to permit movement of Atlantic salmon, brook lamprey and brown/sea trout past areas of dewatering and/or significant alteration of water movement during any construction works within the watercourses. Suitable temporary channels may be implemented so that movement between areas of habitat can be maintained.	To protect fish species during de-watering of watercourse sections and in-stream works.	CAR Licence approved by SEPA
SMC-E6	Throughout Proposed Scheme	Pre-Construction	The Contractor will obtain and comply with the requirements of any protected species derogation licences in respect of works that have the potential to breach applicable conservation legislation necessary	To comply with conservation legislation.	SNH

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			to construct the project. Licensing may be for the UK and/or protected species.		
SMC-E7	Throughout Proposed Scheme	Pre-Construction & Construction	Tree felling and vegetation clearance to be minimised as far as practicable and undertaken outside the core bird nesting season (01 March to 31 August) to avoid damage or destruction of occupied nests or harm to breeding birds. If this cannot be achieved, works within the core bird nesting season will require an inspection of vegetation to be cleared for nesting birds by a suitably qualified ecologist no more than 24 hours prior to any works being undertaken. If any nesting birds are identified during the survey, they will be left in situ for their entire nesting period until the young birds have fledged. Alternative approaches to the work will need to be proposed e.g. leaving an exclusion zone around the nest to avoid disturbance. All cleared vegetation will be rendered unsuitable for nesting birds, for example, by covering or chipping depending on the end purpose of the vegetation, or will be removed from the works area.	To protect habitat and fauna during bird nesting season.	None required
SMC-E8	Throughout Proposed Scheme	Pre-Construction & Construction	Any tree felling will be carried out by experienced contractors to reduce direct mortality of protected species according to agreed felling methods between contractors and the ECoW.	To protect fauna during removal of habitat.	None required
SMC-E9	Throughout Proposed Scheme	Pre-Construction, Construction & Post-Construction	Plant and personnel will be constrained to a prescribed working corridor through the use of, where practicable, temporary barriers to minimise the damage to habitats and potential direct mortality and disturbance to animals located within and adjacent to the Proposed Scheme working corridor.	To protect habitats and fauna.	None required
SMC-E10	Throughout Proposed Scheme	Construction	The use of construction lighting will be in accordance with 'BS5489 Code of Practice for the Design of Road Lighting' and follow guidance on lighting (e.g. Bat Conservation Trust (2009) and Institute of Lighting Engineers (2007)). The construction lighting design will take into account the need to avoid illuminating sensitive mammal habitats (e.g. for bats and badgers) in locations such as: adjacent to watercourses; along woodland edges; and, where there is known activity identified through pre-construction ecological	To protect sensitive mammal habitats from illumination.	Exceptions to be agreed with SNH

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			surveys (refer to **Mitigation Item SMC-E1**). Where this is not possible the Contractor will agree any exceptions with SNH.		
SMC-E11	Throughout Proposed Scheme	Construction	During construction trees will be protected in line with guidelines provided in 'BS 5837 Trees in relation to Construction' (British Standards Institute, 2012). This includes the following: · establishment of Root Protection Areas (RPA); · protective fencing will be erected around the RPA to reduce risks associated with vehicles trafficking over roots system or beneath canopies; · selective removal of lower branches of trees to reduce risk of damage by construction plant and vehicles; · prevent soil compaction measures; and · maintain vegetation buffer strips (where practicable).	To comply with guidelines provided in 'BS 5837 Trees in relation to Construction' (British Standards Institute, 2012).	None required
SMC-E12	Throughout Proposed Scheme	Construction & Post-Construction	Planting will be undertaken to replace any trees that were intended to be retained which are felled or die as a result of construction works. The size, species and location of replacement trees will be approved by Transport Scotland and other relevant stakeholders.	Replacement of trees lost that are to be retained.	Transport Scotland and other relevant stakeholders
SMC-E13	Throughout Proposed Scheme	Construction	Trenches, holes and pits will be kept covered at night or provide a means of escape for mammals that may become entrapped. Gates to compound areas will be designed sensitively to prevent mammals from gaining access and will be closed at night.	To avoid mammals becoming entrapped in and around compound areas during construction.	None required
SMC-E14	Throughout Proposed Scheme	Construction	Temporary mammal-resistant fencing will be provided around construction compounds following a specification agreed through consultation with Transport Scotland.	To avoid mammals becoming entrapped in and around compound areas during construction.	Transport Scotland

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
SMC-E15	Throughout Proposed Scheme	Construction	The Contractor will describe within the CEMP **(Mitigation Item SMC-S1)** the strategy to be implemented for the appropriate treatment of invasive, non-native species (INNS). The strategy will set out appropriate construction, handling, treatment and disposal procedures to prevent the spread of INNS in line with recognised best practice.	To prevent the spread of INNS.	None required
n/a (note)	Throughout Proposed Scheme	Construction	*Further to the above, the mitigation detailed in Table 21.5 (Road Drainage and the Water Environment), Table 21.7 (Landscape and Visual), Table 21.9 (Air Quality) and Table 21.10 (Noise and Vibration) will be implemented to protect aquatic and terrestrial habitats and species.*	*To protect aquatic and terrestrial habitats and species.*	*n/a*
Project Specific Mitigation					
P12-E16	Throughout Proposed Scheme	Pre-Construction & Construction	A Habitat Protection Plan will be produced pre-construction and agreed with SNH. The working area will be kept to the minimum necessary for construction of the project to reduce habitat loss.	To protect habitats	SNH
P12-17	Throughout Proposed Scheme	Pre-Construction & Construction	Prior to construction necessary consents for tree felling will be obtained as provided for under the Forestry Act 1967.	To comply with legislation	Forestry Commission
P12-E18	Throughout Proposed Scheme	Pre-Construction & Construction	The removal of any trees identified for retention with the ES should be avoided. Where any trees that were intended to be retained are identified as requiring felling or die as a result of construction works will be replaced, assessment of the trees at such location should be undertaken. Any changes to the extent of tree removal from that assessed within the ES, should be subject to assessment using the same methods as detailed within the ES to determine the appropriate mitigation requirements. Where required any additional impacts identified will be appropriately mitigated for using the same methods as detailed within the ES. The size and species of replacement trees will be agreed in consultation with SNH and the Forestry Commission, and will take account of management plans to immediately adjacent woodland.	To protect trees	SNH and Forestry Commission

