

FEARNA STORAGE

Fearna Pumped Storage Hydro Scheme EIA Report

Chapter 19 – Mitigation Schedule

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19. Mitigation Schedule

19.1 Introduction

- 19.1.1 The purpose of this Mitigation Schedule is to provide a summary of mitigation measures proposed in the various chapters of the EIA Report to minimise or offset any potential negative environmental effects of the Proposed Development. These are presented in **Table 1 – Mitigation Schedule** below.
- 19.1.2 During the construction phase, these would be detailed within and implemented by means of a Construction Environmental Management Document (CEMD). A draft CEMD is included with the EIA Report at **Appendix 2.2 – Outline CEMD**.

Table 1 – Mitigation Schedule

Ref	Subject	Mitigation Measure	EIAR Reference
Chapter 2 – The Proposed Development			
2-1	Use of Loch Quoich as the lower reservoir	The use of Loch Quoich as the lower reservoir avoids the need to create a new lower reservoir. The existing dams on Loch Quoich provide sufficient water storage for the Proposed Development to be co-located with the existing Quoich Hydro project. The Proposed Development would operate within the existing operational range of Loch Quoich and would not cause any negative impacts on spill or drought conditions	Chapter 2, para 2.4.23
2-2	Upper dams created using rockfill	Several dam types would be potentially feasible to create the upper reservoir, however the availability of rock within the inundation area supports the selection of rockfill dams as the preferred option. This will reduce the volume of imported material required, particularly cement in comparison to other dam types.	Chapter 2, para 2.4.2
2-3	Underground waterway system	The system to transfer water between the lower and upper reservoirs is proposed to be in underground tunnels, therefore no infrastructure will be visible at ground level. The lower inlet/outlet structures would also be submerged within Loch Quoich, thereby mitigating visual impact	Chapter 2, para 2.4.14
2-4	Re-use of the disused Quoich Quarry	The disused quarry area would provide a suitable location for the access tunnel portal which provide the entrance to the access tunnel leading to the pressure tunnels. This would avoid having to create a tunnel portal elsewhere on the open hill	Chapter 2, para 2.4.18
2-5	Powerhouse Architecture	The powerhouse building would be faced on its main elevations with site-won stone within metal mesh structures and also have a profiled green roof. This would mitigate the visual impact of the building by using natural materials which would weather and vegetate over time, thereby reflecting the surrounding landscape.	Chapter 2, para 2.4.34
2-6	Powerhouse landscape mitigation	The area surrounding the powerhouse complex would be subject to landscape mitigation measures, including the construction of landforms which would replicate the surrounding topography, native woodland planting and careful reinstatement.	Chapter 2, para 2.4.34
2-7	Powerhouse landscape mitigation	The shoreline around the powerhouse area would be protected by site-won rock armour. Due to the infrequency of Loch Quoich reaching high levels, this armour is proposed to be vegetated to mitigate visual impacts and to encourage ecology.	Chapter 2, para 2.4.34
2-8	Re-use of the disused Quoich Quarry	The area adjacent to the proposed powerhouse was previously used as the quarry to construct the Quoich Dam in the 1950s. This area will be raised using material arisings from the powerhouse and tunnel system to create the area for the HV switchyard. The re-use of existing disused infrastructure reduces the requirement to create new areas for infrastructure. The quarry area also provides a degree of natural screening, which will be supplemented by the creation of screening landforms and planting.	Chapter 2, para 2.4.37
2-9	Use of the Southern Access Route (SAR)	Use of the Southern Access Route would mitigate traffic, noise and disturbance and improve safety. The SAR comprises mainly existing forest roads which would be upgraded, new sections of access track and widening of approximately 2.3km of the C1144 public road	Chapter 2, para 2.4.49
2-10	Access track material	Access tracks have been sensitively designed to balance cut and fill material where possible. Tracks would then be capped using stone won from the site borrow pits and surface excavations.	Chapter 2, para 2.4.73
2-11	Access track widths	Access tracks would be narrowed following completion of construction in order to mitigate visual impact, reduce runoff and encourage ecological development. The use of turf and carbon-rich soils from track excavations and elsewhere on the site in accordance with best practice would be key to ensuring that mitigation opportunities are maximised.	Chapter 2, para 2.4.74
2-12	Habitat Compensation and Enhancement	"The Proposed Development would include a significant package of habitat compensation and enhancement works, both within the site and adjacent landholdings. These would include i) peatland restoration ii) native tree planting (including riparian planting); iii) removal of non-native flora including rhododendron and exotic tree species within areas of Caledonian pine forest;	Chapter 2, para 2.4.79

Ref	Subject	Mitigation Measure	EIAR Reference
2-13	Mass Balance Strategy	The Proposed Development aims to manage excavated rock and other soil materials to achieve a mass balance, whereby all excavated material would be re-used beneficially on site rather than exported. This would minimise the environmental impact of the Proposed Development by avoiding the need to transport bulk materials to the site wherever possible and by minimising the generation of any waste material that would need to be taken off site for disposal.	Chapter 2, para 2.5.1
2-14	Upper Reservoir borrow pits with inundation area	The upper reservoir borrow pits would lie within the inundation area and below the maximum water level. This means that the borrow pits would always be at least partially submerged and when the upper reservoir was at or near full, would be invisible. Extracting rock from within the upper reservoir also maximises the storage capacity and system benefit of the project.	Chapter 2, para 2.6.1
2-15	Re-use of existing borrow pits	Existing borrow pits along the SAR would be utilised to provide stone for the upgrade of existing tracks, the construction of new track sections and site compounds. This reduces the requirement to locate and strip new borrow pits where the ground conditions may be uncertain. Excess material can then be placed back in the borrow pits to allow reinstatement	Chapter 2, para 2.6
2-16	Main construction compound with accommodation	The main construction compound is proposed to be located approximately 5km from the main PSH site in an area of commercial woodland. This compound would house staff who require to live on-site. A shuttle system would operate to transport staff along the SAR and also to their place of work on the site. This would mitigate staff travelling on the SAR and to the main site in their own vehicles and mitigate traffic and disturbance impacts. Additionally, it this arrangement would mitigate the housing pressure in the local area	Chapter 2, para 2.9.6
2-17	Grid connection to compounds	The Applicant has applied for grid connections to connect the construction compounds to the electricity network. This would vastly reduce the reliance on fossil fuel generation for temporary site power and may also facilitate the use of some electric vehicles and equipment. The reduction in fossil fuel use would in turn reduce carbon emissions and noise from the construction areas.	Chapter 2, para 2.9.13
2-18	Accommodation within compound SC3	Staff accommodation would be provided within the upper reservoir compound, SC3. This would allow staff (weather permitting) to remain within the upper reservoir whilst on rota and not have to travel back to the main compound SC1 at the end of shifts. This would mitigate traffic and disturbance.	Chapter 2, para 2.9.17
2-19	Implementation of CEMD	Construction mitigation and environmental protection measures would be managed through a suite of documents under the umbrella of a Construction Environmental Management Document (CEMD). An outline CEMD is attached at Appendix 2.3 – Outline Construction Environmental Management Document.	Chapter 2, para 2.12
2-20	Construction lighting	For safety reasons, temporary lighting would be required for all external construction activities during hours of darkness and low natural light. This lighting would be designed to minimise illumination, glare or light spillage to nearby receptors.	Chapter 2, para 2.14.1
2-21	Operational lighting	Once operational, external lighting would only be provided at key areas, such as the lower control works but would only be used during essential operational and maintenance activities, for example if a switching operation was necessary in the external switchyard. No lighting would be operated by PIRs. Prior to the commencement of Proposed Development, final design details for the external lighting during operation would be agreed with the Planning Authority.	Chapter 2, para 2.14.5
2-22	Electric Car Charging Point Strategy	Wherever practicable, vehicles used in the operation of the Proposed Development would be electric vehicles (EVs). The powerhouse would be provided with sufficient charging points for all vehicles used to operate the scheme, as well as for staff vehicles to recharge whilst at work.	Chapter 2, para 2.15.1
Chapter 3 – Consideration of Alternatives and Design Evolution			
3-1	Design evolution to mitigate environmental effects	The Proposed Development has been subject to extensive design evolution in response to the constraints identified as part of the baseline studies, intended to reduce environmental effects. These are detailed in Chapter 3 - Consideration of Alternatives and Design Evolution.	Chapter 3 - Consideration of Alternatives and Design Evolution