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
P12-E19	Throughout Proposed Scheme	Construction	Best practicable means will be employed to avoid the disturbance of sensitive species and habitats with noise, dust and air pollution. Please refer to Standard Mitigation Measures as detailed in Chapter 16: Air Quality and Standard Mitigation Measures as detailed in Chapter 17: Noise and Vibration for further details.	To protect fauna and habitats	None
P12-E20	Throughout Proposed Scheme	Construction	Ponds lost to construction will be replaced as near to their original location as practically possible, or within the nearest suitable habitat, whichever is more ecologically advantageous. This will be undertaken at a ratio of 1 pond loss: 1 pond replacement. SuDS and drainage features shall not act to offset the loss of any pond; however SuDS shall be designed to maximise their biodiversity value, in line with the CIRIA SuDS Manual[i].	To maintain biodiversity	None
P12-E21	Throughout Proposed Scheme	Construction	Construction works (for example, temporary watercourse diversions and in-channel working) to be undertaken taking into account sensitive ecological seasons (e.g. breeding, hibernation or migration seasons) and the potential impact that the type of construction work could have on protected species within that season. Prior to construction consultation will be undertaken with SNH to confirm the programme of construction works. The key sensitive period for salmonids is mid-October to June, inclusive. However the most acceptable timing will depend on which sensitive species are present and will be agreed with SEPA, Scottish Natural Heritage (SNH) and Findhorn, Nairn and Lossie Fisheries Trust. During any river dewatering and/or in-channel working, an ecological watching brief and fish rescue plan will be instigated in consultation with SNH and SEPA.	To protect fish species	SNH and SEPA
P12-E22	Throughout Proposed Scheme	Construction	Mitigation measures to avoid or reduce potential impacts on surface waters will be employed, including adherence to Pollution Prevention Guidelines (PPGs)[ii] during construction, and appropriate road drainage and runoff treatment.	To protect fauna and habitats	None
P12-E23	Throughout Proposed Scheme	Construction	Any permanent watercourse diversion works (including realignments at crossings) will incorporate design measures that enhance both in-channel and riparian habitat quality e.g. provision of resting	To maintain biodiversity	None

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			pools/spawning habitats for salmonids. Refer to Chapter 11 Road Drainage and Water Environment for key watercourse construction and design mitigation commitments.		
P12-E24	Throughout Proposed Scheme	Pre-Construction & Construction	Species Protection Plans to be produced pre construction and agreed with SNH. Plans will be produced for the following species: bats, otter, red squirrel, reptiles and water vole and any other species as deemed necessary from the pre-construction surveys.	To protect fauna	SNH
P12-E25	Throughout Proposed Scheme	Construction	Appropriate exclusion zones in line with best practice and as agreed with SNH should be maintained. Where exclusion zones of the required size are not possible and if a licence is not needed the amended buffer zone should be agreed with the relevant statutory body.	To protect fauna	SNH
P12-E26	Throughout Proposed Scheme	Construction	No working within 50m of watercourses during the hours of darkness, taken to be 30 minutes before sunset to 30 minutes after sunrise. In the event that works must be undertaken within this time period, the nature of the works should be discussed with the ECoW to establish what mitigation measures are required. Works may only take place with the agreement of the ECoW.	To protect fauna (primarily otters)	None
P12-E27	Throughout Proposed Scheme	Pre-Construction & Construction	Tree felling in areas with red squirrel dreys will be timed outside of the red squirrel breeding season (February to September). Where these timescales cannot be achieved the ECoW will determine an appropriate course of action. All tree felling in locations where dreys are present (active or inactive) will be supervised by the ECoW. A SNH derogation licence must be in place for the removal of all active dreys (and dreys where activity levels cannot be confirmed).	To protected red squirrels	If licence required - SNH
P12-E28	Throughout Proposed Scheme	Pre-Construction & Construction	European Protected Species licences will in place for all bat roosts to be removed or disturbed. Any bat roosts to be lost will be replaced with bat boxes (or other suitable roosting feature), to be erected prior to the loss of the roost. The requirement for the replacement roosts will be determined following pre-construction surveys. Six new bat boxes to be located within retained woodland within the land made available for the works as shown on the Landscape and Ecological	To protect bat species	SNH

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			Mitigation Plans (Figure 13.8a-t) (precise number and location to be determined following pre-construction surveys).		
P12-E29	Throughout Proposed Scheme	Pre-Construction & Construction	A precautionary method of working (PMW) will be produced prior to construction to detail methodology to follow for habitat clearance in areas of suitable reptile habitat. Pre-construction hand searches of any areas containing suitable reptile habitat, will be undertaken by the ECoW. Any reptiles encountered will be moved to alternative suitable habitat. All vegetation clearance in areas of high suitability for reptiles will be cleared outside of the hibernation period (November to February, subject to seasonal variations). Where these timescales cannot be achieved the ECoW will determine an appropriate course of action.	To protect reptiles	None
P12-E30	Throughout Proposed Scheme	Pre-Construction & Construction	Permanent otter fencing to be installed 100m either side of watercourse crossings, where indicated on the Landscape and Ecological Mitigation Plan (Figure 13.8a-t), to be installed prior to scheme completion. Design should follow SNH guidance.[iii] The recommended specification is as follows: at least 1.2m high galvanised welded mesh (of at least 2.5mm gauge) above ground level, with a maximum mesh size of 100 x 50mm attached to fence posts and topped with barbed wire. Below ground, the mesh should be dug in to a depth of 300mm, or 100mm with a horizontal lap on the otters' side of 300-450mm. Temporary otter fencing must be installed prior commencement of the construction phase, 100m either side of all watercourse crossings where specified. Specification should follow that of the permanent fencing, where deviations to this are required for constructability purposes, these should be agreed with the ECoW and SNH.	To protect otters	Deviations to be agreed with SNH
P12-E31	Pond 5 - Lynebeg	Construction	The pond south of Lynebeg (Pond 5) will be lost as a result of the Scheme. A new pond will be constructed in an area to the east of the existing pond. The new pond will be designed to occupy a surface area similar in extent to the existing pond being lost, but will include sloping	To maintain biodiversity	SNH and SEPA

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			marginal shelves of gradient no greater than 1:8, ensuring the establishment of an extensive marginal wetland plant assemblage. The new pond may be lined to ensure water retention, subject to ground and soil conditions. In the event pond lining is required, a natural bentonite clay product will be used to ensure the sustained hydrological viability of the replacement pond. Where possible, the new pond will be 'seeded' with translocated material from the existing pond (seed bank, sediment, and/or vegetation where practical) to encourage rapid establishment of similar successional characteristics as the pond being lost. The pond will otherwise be designed following good practice principles as described by SEPA Guidance on good practice in the management and creation of small waterbodies in Scotland[iv]. An ecological watching brief and fish rescue plan will be instigated in consultation with SNH and SEPA during pond dewatering activities.		
P12-E32	Throughout Proposed Scheme	Construction	Mitigation for the loss of ecologically important habitats will occur through habitat creation including roadside planting, where appropriate, and has been integrated with landscape planting as shown on Figure 13.8a-t. This includes planting of new woodland at a variety of locations to mitigate for the loss of non-ancient woodland. Landscape planting and newly created habitat will be comprised of locally obtained native species of local provenance, and will comprise a mixture of species. Sowing/planting should be undertaken in the appropriate planting season but as soon as possible following completion of the works to reduce the likelihood of the areas being colonised by invasive, non-native species which are of lower value to wildlife. Replacement habitats will be monitored and managed during the aftercare and operation phase of the Proposed Scheme. Where practicable habitat creation will to fill in existing gaps in linear vegetation features, adjoin or connect existing blocks of woodland or act as stepping stones between habitat areas.	To maintain biodiversity	None

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
P12-E33	Throughout Proposed Scheme	Construction	Soil will be retained from locations of ancient woodland, as identified on the Landscape and Ecological Mitigation Plans Figure 13.8a-t, and reused in areas of woodland planting.	To maintain biodiversity	None
P12-E34	Throughout Proposed Scheme	Pre-Construction & Construction	If an active water vole burrow is identified during pre-construction surveys then it is likely that an SNH derogation licence will be required for any works proposed within 10m of the burrow. Where a licence is required, translocation of water vole from the works area to a receptor site may be required to ensure that water vole are not harmed during construction. The need for and details of the translocation programme will determined by the ECoW, informed by the update pre-construction surveys, and developed in consultation with SNH.	To protect water vole	SNH
P12-E35	Throughout Proposed Scheme	Construction	Aspen woodland will be avoided where possible. If felling is required, deadwood over 75cm circumference will be retained where practicable.	To protect aspen and species associated with it	None
P12-E36	Throughout Proposed Scheme	Construction	Where retained, deadwood will be placed in a variety of locations and conditions to benefit a number of species. Deadwood should be stored in a location away from the working area to prevent risk of damage and then placed within areas of retained woodland or woodland planting at an appropriate time. The ECoW will provide guidance on suitable locations. Tree stumps will be retained in situ where felled on the edge of working areas where this does not pose a constraint to the works. Edges of woodland will be scalloped where practicable increasing variety of conditions and where an increase in windthrow risk can be avoided.	To maintain biodiversity	None
P12-E37	Throughout Proposed Scheme	Construction	Where practicable top soil from cleared woodland will be stored appropriately for re-use where priority habitats and species are identified and in areas where similar habitat is to be created, see Figure 13.8a-t Landscape and Ecological Mitigation Plan.	To maintain biodiversity	None
P12-E38	Throughout Proposed Scheme	Construction	Where practicable top soil from species rich grassland affected will be stored appropriately for re-use in areas where similar habitat is to	To maintain biodiversity	None

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			be created, see Figure 13.8a-t Landscape and Ecological Mitigation Plan.		
P12-E39	Throughout Proposed Scheme	Construction	Where practicable top soil from heath lost will be stored appropriately for re-use in areas where similar habitat is to be created, see Figure 13.8a-t Landscape and Ecological Mitigation Plan.	To maintain biodiversity	None
P12-E40	Allt na Frithe. Allt Dubhag, Dalmagarry Burn, Allt na Loinne Mòire, Allt na Slànaich; and Allt Creag Bheithin	Construction	Culverts placed on watercourses Allt na Frithe. Allt Dubhag, Dalmagarry Burn, Allt na Loinne Mòire, Allt na Slànaich; and Allt Creag Bheithin will designed as be open-arch structures that act to: · retain natural bed substrate within the culvert; · ensure no deterioration (and aim to improve) existing water depth and flow provision within the culvert for migratory fish; and · improve river continuity by replacing existing A9 structures with artificial inverts. The watercourse outlet will be designed to provide appropriate resting pools immediately downstream of the culvert entrance. Marginal/riparian planting will also be implemented to provide cover and mitigate the transition from light to dark at the culvert inlet and outlet. This will ensure fish are not discouraged or prevented from entering or exiting the culvert. All culverts, including channel inlet and outlets, will be constructed with reference to SEPA's Good Practice Guides, namely: · Engineering in the Water Environment Good Practice Guide: Bank Protection Rivers and Lochs[v]; · Engineering in the Water Environment: Good Practice Guide - River Crossing[vi]; and · Position Statement WAT-PS-06-02 - Culverting of Watercourses – Position Statement and Supporting Guidance[vii].	To ensure passage for fisheries through culverts	None
P12-E41	Around ponds 18 and 24	Construction	All vegetation clearance within 250m of ponds 18 and 24 will be undertaken following a Precautionary Method of Working (PMW) for great crested newts. This PMW will be produced by a suitability qualify ecologist and will include details on approaches and timings for vegetation clearance and methods for hand searches of vegetation by an ecologist.	To prevent harm to great crested newts	None