Ref	Subject	Mitigation Measure	EIAR Reference
Chapter 6 – Hydrology and Water Management			
6-1	Construction flows from Loch Fearn	During construction of the Fearn and Coire Dubh dams the natural flow from Loch Fearn to the Allt Fearn would bypass the works. As the temporary diversion at the Fearn dam works would be achieved by over pumping, the pumping methodology will require to be reliable and with built in redundancy such that there is minimal risk of depleting the downstream Allt Fearn. The full methodology for the temporary dewatering and flow bypass at Loch Fearn will form part of the Construction CAR Licence to be agreed with SEPA.	Chapter 6, para 6.7.6
6-2	Drainage flow paths maintained	The drainage which would be affected by the upgrades to the existing forest roads or C1144 would be amended to maintain existing flow paths and to the satisfaction of the local roads authority or landowner (FLS) specifications.	Chapter 6, para 6.7.10
6-3	Watercourse crossings to SEPA's good practice guidance	Any existing bridge structures and other water crossings that require amendment or replacement would replicate the existing and designed and installed in accordance with SEPA's Construction of River Crossings Good Practice Guide. All structures would be proposed to provide clear span over the watercourse where possible.	Chapter 6, para 6.7.11 to 6.7.12
6-6	Operational compensation flows at Allt Fearn	The operation of the Fearn dam would have some impact on the downstream watercourse which is approximately 1km long prior to discharging into Loch Quoich. Compensation flows are yet to be finalised through the CAR licencing process, however agreed flows would be released through the Fearn dam in accordance with the granted CAR Licence.	Chapter 6, para 6.7.16
6-7	Operational compensation flows at Allt Mheil	The Coire Dubh Dam will have some impact on the unnamed tributary on which it is located. Compensation flows are yet to be finalised through the CAR licencing process, however agreed flows would be released through the Coire Dubh dam in accordance with the granted CAR Licence. Additional flows to maintain generation at the Allt Mheil hydro scheme to achieve its expected annual output would also be released through the dam structure.	Chapter 6, para 6.7.17
Chapter 7 – Landscape and Visual			
7-1	Use of brownfield area	The lower works have been targeted towards an existing brownfield area, a disused quarry previously used in the construction of the Quoich Hydroelectric Scheme. Within the upper reservoir area methods such as the location of borrow pits, compound areas and temporary tracks within the area to be inundated would limit the influence of temporary works as far as possible.	Chapter 7, para 7.8.2
7-2	Positioning of dams to reduce prominence	The positioning of dams has tried to minimise their prominence within the terrain including stepping back the Fearn dam from the crest of the ridge and applying a curved footprint to this dam. This would reduce the potential for a straight line on the skyline when seen from below and would help to tie the dam profile to the adjacent topography. Further refinements would be considered through detailed design to try and create profiles and shapes for the reservoir and dams that tie into the surrounding topography in as natural a way as possible.	Chapter 7, para 7.8.2
7-3	Dam face landscape considerations	The front face of the dams would be too high and steep to turf but would be composed of local excavated rock which should reflect the similar tones and textures of scree areas on the surrounding mountain sides. As far as is practicable, rock for the visible front faces would be mixed to prevent changes in colour through excavated horizons giving a striped appearance. Weathering and growth of moss and lichens would be encouraged to soften the appearance of the dams over time, in a similar way to the existing Quoich Dam.	Chapter 7, para 7.8.2
7-4	Vegetation reinstatement	Vegetation would be re-instated across all areas disturbed by the works and not required for operational use. A high standard of re-instatement would be key to re-establishing vegetation types appropriate to the receiving landscape. This would include the careful stripping, storage and replacement of existing turves and peat / soils to allow natural regeneration to occur. A suitable upland seed mix may be used to supplement natural	Chapter 7, para 7.8.2

Ref	Subject	Mitigation Measure	EIAR Reference
		regeneration and help to reduce erosion, whilst the native seed bank establishes, if considered necessary. Further details of reinstatement proposals are included in Appendix 2.2: Outline CEMD .	
7-5	Narrowing of roads on completion of construction	Access tracks to the upper reservoir and powerhouse would be narrowed on completion to the minimum width that operational requirements would allow to reduce their visible footprint within the landscape. Narrowing of tracks would provide the opportunity to incorporate landform to help these assimilate into the surrounding landscape, including mounding on the lower side to reduce visibility of the running surface. The existing access track for Allt a' Mheil hydro scheme would also be narrowed to an ATV track with verges and cuttings reinstated to minimise the cumulative effects of multiple tracks leading up from the north shore of Loch Quoich.	Chapter 7, para 7.8.2
7-6	Realigned footpath design detailing	The re-aligned footpath to Spidean Mialach would be constructed with care and attention, using locally sourced materials to reflect existing mountain footpaths and stalkers' paths within the area. Special consideration would be given to the detailing of the route across the Fearna Dam to try to create an engaging experience where the Proposed Development can be experienced positively as part of the journey into the mountain environment.	Chapter 7, para 7.8.2
7-7	Native woodland planting for landscaping	Planting of native woodland and scrub is proposed around the powerhouse and switchyard site, as well as earthworks to tie it into the surrounding topography in a natural way, which would help accommodate this area into the wider landscape.	Chapter 7, para 7.8.2
7-8	Riparian woodland planting for landscaping	Planting is proposed alongside the Gearr Garry and landform is proposed where appropriate alongside the new section of the SAR which would help to minimise the appearance of this new section of track within the valley below Quoich Dam and set it within the landscape context.	Chapter 7, para 7.8.2
7-9	Landforms to reduce visual impacts	Landform is proposed adjacent to the site compound to reduce temporary visual impacts and effects of lighting on receptors within Glen Garry. Lighting mitigation such as shielding would also be used to minimise effects of lighting on residents at these properties and surrounding landscape areas during construction.	Chapter 7, para 7.8.2
7-10	Wider landscape improvements through BNG measures	Other measures for Biodiversity Net Gain (BNG) and habitat mitigation including peatland restoration, rhododendron management and riparian planting would also help to improve aspects of the wider landscape setting within which the Proposed Development would be situated and may offset some landscape and visual effects (see Chapter 8: Terrestrial Ecology and Appendix 8.7 – Outline BEMP).	Chapter 7, para 7.8.2
7-11	Landscape Mitigation Programme	The LVIA assumes a scenario whereby all landscape mitigation planting would be planted at the end of the construction period, and therefore would have established by around 15 years of operation, as illustrated on the visualisations (Volume 3a and Volume 3b). The effects of mitigation could be enhanced by planting some areas earlier in the construction period, which is anticipated to be 5 - 6 years long. This could allow planting to provide a level of screening from the beginning of the operational phase. The details of the planting programme would relate in detail to the construction programme, and if deemed possible, could be resolved and detailed in conjunction with the principal contractor. This scenario has not been assessed in the LVIA, but would be recommended, where possible, for areas providing particular landscape and visual benefits, including some areas around the powerhouse and along the new section of the SAR beside Gearr Garry	Chapter 7, para 7.8.3
Chapter 8 – Terrestrial Ecology			
8-1	Avoidance/Minimise Effects on Sensitive Habitats	- By situating borrow pits within areas that would later be inundated (such as the Fearna Reservoir area), the project reduces habitat loss and allows for natural recovery in non-operational areas - By using an already existing reservoir (Quoich reservoir), the project minimises new land disturbance and avoids habitat loss in areas that would otherwise require significant modification. - The SAR was selected to minimise disruption to sensitive IEFs, such as the West Inverness-shire Lochs SPA and SSSI. This route was chosen over the C1144 road to reduce ecological impacts, community disturbance, and landscape changes.	Chapter 8, para 8.6

Ref	Subject	Mitigation Measure	EIAR Reference
		- Existing exiting access tracks would be utilised (and upgraded) where possible, in preference to creating new tracks, in order to reduce land-take of ecologically sensitive habitats. Reducing the width of the access tracks and utilising passing places would minimise land-take. - Only trees directly in the SAR path would be removed, leaving canopy cover as intact as possible and avoiding the creation of large clear-cut areas. - To minimise impacts on ecologically important habitats, the construction of passing places and road widening along the SAR would avoid the clearance of mature trees, especially Scots pine and oak. This approach would preserve important habitat features suitable for pine marten and red squirrel foraging and denning, while also retaining suitable habitats for SBL lichens and bryophytes of conservation concern, which would depend on the retention of mature trees. - The Main Site Compound area has been sited on an area of regenerating clear-fell which is of low conservation importance compared to surrounding semi-natural habitat. - Areas temporarily disturbed by borrow pits and compound sites are planned for restoration, which would allow vegetation to recover and reduce the long-term ecological footprint. - The stretch of road widening of the SAR adjacent to Lochan an Stac has been micro-sited to the north to maximise the distance between the track and the waterbody. - The hill track to the inundation area would align with natural land contours to reduce erosion risks and avoid low-lying wetland areas which are more susceptible to damage from waterlogging and vehicle traffic. - All required peat removal to facilitate the dam, upland track to the inundation area, and western extent of the SAR would be stored and reused for restoration elsewhere on-site, where possible, or used to build bunds along the track edges to restore natural contours and hydrology. - Tracks over peatland habitat have been designed to be as shallow as possible with materials that don't require extensive peat excavation.	
8-2	Avoidance/Minimise Effects on Protected and Other Notable Faunal Species	- The proposed bridge crossings on the River Garry and Gear Garry have been designed sensitively for bats, by maintaining a free flight of 2 m above water level to allow free movement and foraging from Myotis sp. bats; and minimising tree loss in these areas, particularly of mature oaks within the Annex 1 Old sessile oak woods. - Bridges would be used instead of culverts at new watercourse crossing points wherever feasible. These bridges would extend beyond the riverbanks to preserve existing bank vegetation. Where banks would be fully submerged at high water levels, a ledge would be incorporated to support otter movement along the watercourse. - In cases where culverts are used, bottomless culverts would be installed to maintain the natural riverbed, ensuring continuity of the commuting corridor for otters and supporting fish prey species. - The temporary construction lighting is designed to avoid unnecessary illumination or light spill, which can disrupt nocturnal and crepuscular species. - All tracks within the site including the SAR and the hill track to the upper reservoir would be unlit for the duration of the construction and operational phase. - The use of vegetated bunds, especially around the Main Site Compound area, would provide screening for wildlife. - There would be no operational external lighting within the PSH area including the dams, and only task lighting would only be used as required.	Chapter 8, para 8.6
8-3	Habitats mitigations	The following measures would be implemented to reduce impacts across the range of habitats present on-site and within the ZoI:	Chapter 8, para 8.9.1

Ref	Subject	Mitigation Measure	EIAR Reference
		- A Construction Environment Management Document (CEMD) would be produced, detailing environmental management and monitoring measures during the construction phase. - An Environmental Advisor/Manager would be employed to design and implement on-site mitigation strategies as they are required. - An independent Ecological/Environmental Clerk of Works (ECOW) would be employed to audit and report on adherence to the CEMD as well as any other relevant planning consents, environmental permits, legislation and mitigation. - Woodland, blanket bog, and wetland would be retained where possible to maintain resources for wildlife. Where retention is not feasible, compensatory habitat would be provided. - In order to protect retained trees during construction, an Arboricultural Impact Assessment (AIA) including a Tree Protection Plan and Tree Constraints Plan would be undertaken and actions outlined in regards to tree protection would be implemented ahead of works and retained throughout the construction phase. - Fencing would be used to mark the construction boundary to protect off-site habitats and limit access to the works area. No building materials, spoil, machinery, or tools would be stored in areas outside of the fencing. - Machinery/tools and building materials would be stored on an impermeable area such as hardstanding wherever possible. - Low ground pressure vehicles would be used in sensitive habitats, such as wetlands, peatlands, and areas with soft soils, to minimise soil compaction and reduce disturbance to vegetation. These vehicles would be restricted to designated access routes to further limit their impact. Vehicular access would be restricted across unprotected ground outwith the permanent and temporary construction footprint. - Where possible, temporary access would be 'floated' over sensitive habitats (e.g. blanket bog and wet heath) to minimise disruption to hydrology, soil structure and vegetative material. - The western extent of the SAR would be micro-sited to maximise distance from ecologically important pools supporting the A25 vegetation community adjacent to the Gearr Garry. - Strict biosecurity protocol would be adhered to during the construction phase to prevent the introduction of pathogens or diseases, including cleaning and disinfecting construction equipment and vehicles arriving at the site before working near retained woodland, wetland, or blanket bog. - Dust suppression techniques would be utilised during construction, such as water sprays, to minimise dust generation, particularly in dry conditions. Stockpiles of soil/peat and building materials would be situated away from the ancient woodland, wet heath, wetland, and blanket bog boundaries. - A surface water management plan would be produced and adhered to during construction to prevent contaminants from reaching retained wetland, wet heath, or blanket bog habitats and impacting the water quality. - Drainage systems would be designed as far as possible to mimic natural hydrology, preventing water flow alterations in sensitive habitats. - Scottish Environmental Protection Agency (SEPA) pollution prevention guidelines would be followed in order to prevent pollution of watercourses during site clearance/construction works. - Borrow pit areas, except for the existing FLS Poulary Quarry⁵³ which would be left so that FLS can continue material abstraction after construction of the Proposed Development is complete, would be restored by recontouring and replanting with native species once material extraction is complete. - Excavated materials would be stored according to best practice taking care to separate, as far as is reasonable, turves, topsoils, soil and peat layers and boulders. Reinstatement would ensure that turves would be replaced on the surface, to recreate the former habitat as far as is possible	

Ref	Subject	Mitigation Measure	EIAR Reference
		- Excavations would be managed to avoid the formation of temporary waterbodies. - A Peat and Soil Management Plan would be produced to minimise disturbance, protect soil integrity, and support peat conservation. Peat would be stored in moist, cool conditions to prevent drying and oxidation, maintaining its structure and reducing carbon emissions. Consideration would be given to protecting exposed peat areas from erosion with geotextiles such as coir matting or wool pegged in place to aid stability over the winter months. Wherever feasible, excavated peat would be taken to its final location directly, but where the temporary storage of peat is necessary, it would if possible be limited to 1 year before it is placed in its final location. - Before starting work, toolbox talks would be given to all personnel regarding terrestrial invasive plants. - An INNS Management Plan would be produced detailing measures required eradicate and avoid spread of rhododendron and other relevant INNS species within the PDA and all compensatory habitat creation and biodiversity enhancement areas. Treatment of outlying rhododendron shrubs within the upper catchments would be prioritised, working methodically downstream through drainage vectors, otherwise downstream areas may be re-seeded every year.	
8-4	Fauna mitigations	Mitigation measures to protect and minimise disturbance to a range of protected species are summarised below: - Species Protection Plans (SPPs) for otter, pine marten, red squirrel, reptiles, amphibians, invertebrates, and odonates detailing specific mitigation and compensation measures would be included in the CEMD. - A Toolbox Talk would be given to all personnel prior to starting work, including an overview of relevant protected species constraints on-site. - Prior to vegetation removal/inundation of bog pools within the PSH area, and waterlogged ditches along the SAR, azure hawker and northern emerald dragonfly eggs and larvae would be carefully translocated to suitable nearby habitat following BDS guidelines. This process would involve a qualified ecologist identifying and collecting larvae from impacted areas and relocating them to ecologically similar, undisturbed habitats within the vicinity. Dragonfly relocations would aim to preserve larvae populations in the locale and within the same habitats. Larvae/nymphs would not be relocated over unsuitable habitats for each species. - Pre-commencement checks for protected species would be undertaken by the ECoW prior to vegetation clearance. Any otter holt, red squirrel dreys, pine marten dens recorded within the woodland clearance area during the pre-works inspection would require monitoring to confirm their status. Felling or construction works up to 200m from a confirmed or suspected breeding feature would be suspended until the juveniles have dispersed or the feature is confirmed to be of non-breeding status. - An ECoW would be employed to audit adherence to mitigation full time for the duration of the project. - Care would be taken during vegetation clearance/groundworks to ensure wildlife is not harmed. In the event any protected species are found when the ECoW is not in attendance, works would stop, the animal would not be handled, and the ECoW contacted immediately. - Where clearance of long grass or other dense vegetation is required in areas that serve as reptile and amphibian habitat, a two-stage cutting approach would be applied to allow any reptiles, amphibians or small mammals present to disperse of their own volition. The first cut would be made to a height of no less than 150mm, with a minimum of one hour and a visual inspection before a second cut to ground level. Vegetation clearance would be systematically undertaken to encourage the movement of wildlife towards retained habitat, reducing the likelihood of animals being displaced into unsuitable areas. This directional approach aims to guide species safely away from active work zones and into areas where they can find cover and shelter.	Chapter 8, para 8.9.2