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
P12-E42	SuDs pond (reference PYA)	Construction	SuDs ponds and drainage channels at Tomatin Junction and SuDs pond adjacent to the Allt Creag Bheithin where water vole have been recorded will be designed sensitively to provide habitat for water vole, see locations shown on Figure 13.8e and 13.8p Landscape and Ecological Mitigation Plans.	To provide enhancement to habitats in locations where water vole are present.	None
P12-E43	Throughout Proposed Scheme	Construction	Where any existing wood ant nests cannot be retained in-situ, they shall be translocated to suitable receptor sites. Prior to translocation, areas of suitable habitat shall be identified and agreed with TS and SNH. Where these exist within the construction site boundaries, they shall be clearly marked as an area to be retained and protected during construction. Wood ant nests shall be translocated during the spring in accordance with a methodology agreed with SNH.	To avoid detrimental impact on wood ant populations present within the site boundary.	SNH

Table 21.7: Landscape and Visual

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation of Approval Required
Standard A9 Mitigation					
SMC-LV1	Throughout Proposed Scheme	Construction	The construction programme will be kept to the minimum practicable time to reduce the duration of any landscape and visual impacts and areas will be cleared for construction as close as possible to works commencing and topsoiling, reseeding and planting shall be undertaken as soon as practicable after sections of work are complete.	To reduce the duration of any landscape and visual impacts	None required
SMC-LV2	Throughout Proposed Scheme	Pre-Construction & Construction	As far as practicable, construction plant and materials storage areas will be appropriately sited to minimise their landscape and visual impact.	To reduce landscape and visual impact of plant and material storage areas.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation of Approval Required
SMC-LV3	Throughout Proposed Scheme	Construction	Construction sites will be kept tidy (e.g. free of litter and debris).	To reduce visual impact of construction sites	None required
SMC-LV4	Throughout Proposed Scheme	Construction	Work during hours of darkness will be avoided as far as practicable, and where necessary, directed lighting will be used to minimise light pollution/glare. Lighting levels shall be kept to the minimum necessary for security and safety.	To reduce light pollution/glare during night-time working.	None required
SMC-LV5	Throughout Proposed Scheme	Construction	To protect soil quality for the purposes of landscape planting, the following measures will be implemented: · Uncontaminated topsoil for re-use shall be stored in un-compacted mounds no more than 2m in height, and stored separately from subsoil material. Topsoil stripped from areas designated as Ancient Woodland shall be stored separately to all other topsoil and sub-soil material, in un-compacted mounds no more than 2 m in height. · Stripped topsoil shall be used in areas of the same proposed vegetation type to utilise the existing natural seed bank. · Subsoil in planting areas shall be replaced after construction and ripped to a minimum of 450 mm prior to topsoiling and planting. · Proposed planting areas in existing arable and pasture land, not subject to construction activity, shall be ripped to 600 mm to alleviate compaction.	To protect soil quality for the purposes of landscape planting.	None required
SMC-LV6	Throughout Proposed Scheme	Construction	The construction shall be managed such that the loss of any existing woodland, scrub, heath, mire, grassland vegetation, marshland, swamps and	To limit vegetation loss as far as practicable.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation of Approval Required
			isolated trees and shrubs not affected by the permanent works is limited as far as practicable.		
SMC-LV7	Throughout Proposed Scheme	Pre-Construction	All existing trees and shrubs not affected by the construction of the permanent works shall be fenced off with a suitable type of temporary fencing in accordance with BS5837. Fencing shall extend to the drip line of the tree canopies (unless otherwise agreed by an arboricultural advisor), and shall be erected prior to any construction activities in that area and shall remain for the entire period of construction in that area.	To protect existing trees and shrubs unaffected by the Proposed Scheme.	None required
n/a (note)	*n/a*	*n/a*	*Further to the above, mitigation items **SMC-E7** and **SMC-E8** (as detailed in Table 6: Ecology and Nature Conservation) will be implemented to protect vegetation which is identified to be retained.*	*To protect vegetation which is identified to be retained.*	*n/a*
Project Specific Mitigation					
P12-LV8	Tomatin North Grade Separated Junction	Pre-Construction and Construction	The Tomatin North GSJ will be subject to an extensive planting strategy comprising a mixture of planting types, with woodland planting focused on the eastern side of the junction, extending across the embankments associated with the slip roads, the aim being to limit awareness of the new features within the setting of the River Findhorn. Mixed and coniferous woodland will combine with scattered tree groups to soften the appearance of engineered slopes and tie into broader areas of mixed woodland that exists to the south. Riparian woodland will be used along the toe of the slope, in association with proposed SuDS ponds (P1-A and P2-A), to reflect the location within the context of the River Findhorn	To reduce appearance of engineered slopes and to tie in to existing woodland	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation of Approval Required
P12-LV9	Tomatin North Grade Separated Junction, north of Porter's Lodge and Sandside	Pre-Construction and Construction	Specific planting in the form of feathered trees adjacent to the turning area for Tomatin GSJ to the north of Porter's Lodge and Sandside.	To provide screening to the properties	None required
P12-LV10	Chainage 1200-1800	Pre-Construction and Construction	Planting strategy to focus on the reformation of the edges of these larger areas of planting using coniferous woodland.	Integrate with the wider planting framework, offset habitat loss and reinforce the screening capability of the existing planting in screening several nearby properties including Tigh an Allt and The Bellhouse.	None required
P12-LV11	Chainage 1900-2700	Pre-Construction and Construction	Planting strategy using groups of scattered trees and smaller blocks of mixed woodland.	To reflect the more open nature of surrounding landscape and allow opportunities for inter-visibility.	None required
P12-LV12	Chainage 2700-3300	Pre-Construction and Construction	Mosaic of different planting types, with the focus on extensive blocks of coniferous woodland, reforming the edge of Dalmagarry Quarry. Planting strategy for the re-alignment of the Dalmagarry Burn and proposed SuDS pond (P4-B), with the focus on the use of riparian woodland and groups of scattered trees.	To tie in Ruthven Link Road and the existing Ruthven Road. To reflect the riverine landscape and form new and varied ecological habitats within the floodplain.	None required