Ref	Subject	Mitigation Measure	EIAR Reference
		- Whenever possible, vegetation clearance of sensitive reptile habitat would avoid winter months when these species are in hibernation, generally from mid-October to March, depending on local temperatures and weather conditions. - Lighting utilised during the construction phase would only illuminate working areas and not be directed to adjacent habitats, including woodland, riparian zones, and waterbodies, to avoid disruption to crepuscular and nocturnal species, including otter and pine marten. - If any otter, pine marten or red squirrel are observed on or near the PDA, then works in that area would cease until the animal has dispersed naturally. The project ECoW would be contacted immediately and informed of all sightings. - Avoid vehicles driving over suitable habitat for dragonflies, reptiles, and amphibians such as areas of blanket bog and heathland. - Appropriate covers would be fitted over any excavations at the end of every working day. At the very least, a shallow sloping edge or some form of ramp would be placed in the excavations to allow any animals to climb out. - All temporarily exposed pipes would be capped overnight to prevent animals gaining access and later becoming trapped.	
8-5	Mitigation during operation	Operational impacts on IEFs are predicted to be negligible. Light pollution from security lighting would be controlled during the operational phase using downward-facing, motion-sensitive lighting to prevent disturbance to nocturnal species and maintain the natural darkness of surrounding habitats. The same mitigation measures in place for the construction phase would be adhered to during any instances of maintenance or refurbishment. Regular monitoring would be maintained to confirm that operational activities do not impact surrounding habitats and species, allowing for adaptive management if conditions change.	Chapter 8, para 8.9.3
Chapter 9 – Forestry			
9-1	Minimisation of impacts to ancient woodland and protection of retained trees	The results of the Tree Survey (see Appendix 9.1 Tree Survey Report) will be used to locate and microsite laybys and road widening operations in locations which minimise the loss of mature and veteran native trees, under supervision of a suitably qualified forester. A full Tree Survey, Tree Constraints Plan and Tree Protection Plan (TPP) would be prepared by a qualified forester for all of the trees that could be affected by the exact construction footprints of the Proposed Development prior to the commencement of any construction work on site, which would not start until the TPPs have been accepted by The Highland Council. Appendix 9.2 Example Tree Protection Plan is attached as an example of the standard of TPP that would also be provided in each area of the site where tree felling is not otherwise approved by a Forest Plan or Forest Plan Amendment.	Chapter 9, para 9.10.1
9-2	Compensatory Planting	At least two native woodland creation schemes will be developed with a net plantable area of not less than 100 hectares on land within the Glengarry and Glen Quoich watersheds, pending agreement with relevant landowners. Further details are provided in Appendix 8.7 Outline Biodiversity Enhancement Management Plan.	Chapter 9, para 9.10.2
9-3	Ancient Woodland Restoration and Riparian Habitat Improvement	At least 100 hectares of existing ancient woodland will be protected from browsing impacts by the establishment of deer-proof exclosures, to allow natural regeneration and establishment of palatable native tree species, pending agreement with relevant landowners. Improvements to riparian habitats including fencing and tree planting will be targeted to improve conditions for fish and invertebrates in various places along the Garry and the Gearr Garry. Further details are provided in Appendix 8.7 Outline Biodiversity Enhancement Management Plan.	Chapter 9, para 9.10.3 to 9.10.5
9-4	Removal of Invasive Non-Native Plant Species from ancient woodland and	A programme of removal of <i>Rhododendron ponticum</i> from the native woodland remnants and the wider landscape on the shore of Loch Quoich around the Allt a Mheil to the Allt Uaine, will be combined with a wider project to restore and expand these woodland habitats.	Chapter 9, para 9.10.6

Ref	Subject	Mitigation Measure	EIAR Reference
	Caledonian Pinewood remnants	A programme of non-native conifer removal will also be undertaken within Core and Regeneration areas of CPI Native Pinewood habitats within Glengarry Forest (FLS). Further details are provided in Appendix 8.7 Outline Biodiversity Enhancement Management Plan. The combination of the proposed Compensatory Planting, ancient woodland restoration and riparian habitat improvement detailed in Appendix 8.7 – Outline Biodiversity Enhancement and Management Plan, alongside existing initiatives such as ongoing native woodland restoration and expansion within Glengarry Forest by Forest and Land Scotland, and the restructuring and diversification of the Glen Kingie and Kingie Estate forest blocks, is likely to lead to a significant net increase in the cover of native woodland habitats and in the condition of existing ancient semi-natural woodlands in the Glengarry-Glenquoich watershed with associated benefits for biodiversity and wildlife.	
Chapter 10 – Ornithology			
10-1	Employment of an ECoW	Loch Fearna would be monitored by the ECoW (or a suitably qualified ornithologist) to record the impacts that different construction activities in the vicinity of the waterbody have on the birds, especially Common Scoter, Goldeneye, and any divers that may choose to rest there. This monitoring will assess disturbance reactions and distances to the target species, which will inform both future assessments relating to these species, and construction activity on future schemes.	Chapter 10, para 10.9.4
10-2	Monitoring in early breeding season	During the early breeding season (approximately early-April to mid-May), regular monitoring during the progression of the construction works would be undertaken by the appointed ECoW to ensure that any species nesting, or considering nesting, within close proximity of construction activity is detected, and suitable deterrence or protection measures are implemented at an early stage in agreement with the relevant statutory bodies.	Chapter 10, para 10.9.5
10-3	Pre-construction access track surveys in breeding season	Where enabling work, felling or vegetation clearance or construction is required during the full breeding season (approximately early-April to late-July), the following mitigation procedures would be implemented: - In the event that nesting birds are present within the construction areas, or a risk of disturbance is identified, then appropriate measures would be taken to ensure that the potential for any significant effects is avoided. This may involve measures on the ground such as establishment of buffer-zones around nests to prevent any activity, as advised by the appointed site ECoW. - All defined access track routes would be surveyed by a suitably qualified ornithologist before the start of construction to ascertain the potential risk to any breeding birds within the immediate construction area and a 100 metre buffer on the open moorland, and within 50 metre of any works undertaken in forested areas.	Chapter 10, para 10.9.6
10-4		Other measures during the breeding season would include: - Stopping all very noisy activities (e.g. blasting, rock breaking), during the period from 1hr before official sunset to 1hr after official sunrise, with no blasting works to be undertaken during hours of darkness. - Although required for safety reasons, restricting the use of lighting and the use of floodlights to those designed to minimise illumination, glare or light spillage to nearby receptors. - Implementing noise minimisation including investigating the possibility of deactivating plant reversing beacons and sirens (subject to Health & Safety issues) or investigating alternative techniques as employed at construction sites in built-up areas where noise minimisation is a major requirement in respect of human habitation. - Limiting the use of workforce high visibility clothing (but remain compliant with Health & Safety regulations).	Chapter 10, para 10.9.7

Ref	Subject	Mitigation Measure	EIAR Reference
		Sound proofing generators and pumps (particularly important if pumps are required to be left on overnight, so as not to disturb any nesting birds).	
10-5	Mitigation for protected species	Further mitigation measures to ensure impacts during the construction and operational phases of the Proposed Development on protected bird species are minimised can be found in the Appendix 10.1 - Ornithology – Confidential Annex .	Appendix 10.1 - Ornithology – Confidential Annex.
10-6	Habitat enhancement measures	There is a range of ornithological enhancement recommendations that are proposed. These concentrate on providing beneficial habitat management measures within the wider landscape to increase the SPA Common Scoter population. These have been discussed with the RSPB, and are presented within the separate Outline Biodiversity Enhancement Management Plan (OBEMP) (Appendix 8.7 of this EIAR). These measures include: - Native tree planting within riparian zones to offer shade to migratory fish and aquatic invertebrates, and allowing birch to naturally regenerate on open ground around the lochs to suppress bracken; - Removal of non-native conifers in sensitive areas; - Creating a selection of permanently shallow pools within the drawdown area of Loch Loyne providing more favourable conditions for the survival of aquatic invertebrates during the non-breeding season, providing more food for the scoters upon their return in spring; - Addition of more nesting rafts to ensure that the scoter population has optimal nesting conditions; - Increased deer management on land adjacent to the SPA; - Increased barrier fencing and invasive predator control or diversionary feeding in sensitive or favoured nesting areas; and - Continued research into the species, including the fitting of more geolocators to improve accurate monitoring of individual birds throughout the year.	Chapter 8, Appendix 8.7 – Outline BEMP.
10-7	Operational ornithological monitoring	Once operational, it is recommended that monitoring of the Proposed Development continues for a five-year period, to resemble post-construction monitoring at onshore wind farms. This information may be invaluable in providing information to future schemes. Locations and activity of any nesting birds, any activity on the newly-created upper reservoir, behaviour of birds in the new environment, and their productivity should be documented, and if present within the former construction area, any disturbance events involving passing maintenance vehicles should also be recorded.	Chapter 10, para 10.9.8
Chapter 11 – Aquatic Ecology			
11-1	Provision of CEMD	A Construction Environmental Management Document (CEMD) which would include a Pollution Prevention Plan (PPP), Dust Mitigation Plan and Surface Water Quality Monitoring Programme (SWQMP) would be implemented by the Principal Contractor and best practice measures will be overseen by a suitably experienced Ecological Clerk of Works (ECOW). A water quality sampling programme would be designed to cover likely present pollutants and undertaken at a timescale to allow sufficient actions to be taken in the case of pollution incidents. Correct implementation of the PPP and the SWQMP should result in negligible observable effect to IEFs.	Chapter 11, paras 11.9.2
11-2	INNS Biosecurity Plan	The CEMD will also include a Project Biosecurity Plan to protect against the risk of spread of invasive non-native species (INNS) on the project. This will be developed in line with the Ness Catchment Biosecurity Plan (2021 – 2030).	Chapter 11, para 11.9.3
11-3	Construction Noise and Vibration Management Plan	Aquatic elements will be incorporated into the Construction Noise and Vibration Management Plan (CNVMP) to ensure noise and vibration limits are not in excess of limits capable of causing injury and/or mortality to fishes. This will reference any blasting likely to occur within marginal areas of watercourses and waterbodies.	Chapter 11, para 11.9.4

Ref	Subject	Mitigation Measure	EIAR Reference
11-4	Timing of construction drawdown of Loch Quoich	In relation to the partial dewatering of Loch Quoich, the dewatering should be timed to avoid the sensitive egg incubation period from October to late April. This will prevent any laid Arctic charr eggs from becoming aerially exposed and dying. Works should be planned for May (i.e. as early as possible) to allow sufficient time to carry out the necessary temporary works and installation of other mitigation (see mitigation during operation), and for water levels to subsequently begin to rebound. This restriction on timing of the drawdown will also alleviate the effect of access to certain spawning burns being cut off during the sensitive spawning period when Arctic charr, brown trout and ferox trout are migrating into spawning burns, so long as the level of Loch Quoich is built back up again prior to the spawning period.	Chapter 11, para 11.9.5 to 11.9.6
11-5	Avoiding instream works	Instream works in the zone of influence for fish would be avoided where practical, during sensitive spawning and localised migration periods for fish. Sensitive periods are October – June to cover salmonid spawning, egg development in gravels and hatching as well as smolt movements. For areas above Quoich Dam where there is an absence of migratory fish and smolts, these periods can be reduced from October – April. Due to the programme of works, there are instances where instream works cannot be avoided during sensitive spawning and migration periods for fish and appropriate additional mitigation would be provided where this is the case.	Chapter 11, para 11.9.7
11-6	Mitigation for any unplanned instream works	For any instream engineering works to facilitate the installation of any culverts / bridge span structures on the proposed access tracks (none are planned), fish rescue and relocations would be undertaken prior to the temporary damming / dewatering of the watercourse section. This applies to watercourses containing fish (lower reaches of the Allt Fearn, Gear Garry and tributaries). This would protect any fish populations in the vicinity of the works from harm. This would also allow work to be carried out in a dry channel which would reduce any short term pollution effects during construction.	Chapter 11, para 11.9.8
11-7	Fish rescue for any dewatering operations	If any localised dewatering works are required at Loch Quoich to facilitate the installation of infrastructure, for example the lower control works structures, a fish rescue and relocation would be carried out prior to dewatering to prevent potential fish disturbance, strandings and subsequent mortalities.	Chapter 11, para 11.9.9
11-8	Application of Marine Scotland guidance for monitoring	In line with Marine Scotland guidance for the monitoring of watercourses in relation to onshore wind farm developments: generic monitoring programme, the following monitoring measures would be employed. Guidance specific to large pumped storage hydro schemes does not exist and it is considered that pollution pathways would be similar, thus the guidance is applicable to the Proposed Development: - To develop a reasonable baseline dataset from which to detect change it is important that sampling takes place during construction and for a period of at least a year after construction. Sampling would take place at intervals no greater than one month unless sensitive periods / constraints have been identified, e.g. concrete batching or known acidification problems. More frequent sampling of selected parameters, e.g. pH and turbidity would occur more frequently and can be undertaken <i>in-situ</i> by the ECoW. <i>Ex-situ</i> water analysis would be undertaken by an appropriately qualified laboratory (e.g. United Kingdom Accredited Service (UKAS)). Water quality parameters included would be: turbidity (NTU) in relation to site disturbance; dissolved organic carbon (DOC) (mg l⁻¹ ppm) in relation to site disturbance and peat deposits; pH, alkalinity (µeq l⁻¹), acid neutralising capacity (µeq l⁻¹) and aluminium (µg l⁻¹) in relation to changes in hydrology, DOC export and acidification; total oxidised nitrogen (nitrate and nitrite) (mg l⁻¹) and phosphate in relation to nutrient leaching (µl⁻¹); stream height; temperature; and dissolved oxygen concentration (mg l⁻¹) and biological oxygen demand to indicate health of water. Sampling would occur pre-construction to provide a robust data set and monthly during construction.	Chapter 11, para 11.9.10

Ref	Subject	Mitigation Measure	EIAR Reference
		- Regular visual inspections of all watercourses (flow conditions, discolouration, collection of debris, fish in distress/floating) would be presented in a monthly water quality report and advised by an independent suitably qualified ECoW. - Macroinvertebrate sampling would occur during construction on relevant watercourses, and at least one control site, at a minimum of once a year, preferably in Spring. - Electrofishing would be undertaken once a year during construction and at least once a year after. Surveys would be fully-quantitative and include at least one control site. Surveys would be conducted late in the survey season to allow brown trout and Arctic charr fry to be distinguished.	
11-9	Construction lighting mitigation	Construction lighting would emit light from a broad spectrum of light with high UV components avoided; most invertebrates are sensitive to short wavelengths of light where greatest behavioural change occur. Lighting would additionally face away from watercourse/waterbodies where it is practical to do so. Any lighting used during construction would be directed away from loch edges and watercourses to prevent the risk of increased predation of fish during the hours of darkness.	Chapter 11, para 11.9.11 to 11.9.12
11-10	Soft start piling	Any piling or overwater drilling operations would adopt a 'soft start' approach to allow adult fish within the immediate vicinity of works area to disperse unharmed. The ECoW would monitor loch areas in the vicinity of the works for any fish kills in relation to works producing underwater noise.	Chapter 11, para 11.9.13
11-11	Design of dewatering operations	De-watering operations at Loch Fearn and the construction of Fearn and Coire Dubh dams would have suitably designed drainage and silt mitigation measures (e.g. cut off ditches / silt fencing / silt buster) to prevent a deterioration of water quality during the construction phase via surface run-off. This would be detailed in the Pollution Prevention Plan (PPP).	Chapter 11, para 11.9.14
11-12	Creation of charr spawning areas	Creation of high quality artificial spawning areas in deeper water beyond the drawdown depth of the combination effect of the pumped storage operation and the existing hydro generation. In addition to simply mitigating the effect of the pump storage it is highly likely that a well-conceived mitigation plan would result in an environmental net gain, compared with the current position for Arctic charr. Given the likely depth that artificial spawning habitat would be placed at, these areas will need a mechanism to enable flushing of the substrate of the very small particle size silts that are most damaging for successful spawning. Flushing could comprise either a permanently located sub-bed water jet system that will allow for periodic substrate flushing from a shore based pump system, or a vessel mounted vacuum dredger that will access the spawning areas during low water levels to remove silts by light suction. The advantage of this mitigation is that it will provide optimal spawning and incubation substrates at a depth below the drawdown zone.	Chapter 11, para 11.9.15
11-13	Riparian planting	Riparian planting would occur along watercourses not affected by inundation levels as well as peat restoration works. This would aid in improving instream habitat quality by providing instream and bankside cover for fish and would aid in preventing water temperature increases, notably in light of future predicted baselines. Leaf litter deposits from riparian tree cover would help to increase productivity in streams as some riverine macroinvertebrates (shredders) which use leaf litter as refuge and a food source, break leaf litter down into fine particulate organic matter (FPOM), providing resources for other organisms. This has a beneficial effect for fish within the streams which use macroinvertebrates as a main food source.	Chapter 11, para 11.9.16
11-14	Provision of compensation flows	Compensation flow would be always maintained from the Fearn Dam and Coire Dubh Dam to the Allt Fearn and an unnamed tributary of the Allt a' Mheil. Natural flow regimes would be mimicked by matching compensation flow to typical flow; this would vary monthly. This is considered more natural than typical freshet events used to mimic natural flow regimes.	Chapter 11, para 11.9.17