P12-LV13	Dalmagarry Burn Crossing, North of Dalmagarry Farm	Pre-Construction and Construction	Screen planting around the proposed crossing of the Dalmagarry Burn, comprising riparian and mixed woodland planting. Dispersed groups of trees will be planted to the north of Dalmagarry Farm, tying into the Moy LILO.	To provide a visual screening to the residential property within the Dalmagarry Farm complex.	None required
P12-LV14	Moy LILO	Pre-Construction and Construction	Planting strategy to include several groups of scattered trees within the slip roads, along with small pockets of riparian woodland associated with the proposed SuDS ponds (P4-A and P4-B).	To reflect the open nature of the wider landscape and offset habitat loss.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation of Approval Required
			Planting to increase in form and extent to the north of the junction, with blocks of mixed woodland proposed across the embankment between the mainline and the B9154. Additional blocks of mixed woodland adjacent to the northbound carriageway along with several groups of scattered trees to tie into the mature planting that exists along the Highland Main Line railway.		
P12-LV15	Chainage 4900-6000	Pre-Construction and Construction	Planting strategy to avoid extensive areas of planting to reflect the open characteristics of this landscape. Narrow belts of mixed woodland either side of the mainline, between chainage 5300 and 6000.	To replace woodland habitat removed, and to tie into existing landscape.	None required
P12-LV16	Lynebeg LILO and Lynebeg Underpass	Pre-Construction and Construction	Planting strategy for larger blocks of mixed woodland. In addition, blocks of riparian woodland in association with the SuDS ponds (P7-A and P7-B) and replacement pond. Individual tree planting along the B9154, at the tie in with the Lynebeg LILO.	To reflect the natural occurrence of wet woodland, riparian woodland is proposed to integrate with existing landscape features and offset habitat loss.	None required
P12-LV17	Chainage 6600-6750	Pre-Construction and Construction	North of the Lynebeg LILO coniferous woodland is proposed adjacent to the northbound carriageway, between chainage 6600 and 6750. North of this planting to use groups of scattered trees across engineered slopes and in association with the proposed SuDS ponds (P9-A and PX-A).	Tie in planting to existing coniferous woodland to the north and south.	None required
P12-LV18	North of chainage 7600	Pre-Construction and Construction	Narrow belts of coniferous planting reflecting the broader landscape framework.	Tie into existing plantation woodland and offset habitat loss through use of coniferous planting.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation of Approval Required
P12-LV19	Allt Creag Bheithen	Pre-Construction and Construction	The proposed SuDS pond at chainage 9300 (PY-A), lying within the vicinity of the Allt Creag Bheithen watercourse has riparian woodland and further groups of scattered trees associated with it. The proposed Forestry Access Road to the north of the chainage 10000 and tying back to the above SuDS pond will have linear belts of coniferous woodland planted either side.	To enhance biodiversity, offset habitat loss and reflect plantation characteristics.	None required
P12-LV20	Scheme wide	Pre-Construction and Construction	Species rich mixes for the majority of grass verges with the aim of integrating these into the wider landscape character. The exception to this will be the use of less diverse grass species in areas associated with visibility splays which are capable of withstanding regular cutting.	To integrate the grass verges into the wider landscape character.	None required
P12-LV21	Scheme wide	Construction	The construction programme will be kept to the minimum practicable time to reduce the duration of any landscape and visual impacts and areas will be cleared for construction as close as possible to works commencing and topsoiling, reseeding and planting shall be undertaken as soon as practicable after sections of work are complete.	To reduce landscape and visual impact of works.	None required.
P12-LV22	Scheme wide	Construction	As far as practicable, plant and material storage areas will be appropriately sited. Where possible, these should be located where existing features such as trees can be used to screen them from visual receptors. Where this is not possible, screening can be achieved if necessary using bunds or embankments which may become part of the permanent works. Alternatively, temporary screens can be erected, designed and painted to be inconspicuous in their surroundings.	To minimise the visual impact as far as possible.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation of Approval Required
P12-LV23	Scheme wide	Construction	The construction shall be managed such that the loss of any existing woodland, scrub, heath, mire, grassland vegetation, marshland, swamps and isolated trees and shrubs not affected by the permanent works is limited as far as practicable.	This will reduce the impact of the Proposed Scheme as far as practicable.	None required
P12-LV24	Chainage 320 - 600 (southbound)	Construction	The embankment adjacent to the southbound carriageway of the A9 has been steepened to a gradient of 1:2 in order to reduce the potential need for felling.	This will reduce the potential need for felling.	None required
P12-LV25	Chainage 1470 – 1940 (southbound)	Construction	The cutting adjacent to the southbound carriageway of the realigned Ruthven-Tomatin link road has been eased out to a gradient of 1:6 in order to better integrate the Proposed Scheme into the adjacent landscape and allow for the potential for the land to be returned for productive use.	This will allow for the potential for the land to be returned for productive use and better integration of the Proposed Scheme into the landscape.	None required
P12-LV26	Chainage 4390 – 4800 (southbound)	Construction	The embankment adjacent to the southbound carriageway of the A9 has been adjusted to a gradient of between 1:2.3 and 1:4.3 as necessary to tie into the existing B9154.	To tie into the existing B9154.	None required
P12-LV27	Chainage 6900 – 7300 (northbound)	Construction	The cutting adjacent to the northbound carriageway has been eased out to a gradient of 1:4 to integrate the Proposed Scheme into the adjacent landscape.	To integrate the Proposed Scheme into the landscape.	None required
P12-LV28	Chainage 7300 – 8100 (southbound)	Construction	The embankment adjacent to the southbound carriageway has been eased out to a gradient of 1:8 to integrate the Proposed Scheme into the adjacent landscape and allow for the potential for the land to be returned to the landowner.	This will allow for the potential for the land to be returned for productive use and better integration of the Proposed Scheme into the landscape.	None required

Table 21.8: Cultural Heritage

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation of Approval Required
Standard A9 Mitigation					
SMC-CH1	Throughout the Proposed Scheme	Construction	The Contractor will consult with the relevant local authority and Historic Environment Scotland (HES) should any archaeological or cultural heritage finds or sites be discovered or revealed during construction to enable appropriate measures to be implemented to mitigate potential impacts.	To enable appropriate mitigation measures to be implemented to mitigate impacts on assets found during construction.	Relevant Local Authority and Transport Scotland's cultural heritage advisor. HES if affecting Scheduled Monument, Category A Listed Building, Historic Battlefield or Garden & Designed Landscape.
Project Specific Mitigation					
P12-CH2	Refer to description	Pre-construction	Archaeological Trial Trenching will be undertaken in advance of construction to mitigate the impact on a number of potential archaeological sites. These final locations proposed for trenching will be discussed and agreed with the Highland Council Historic Environment Team.	To make a permanent record of any affected archaeological remains.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.
P12-CH3	Throughout the Proposed Scheme	Pre-construction and Construction	A permanent record of any affected previously unknown archaeological remains to be made which can include the use of strip, map and sample measures in advance of construction to mitigate the impact upon any such sites discovered during the course of the works.	To make a permanent record of any affected previously unknown remains.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor. Historic Environment Scotland if mitigation includes Scheduled Monument, Category A Listed Building, Historic Battlefield or Garden & Designed Landscape
P12-CH4	Throughout the Proposed Scheme	Construction	A permanent record of any affected archaeological remains to be made through an archaeological watching brief to be undertaken	To make a permanent record of any affected archaeological remains	The Highland Council Historic Environment Team and Transport

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation of Approval Required
			during construction in order to mitigate the impact on the Dunkeld – Inverness Military Road	associated with the Military Road	Scotland's cultural heritage advisor.
P12-CH5	Refer to description	Pre-Construction	An earthwork (measured) survey to be carried out at sites 31 & 43 (Military Road), site 36 (Alt Na Frithe Bridge) and 55 (Wolf Trap).	To make a permanent record of any affected archaeological remains.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.
P12-CH6	Site 84	Pre-Construction	A metal detecting survey to be carried out at the possible location of the Rout of Moy (site 84).	To locate any evidence.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.
P12-CH7	Site 35	Pre-Construction	A Level 2 Building recording survey will be made of the Tomatin Observation Post prior to its demolition.	To record the Tomatin Bunker prior to its demolition	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.
P12-CH8	Throughout the Proposed Scheme	Pre-Construction and Construction	Archaeological excavation will be undertaken in advance of construction (if possible) to mitigate the impact upon any remains which are uncovered during the trial trenching. Other sites, such as those located during the geophysical survey may also be candidates for full excavation, rather than trial trenching. Exact areas will be discussed and agreed with the Highland Council Historic Environment Team.	To make a permanent record of any affected archaeological remains.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor. Historic Environment Scotland if mitigation includes Scheduled Monument, Category A Listed Building, Historic Battlefield or Garden & Designed Landscape
P12-CH9	Throughout the Proposed Scheme	Pre-Construction	A photographic record of the current landscape (particularly in areas where large new infrastructure, such as junctions and bridges) will be undertaken to record the existing landscape prior to construction of the Proposed Scheme	To make a permanent record of the current historic landscape.	The Highland Council Historic Environment Team and Transport Scotland's cultural heritage advisor.