Ref	Subject	Mitigation Measure	EIAR Reference
11-15	Operational water monitoring	Water quality monitoring post-construction and during the first years of operation would be conducted in line with Marine Scotland guidance as stipulated in Section 11.9.7. In situ sondes and dataloggers with data telemetry units could be installed to provide long term real time data if required.	Chapter 11, para 11.9.18
11-16	Inspection of dams	Inspection, management, and maintenance of the Fearna and Coire Dubh dams required under the Reservoirs (Scotland) Act 2011 would provide mitigation against the potential failure of these dams.	Chapter 11, para 11.9.19
Chapter 12 – Geology, Soils and Water			
12-1	Water management to prevent flood risk	The Proposed Development would not present any additional flood risk or increase spill from Loch Quoich. An agreement has been developed with the owners of the Quoich hydro scheme which dictates that the Proposed Development would not release water to Loch Quoich when it is above an agreed level, thereby avoiding any additional risk of spill over the Quoich Dam.	Chapter 12, para 12.8.6
12-2	Provision of compensation flows	A compensation flow discharge to Allt Fearna and Allt a' Mhèil, which mimics the natural outflow from the existing (baseline) catchment, would be made. This outflow would also be maintained during construction. The rate of discharge will be agreed with SEPA as part of a CAR application and would be informed by a site-specific flow monitoring record.	Chapter 12, para 12.8.7
12-3	CAR authorisation	The CAR authorisation(s) would also ensure fisheries interest are not impaired and the contribution of water to habitats downstream of the dams are maintained.	Chapter 12, para 12.8.8
12-4	Provision of PLHRA and PMP	As shown in Appendix 12.1: PLHRA and Appendix 12.2: PMP measures have been proposed to ensure the stability of peat and carbon rich soils and that peat and soils that would be disturbed by the Proposed Development can be safeguarded and beneficially re-used on Site. The Policy aims of NPF4, regarding soils and peat, are therefore met.	Chapter 12, para 12.8.11
12-5	Design and Geotechnical Risk Register	A Design and Geotechnical Risk Register would be compiled prior to any construction commencing to include risks relating to peat instability, as this would be beneficial to both the developer and the Contractor in identifying potential ground stability risks during construction. Good construction practice and methodologies to prevent peat instability within areas that contain peat deposits are identified in Appendix 12.1: PLHRA. These include: • measures to ensure a well-maintained drainage system, to include the identification and demarcation of zones of sensitive drainage or hydrology in areas of construction; • minimisation of 'undercutting' of peat slopes, but where this is necessary, a more detailed assessment of the area of concern would be required; • careful micro-siting of access track alignments to minimise effects on the prevailing surface and sub-surface hydrology; • raising peat stability awareness for construction staff by incorporating the issue into the site induction (e.g. peat instability indicators and good practice); • introducing a 'Peat Hazard Emergency Plan' to provide instructions for site staff in the event of a peat slide or discovery of peat instability indicators; • developing methodologies to ensure that degradation and erosion of exposed peat deposits does not occur as the break-up of the peat top mat has significant implications for the morphology, and thus hydrology, of the peat (e.g. minimisation of off-track plant movements within areas of peat); and • developing drainage systems that would not create areas of concentrated flow or cause over/under-saturation of peat habitats.	Chapter 12, para 12.8.12
12-6	Geotechnical Supervisor	Notwithstanding any of the above good construction practices and methodologies, detailed design and construction practices would need to consider the particular ground conditions and the specific works at each location throughout the construction period. An experienced and qualified engineering geologist/geotechnical	Chapter 12, para 12.8.13

Ref	Subject	Mitigation Measure	EIAR Reference
		engineer would be appointed as a supervisor, to provide advice during the setting out, micro-siting and construction phases of the Proposed Development.	
12-7	Tunnel linings to provide stability	Given the presence of inferred fault lines on BGS mapping, there is potential for varying rock quality, even at significant depths. To mitigate issues with varying rock quality, which could result in unstable rock faces during underground excavation and tunnelling works, the potential requirement for lining of the tunnels and underground excavations is embedded in the design.	Chapter 12, para 12.8.14
12-8	Application of Reservoirs (Scotland) Act	Seismic activity and landslides / rock falls in the area could have the potential to destabilise the permanent works however, embedded within the design is the legal requirement that the proposed dams will be designed, constructed and operated in accordance with the Reservoirs (Scotland) Act 2011.	Chapter 12, para 12.8.15
12-9	Ground investigation to inform detailed design	As part of the detailed design stage of the project, which would be completed following grant of any planning permission, a detailed programme of exploratory drilling and rock testing would be undertaken to inform the final design of the scheme elements. This information will ensure that all elements of the scheme remain stable and not induce ground instability. It is recognised this is of critical importance given the known presence of rock slides in this area in the past and will be required to support the requirements of the Reservoirs (Scotland) Act 2011, and the independent review of the dam designs afforded by these regulations. The ground investigation data will also be used by qualified geotechnical engineering to design the required tunnels and protection required to these which takes account the potential rapid changes in pressure which will occur in the tunnels as a result of water movement between the upper and lower reservoirs and during dewatering of the tunnels for maintenance and refurbishment.	Chapter 12, para 12.8.16 and 18.8.17
12-10	Materials balance	Although the impacts on geology have largely been scoped out, during the construction phase substantial excavation, tunnelling and earthworks will be required. A materials balance has been prepared (see Appendix 2.3: Mass Balance Strategy and Borrow Pit Plan) which shows that excavated materials can be used on site and in the construction of the required dams. Testing of the rock during the ground investigations will ensure that it is structurally competent for its proposed reuse.	Chapter 12, para 12.8.18
12-11	Geochemical investigation	The intrusive site investigation will also collect geochemical data which will be used to assess the potential for the Proposed Development to generate geogenic pollution and if required treatment systems manage runoff from disturbed materials during and following construction. Details of the required treatment systems would form part of the final CEMD,	Chapter 12, para 12.8.19
12-12	Buffers to watercourses	A minimum buffer of 10 m has been applied to watercourses (shown on OS 1:25,000 mapping) and, with the exception of the proposed watercourse crossings, where practical any proposed construction activities or infrastructure has been located outside of this buffer. The buffer includes existing lochs but excludes the inundation area, which wouldn't be present until the Proposed Development is operational.	Chapter 12, para 12.8.20
12-13	Water crossings minimised	The layout of the access tracks was designed to minimise the requirement for watercourse crossings. Where possible existing tracks have been used and incorporated into the Proposed Development.	Chapter 12, para 12.8.21
12-14	Safeguards for water-dependent habitats	Measures, such as permeable access tracks and regular cross track drains, have been proposed to safeguard existing water flow paths and maintain existing water quality. It is considered therefore that the majority of water dependent habitats identified by the NVC mapping can be sustained. This would be confirmed, in accordance with good practice, by the Ecological Clerk of Works (ECoW) at the time of the construction who would ensure existing surface water flow paths are maintained.	Chapter 12, para 12.8.24
12-15	Application of CEMD	A contractual management requirement of the successful Principal Contractor would be the development and implementation of a comprehensive and site-specific CEMD. This document would detail how the successful Principal Contractor would manage the works in accordance with all commitments and mitigation detailed in the EIA Report, statutory consents and authorisations, and industry best practice and guidance, including pollution	Chapter 12, para 12.8.27 to 12.8.28

Ref	Subject	Mitigation Measure	EIAR Reference
		prevention guidance. An Outline CEMD is attached at Appendix 2.2. The CEMD would outline measures to ensure that the works minimise the risk of an adverse impact to peat, groundwater, surface water and water dependent habitats.	
12-16	CEMD provisions	It is expected that the following would be included in the CEMD and would ensure the works are undertaken in accordance with good practice guidance, which includes, but is not limited to the following: - any above ground on-site fuel and chemical storage would be bunded; - emergency spill response kits would be maintained during the construction works; - a vehicle management system would be put in place wherever possible to reduce the potential conflicts between vehicles and thereby reduce the risk of collision; - a speed limit would be used to reduce the likelihood and significance of any collisions; - drip trays will be placed under vehicles which could potentially leak fuel/oils; - any water contaminated with silt or chemicals will not be discharged directly or indirectly to a watercourse without prior treatment; and - foul water will be collected for offsite disposal at an appropriately licensed facility.	Chapter 12, para 12.8.29
12-17	Wet weather protocol	A wet weather protocol would be developed. This would detail the procedures to be adopted by all staff during periods of heavy rainfall. Tool box talks would be given to engineering / construction / supervising personnel. Roles would be assigned, and the inspection and maintenance regimes of sediment and runoff control measures would be adopted during these periods. In extreme cases, the above protocol would dictate that work onsite may have to be temporarily suspended until weather/ground conditions allow.	Chapter 12, para 12.8.30
12-18	ECoW supervision	To ensure all reasonable precautions are taken to avoid negative effects on the soils and water environment, a suitably qualified Ecological Clerk of Works (ECoW) will be appointed prior to the commencement of construction to advise the Developer and the Principal Contractor on all ecological and hydrological matters. The ECoW will be required to be present onsite during the construction phase and will carry out monitoring of works and briefings with regards to any ecological and hydrological sensitivities on the Site to the relevant staff of the Principal Contractor and subcontractors. With respect to the water environment, the ECoW would also have responsibility to ensure water flow paths and quality to water dependant habitats are sustained during all phases of the Proposed Development.	Chapter 12, para 12.8.31 to 12.8.32
12-19	Water Monitoring	Water quality and flow monitoring before and during the construction phase would be undertaken within the surface water catchments that drain from the Site to ensure that none of the tributaries of the main channels are carrying pollutants or suspended solids. Monitoring would be carried out at a specified frequency (depending upon the construction phase) on these catchments. Monitoring would continue throughout the construction phase and immediately post construction. Monitoring would be used to allow a rapid response to any pollution incident, or change in flow characteristics, as well as assess the impact of good practice or remedial measures. Monitoring frequency would increase during the construction phase if remedial measures to improve water quality were implemented. Water quality monitoring plans would be developed during detailed design (Scottish Water, SEPA, THC, NatureScot and local fisheries trusts would be consulted on the plan) and would be contained within the final CEMD. The performance of the good practice measures would be kept under constant review by the water monitoring schedule, based on a comparison of data taken during construction with a baseline data set, sampled prior to the construction period. The water quality and flow programme would also be used to confirm there is no impact to West Inverness-shire Lochs SSSI and SPA, Loch Ness DWPA, local private water supplies and licenced abstractions.	Chapter 12, para 12.8.33 to 12.8.36
12-20	Pollution prevention measures	Good practice measures in relation to pollution prevention would include the following: refuelling would take place at least 50 m from watercourses;	Chapter 12, para 12.8.37

Ref	Subject	Mitigation Measure	EIAR Reference
		- foul water generated onsite would be managed in accordance with PPG4; - areas would be designated for production of concrete or washout of vehicles which are a minimum distance of 50 m from a watercourse; - washout water would also be stored in the washout area before being treated and disposed of, or re-used in concrete production; - if any water is contaminated with silt or chemicals, runoff would not enter a watercourse directly or indirectly prior to treatment; - water would be prevented as far as possible, from entering excavations such as trenches and foundations; - procedures would be adhered to for storage of fuels and other potentially contaminative materials in line with the Controlled Activity Regulations, to minimise the potential for accidental spillage; and - a plan for dealing with spillage incidents would be designed prior to construction, and this would be adhered to should any incident occur, reducing the effect as far as practicable. This would be included in the final CEMD for the Proposed Development.	
12-21	Monitoring of sediment build-up	Sediment build up would also be monitored and when necessary sediment would be removed for appropriate disposal in accordance with waste legislation, although this is likely to be a very infrequent requirement.	Chapter 12, para 12.8.39
12-22	Geochemical testing	The ground investigation that would be undertaken to inform the detailed design stage of the project would also be used to collect rock samples for material and chemical testing. This will be used to assess for any rock horizons that have the potential to generate acidic or metalliferous drainage, and in the unlikely event this identified required controls, and if necessary treatment of drainage, as part of the construction stage of the project.	Chapter 12, para 12.8.40
12-23	Water supply and foul water management	All foul water generated from the welfare facilities during construction would be collected and either removed from Site for treatment and disposal at an appropriately licensed facility or treated on site using a package waste water treatment plant subject to agreement with SEPA as required by CAR. During operation, it is expected that rainwater harvesting will be used for grey water requirements and potable water will be brought to Site or taken from a private water source yet to be determined, but which would be agreed with SEPA and THC prior to implementation. During the operational phase, subject to authorisation by SEPA as required by the CAR, foul water would either be disposed a package treatment plant, or to a septic tank or stored in a sealed tank prior to removal from Site for treatment and disposal at an appropriately licensed facility. It is anticipated that the final foul drainage management proposals would be agreed with consultees as part of the final CEMD.	Chapter 12, para 12.8.41 to 12.8.44
12-24	Erosion and sedimentation	Good practice measures for the management or erosion and sedimentation would include the following: all stockpiled materials would be located out with a 50 m buffer from watercourses wherever possible and not within 10 m of a watercourse; - water would be prevented as far as possible, from entering excavations such as trenches and foundations through the use of appropriate cut-off drainage; - where the above is not possible, water would pass through silt/sediment traps to remove silt prior to discharge into the surrounding drainage system; - clean and dirty water onsite would be separated, and dirty water would be filtered before entering the water environment; - silt fences would be deployed as required to reduce sediment transport; - the amount of ground exposed, and time period during which it is exposed, would be kept to a minimum;	Chapter 12, para 12.8.45

Ref	Subject	Mitigation Measure	EIAR Reference
		- silt/sediment traps, single size aggregate, geotextiles or straw bales would be used to filter any coarse material and prevent increased levels of sediment. Further to this, activities involving the movement or use of fine sediment would avoid periods of heavy rainfall where possible; and - the ECoW and the Principal Contractor would carry out regular visual inspections of watercourses to check for suspended solids in watercourses downstream of work areas.	
12-25	Fluvial and surface water flood risk	During construction a wet weather working protocol would be used. This would restrict working in potential flood prone areas (for example in the inundation area or adjacent to watercourses), reducing the risk to workers, machinery, and downstream property. A platform will be formed for the proposed powerhouse and switchyard at approximately 205 m AOD which is located above the maximum flood level for Loch Quoich (determined to be 203 m AOD). To facilitate the construction of the dams, the water level in Loch Fearna will also be actively managed, further reducing the flood risk. The wet weather working protocol would also specify areas, which are not prone to flood risk, where construction equipment would be moved to should extreme rainfall or storm warnings be issued by the Met Office and/or SEPA. The Principal Contractor and Developer will register with Floodline in order to receive notifications when the area is at risk of flooding. An adequate flood management plan will be in place for the Proposed Development and would be agreed with consultees as part of the final CEMD.	Chapter 12, para 12.8.46 to 12.8.48
12-26	Implementation of SuDS	It is proposed to adopt SuDS as part of the Proposed Development. SuDS techniques aim to mimic pre-development runoff conditions and balance or throttle flows to the rate of runoff that might have been experienced prior to development. Good practice in relation to the management of surface water runoff rates and volumes and potential for localised fluvial flood risk would include the following: - drainage systems (e.g. adjacent to tracks, compounds and stockpiles) would be designed to ensure that any sediment, pollutants or foreign materials which may cause blockages are removed before water is discharged into a watercourse; - onsite drainage would be subject to routine checks to ensure that there is no build-up of sediment or foreign materials which may reduce the efficiency of the original drainage design causing localised flooding; - drainage measures would attenuate runoff rates and reduce runoff volumes to ensure minimal effect upon flood risk; and - where necessary, check dams would be used within cable trenches in order to prevent trenches developing into preferential flow pathways. Further information on drainage designs would be provided in the final CEMD	Chapter 12, para 12.8.49 to 12.8.50
12-27	Flood risk mitigations	Area of hardstanding, such as at the powerhouse and switching yard, would benefit from a positive drainage system that will collect, attenuate and treat runoff before discharge. The design of the drainage system would be developed as part of the detailed design stage of the project and be completed in accordance with THC Drainage Impact Assessment guidance relevant at that time. Flood risk during the operational phase of the development would be mitigated, managed and regulated by the CAR licence and Reservoirs Act. The CAR authorisation will detail permitted rates and volume of discharge and will be cognisant of potential in-combination effects on flood risk as a result of operation of other PSH schemes in the Loch Quoich catchment (refer to Chapter 6: Hydrology and Water Management). The probability of flood risk being increased as a consequence of the development is extremely low due to the high standard of design, management, and maintenance required under the Reservoirs (Scotland) Act 2011. As required by the Act, routine inspection of the dams would be undertaken.	Chapter 12, para 12.8.51 to 12.8.54