Table 21.9: Air Quality

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation of Approval Required
Standard A9 Mitigation					
SMC-AQ1	Throughout Proposed Scheme	Construction	In relation to minimising fugitive dust emissions from earthworks, material storage and concrete batching the following mitigation items will be implemented: · stockpiles and mounds will be at a suitable angle of repose to prevent material slippage, will be enclosed or securely sheeted, and/or kept damped as necessary during dry weather; · the surfaces of any long-term stockpiles which give rise to a risk of dust or air pollution will be covered with appropriate sheeting or will be treated to stabilise the surfaces; · mixing of large quantities of concrete will be carried out only in enclosed or shielded areas; · all handling areas will be maintained in a dust free state as far as is practicable with sprinklers and hoses used to prevent dust escaping from the site boundaries; and · procedures will be established so that the site is regularly inspected for spillage of dusty or potentially dusty materials and any such spillage would be dealt with promptly where necessary to prevent dust nuisance.	To reduce fugitive dust emissions from earthworks, material storage and concrete batching.	None required
SMC-AQ2	Throughout Proposed Scheme	Construction	In relation to minimising dust from vehicle movements within the site the following mitigation items will be implemented: · the Contractor will employ appropriate measures, such as covering materials deliveries or loads entering and leaving the construction site by a fixed cover or sheeting appropriately fixed and	To reduce dust from vehicle movements.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation of Approval Required
			suitable for the purposes of preventing materials and dust spillage; · where unsurfaced routes are identified as creating dust emissions during periods of dry weather, surfaces will be regularly dampened down using water bowsers; and · appropriate speed limits will be established and enforced over all unmade surfaces.		
SMC-AQ3	Throughout Proposed Scheme	Construction	In relation to appropriate cleaning of public roads the following mitigation items will be implemented: · the edges wheel washing facilities will be installed as required and heavy vehicles will be required to use the facilities prior to leaving the site; · subject to approval from Transport Scotland and the network operator, public roads immediately outside the site entrance will be cleaned using vacuum sweeper brushes and other specialised road cleaning equipment as necessary to maintain an appropriate state of cleanliness; and · roads and footpaths adjacent to the Proposed Scheme will be cleaned, with damping if necessary.	To reduce potential of dust from public roads	Approval required from the Roads Authority
Project Specific Mitigation					
P12-AQ4	Throughout Proposed Scheme	Construction	Suitable mitigation measures to be employed for a 'medium' risk category site as identified in the IAQM Construction Dust Guidance.	To reduce the potential for dust emissions to cause nuisance.	None required

Table 21.10: Noise and Vibration

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-NV1	Throughout Proposed Scheme	Pre-Construction & Construction	A scheme of noise and vibration monitoring will be agreed with the Environmental Health Officer of Perth & Kinross Council, and noise and vibration limits will be contained within the Construction Environmental Management Plan (refer to Mitigation Item **SMC-S1**). The contractor will be required to develop and implement a Noise and Vibration Management Plan to meet these requirements.	To predict the noise and vibration levels during the construction of the Proposed Scheme. It will include the design of receptor specific mitigation, over and above the standard mitigation detailed in **SMC-NV2**, where required.	The Highland Council Environmental Health Officer
SMC-NV2	Throughout Proposed Scheme	Pre-Construction & Construction	Best Practicable Means will be used to limit the level of noise to which operators and others in the vicinity of site operations would be exposed. This includes the following: · the hours of working will be planned and account will be taken of the effects of noise upon persons in areas surrounding site operations and upon persons working on site, taking into account the nature of land use in the areas concerned, the duration of work and the likely consequence of any lengthening of work periods; · any work outside of normal working hours will be agreed with the relevant local authority; · where reasonably practicable, quiet working methods will be employed, including use of the most suitable plant, reasonable hours of working for noisy operations, and economy and speed of operations; · permanent noise mitigation measures such as acoustic screens and earthwork bunds are to be constructed as early as practical;	To reduce, as far as practicable, the level of noise to which operators and others in the vicinity of site operations would be exposed.	The Highland Council if any working outwith normal working hours

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			· noise will be controlled at source, for example, by modification of existing plant/equipment, its use and location and ensuring maintenance of all noise-generating equipment; · the spread of noise will be limited, i.e. by distance between source and receiver and/or screening; · on-site noise levels will be monitored regularly, particularly if changes in machinery or project designs are introduced, by a suitably qualified person appointed specifically for the purpose. A method of noise measurement would be agreed with the local authority prior to the commencement of site works; · on those parts of a site where high levels of noise are likely to be a hazard to persons working on the site, prominent warning notices will be displayed and, where necessary, ear protectors will be provided; · proper use of plant with respect to minimising noise emissions and regular maintenance in line with plant manuals; · where practicable, vehicles and mechanical plant used for the purpose of the works will be fitted with effective exhaust silencers and will be maintained in good, efficient working order; · where appropriate, inherently quiet plant will be selected. All major compressors will be 'sound reduced' models fitted with properly lined and sealed acoustic covers which will be kept closed whenever the machines are in use and all ancillary pneumatic percussive tools will be fitted with mufflers or silencers of the type recommended by the manufacturers;		

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			· machines in intermittent use will be shut down in the intervening periods between work or throttled down to a minimum; · all ancillary plant such as generators, compressors and pumps will be positioned so as to cause minimum noise disturbance. If necessary, acoustic barriers or enclosures will be provided; and · adherence to the codes of practice for construction working and piling given in British Standard 'BS 5228:2009+A1:2014' and the guidance given therein minimising noise emissions from the site. In addition, THC would be consulted regarding any proposed working out-with normal working hours.		
n/a (note)			*In addition to the above, mitigation item S3 will also mitigate potential for noise disturbance through the overall communications strategy for the A9 Dualling Programme and appointed Community Liaison Officer and liaison team.*		
Project Specific Mitigation					
P12-NV3	A9 Tomatin GSJ, Porters Lodge	Construction and Operation	A 210m long, 2m high acoustic barrier to be installed (location on Figure 13.8e) with an acoustic performance in accordance with BS EN 1793-2:2012 (Category B2). The form of the barrier should be designed and constructed to appropriately sit in the landscape.	To reduce predicted traffic noise impacts to negligible.	None required
P12-NV4	The Bellhouse	During Construction	Use of a temporary noise barrier if required to reduce construction noise impacts at and near The Bellhouse to below the significance threshold. BS 5228 advises that the approximate acoustic attenuation provided by a barrier will be 5 dB when the top of the plant is just visible to the receiver over	To reduce impact on The Bellhouse residents.	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			the noise barrier and 10 dB when the barrier completely obscures the noise sources from the receiver.		
P12-NV5	Throughout Proposed Scheme	During Construction	Specific mitigation may be required for locations where potentially significant effects are shown. This mitigation would be confirmed when the final selection of plant and equipment is known and the impacts reassessed. Mitigation may take the form of solid site hoardings. Depending on the scheduling of works there may be a need to consider specific arrangements to manage night-time construction impacts for residents at Moy who are close to Lynebeg Rail Underpass. Such arrangements will be agreed between the Contractor and residents.	To reduce impact on residents during construction.	None required

Table 21.11: Materials

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
Standard A9 Mitigation					
SMC-M1	Throughout Proposed Scheme	Pre-Construction & Construction	Prior to construction a Site Waste Management Plan (SWMP) will be developed as part of the CEMP (see **Mitigation Item SMC-S1**) to set out how all construction phase materials will be managed and it will be updated regularly during the construction of the Proposed Scheme. The SWMP will identify, prior to the start of construction works, the types and likely quantities of wastes that may be generated and it will set out, in an auditable manner, how waste will be reduced, re-used, managed and disposed of in accordance with relevant Zero Waste Scotland Guidance. The SWMP will include	To set out how all construction phase materials will be managed.	Consultation and approval from the Local Authority and/or SEPA as applicable to regulatory requirements.

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
			specific materials management and soil management plans developed under voluntary and industry regulated Codes of Practice including: · Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (DEFRA, 2009); · Land Remediation and Waste Management Guidelines (SEPA, 2009); and · Promoting the Sustainable Reuse of Greenfield Soils in Construction (SEPA, 2010). Appropriate waste minimisation and associated KPI targets will also be included.		
SMC-M2	Throughout Proposed Scheme	Pre-Construction & Construction	The Contractor will comply with all relevant waste legislation in relation to waste handling, storage, transport and disposal (e.g. The Waste Framework Directive) and consultation with SEPA for advice on waste practice, licences and exemptions where appropriate.	To ensure waste handling, storage, transport and disposal is compliant with all relevant waste legislation.	Consultation with SEPA
SMC-M3	Throughout Proposed Scheme	Pre-Construction, Construction & Post-Construction	The Contractor will apply the principles of the 'Waste Hierarchy' (Prevention, Prepare for Reuse, Recycling, Other Recovery, Disposal) to minimise waste generation, maximise re-use of site-won materials on-site and minimise the need for disposal of waste. Where re-use is not possible within the Proposed Scheme, alternative re-use and recycling options will be sought off-site with disposal the final option, with clear justification of options provided.	To reduce waste generation, maximise re-use of site-won materials on-site and reduce the need for disposal of waste.	None required
SMC-M4	Throughout Proposed Scheme	Pre-Construction Construction Operation	The Contractor will implement Zero Waste Scotland's Design for Resource Efficient Construction Principles.	To make the best use of materials, over the lifecycle of the Proposed Scheme's built	None required

Mitigation Item	Approximate Chainage/Location	Timing of Measure	Description	Mitigation Purpose/Objective	Specific Consultation or Approval Required
				assets, to reduce embodied carbon emissions	
SMC-M5	Throughout Proposed Scheme	Pre-Construction Construction	The key material elements (i.e. aggregates, asphalt, cement, precast concrete products, ready-mixed concrete and steel) used within the proposed scheme shall be specified to be responsibly sourced.	To reduce impacts associated with the extraction and manufacture of materials.	None required
SMC-M6	Throughout Proposed Scheme	Pre-Construction Construction	All timber and timber products shall be sourced from independently verifiable legal and sustainable sources.	To reduce impacts associated with the extraction and manufacture of materials.	None required
SMC-M7	Throughout Proposed Scheme	Pre-Construction Construction	Alternatives to primary aggregates shall be investigated, including opportunities to use recycled or secondary aggregates in the construction of the Proposed Scheme; either sourced from construction, demolition and excavation waste obtained on-site or off-site; or secondary aggregates obtained from a non-construction or post-consumer or industrial by-product source.	To reduce impacts associated with the extraction, manufacture and transport of materials and to reduce waste generation, maximise re-use of site-won materials on-site and reduce the need for disposal of waste.	None required
n/a (note)	*n/a*	*n/a*	*Further to the above, the following mitigation items detailed in Table 21.2 (Community and Private Assets), Table 21.4 (Geology, Soils and Contaminated Land), Table 21.5 (Road Drainage and the Water Environment) and Table 21.9 (Air Quality) will be implemented to ensure the appropriate management and handling of materials: SMC-CP8, SMC-G3, SMC-G8, SMC-G9, SMC-G11, SMC-G15, SMC-W2, SMC-W6 to SMC-W10, SMC-AQ1 and SMC-AQ2.*	*To ensure the appropriate management and handling of materials:*	*n/a*

21.2. References

[i] CIRIA (2015) SUDS Manual C753
[ii] http://www.netregs.org.uk/environmental-topics/pollution-prevention-guidelines-ppgs-and-replacement-series/guidance-for-pollution-prevention-gpps-full-list/ (Accessed 13/04/2016)
[iii] SNH (undated) Otters and Development http://www.snh.org.uk/publications/on-line/wildlife/otters/mitigation.asp
[iv] SEPA (2000) Ponds, Pools and Lochans: Guidance on good practice in the management and creation of small waterbodies in Scotland
[v] SEPA (2008) Engineering in the Water Environment Good Practice Guide: Bank Protection Rivers and Lochs
[vi] SEPA (2010) Engineering in the Water Environment: Good Practice Guide - River Crossings
[vii] SEPA (2015) Position Statement WAT-PS-06-02 - Culverting of Watercourses – Position Statement and Supporting Guidance.