Ref	Subject	Mitigation Measure	EIAR Reference
		The freeboard incorporated in the design of the enlarged Loch Ferna mitigates the potential for wave action on the embankment crests and potential overtopping by waves, by ensuring water levels are below the crest level.	
12-28	Thermal stratification	During operation, although highly unlikely, should there be extended periods of time that the system does not operate, this may provide time for heat to be transferred from the bedrock and in turn, could be then transferred to water if contained in the tunnels (again this is unlikely). Nonetheless, this temperature range is considered to be within the natural fluctuation of surface water in lochs and thus not discernible.	Chapter 12, para 12.8.55
12-29	Groundwater mitigations	The tunnels would be constructed using a boring machine or by drill and blast techniques and will be lined as each tunnel is progressed. This will minimise the potential for groundwater to enter the tunnels. Once constructed, the tunnel lining and the circular cross-sectional shape of the tunnels will allow any groundwater to flow around them. Further review of baseline conditions has confirmed the bedrock geology has little potential to store or allow movement of large quantities of groundwater. No comprehensive groundwater management system is anticipated, and ground investigation data and groundwater observation data collected prior to completing the detailed site design will be used to confirm any groundwater control measures. The portals for the tunnels are likely to be constructed by excavation into the bedrock, and as such, it is not envisaged that sheet piling will be required. Again, little groundwater flow is expected as a consequence of low permeability of the superficial and bedrock deposits. The SuDS measures detailed above would be used to attenuate any limited groundwater ingress before it is discharged to surrounding ground. No direct discharge would be made to a watercourse.	Chapter 12, para 12.8.56 to 12.8.57
12-30	Risk of algal blooms	Standing waterbodies such as lochs and reservoirs follow yearly cycles of stratification when a temperature gradient is created due to high temperatures, also freezing conditions can cause stratifications. When high volumes of water are discharged into a standing waterbody during stratification, especially when the frequency of pumping / discharge cycles is high, this can alter the stability of the water column, especially when water enters at higher temperature and velocity that can mobilise nutrients from existing bed sediments. These conditions increase water turbulence, promoting the mobilisation of nutrients and making them more available for phytoplankton, thus increasing the potential for an algal bloom to occur. However, it is predicted that the risk of this occurring is low because the temperature of water discharged between Loch Ferna and Loch Quoich is not anticipated to be significantly different.	Chapter 12, para 12.8.58 to 12.8.59
12-31	Permanent watercourse crossings	Good practice in relation to new and upgrade of water crossings involves the following: - the design of the watercourse crossings would be agreed with SEPA prior to construction and be regulated in accordance with CAR; - the appropriate crossing type would be identified from SEPA's good practice guidance and would take into account any ecological, fishery and hydrological constraints; and - the crossings, except for the proposed bridges, would be sized and designed so as to minimise effect upon flood risk (sized to accommodate at least the 1 in 200-year flow plus an allowance for the potential effects of climate change (currently 42%). The proposed bridges would be designed to accommodate the 1 in 1000 year flow plus an allowance for climate change.	Chapter 12, para 12.8.60 to 12.8.61
12-32	Dam construction mitigation	The following measures are proposed to mitigate the effects of dam construction: as part of the detailed design stage of the project, and to reflect further site investigation that would be undertaken at that stage, it will be confirmed in the CEMD where proposed dam foundations have potential to intercept larger quantities of water and what control measures will be required to manage water;	Chapter 12, para 12.8.63

Ref	Subject	Mitigation Measure	EIAR Reference
		- where excavations for foundations encounter localised and limited quantities of groundwater or become flooded due to surface water runoff or heavy rainfall, appropriate treatment of dewatering would be instigated under direction of the site ECoW; - no dewatering discharge would be permitted directly adjacent to watercourses; - unless directed otherwise by the site ECoW, dewatering discharge would drain across buffer areas of vegetation of at least 20 m width, which would provide for natural attenuation and dispersal of the flow and removal of silt; - where no suitable vegetation is available for natural treatment of dewatering, the discharge would be passed through onsite settling tanks/lagoons prior to discharge by soakaway or to watercourse; - the requirement for dewatering would be minimised in all locations by timely and efficient excavation of the foundation void and subsequent concrete pouring and backfilling; - all procedures for dewatering would be agreed by the Principal Contractor with SEPA, THC and NatureScot, and detailed in the CEMD; and - the Principal Contractor would develop a method statement to address the transport, transfer, handling and pouring of liquid concrete at foundation sites.	
12-33	Concrete batching, transport and pouring	In relation to works involving concrete batching, transport and pouring, the following mitigation would be adopted: - where concrete transfers are required, measures would be adopted at the point of concrete transfer to prevent accidental spillage of liquid concrete and no transfers would be undertaken in proximity to watercourses or areas of standing water; - there would be no wash-out of concrete carrying vehicles (except the concrete chute) with wash-out undertaken at the nearest compounds where suitably bunded/protected facilities would be provided. Chutes would be washed out to a suitable container, allowed to settle and disposed at suitably licensed facilities or reused in concrete production; - excess concrete or wash-out liquid would not be discharged to drains or watercourses. Drainage from washout facilities would be collected and treated or removed to an appropriate treatment point/licensed disposal site; and - vehicles and plant working at foundations would be confined to the area required for safe working only to prevent compaction, rutting and habitat damage to adjacent areas of land.	Chapter 12, para 12.8.64
12-34	Permanent access track construction	In relation to permanent access track construction the following principles would be adopted: - tracks would be completed with permeable construction that will allow infiltration of rainwater and lateral movement of surface water flows; - where required, tracks would have frequent cross drains to maintain existing surface water flow paths, with the location of drains being determined in conjunction with the ECoW; and - they would be constructed with rock and aggregate won onsite and therefore with the same geochemical properties as existing rock and tracks at Site.	Chapter 12, para 12.8.66
12-35	Existing track improvements	The same design standards and controls specified for new tracks would be used to mitigate potential effects with exiting track improvements.	Chapter 12, para 12.8.69
12-36	Borrow pit mitigations	Existing borrow pits on the SAR are proposed to be developed further to provide the aggregate required for the existing access track improvements and new access tracks to the C1144. Where required, new borrow pits will also be considered and details agreed as part of the final CEMD using the embedded mitigation measures presented above.	Chapter 12, para 12.8.71 to 12.8.74

Ref	Subject	Mitigation Measure	EIAR Reference
		At both the upper dam and at the existing SAR borrow pits, it has been shown the geology supports very little groundwater and observations gathered during the site surveys confirmed no evidence of groundwater egress at the existing SAR borrow pit. No significant dewatering is therefore anticipated at either borrow pit location. The measures detailed above to control surface water, prevent pollution and erosion and sedimentation for other construction activities would equally be applicable to the borrow pits and would be used to manage incident rainfall runoff within the borrow pits. As part of the detailed design stage of the project, and with the benefit of geotechnical and geochemical testing undertaken at that time, the configuration (inc. size and depth) of the borrow pits would be confirmed.	
12-37	Water Abstraction (Dust Suppression and Concrete Production)	During the construction phase temporary water abstractions would be required for welfare facilities, dust suppression, concrete production etc. Abstractions of varying rates would be required throughout the construction phase. Any water abstraction would only be made with authorisation from SEPA and in accordance with the CAR. Good practice that would be followed in addition to the CAR regulations includes: • water use would be planned so as to minimise abstraction volumes; • water would be re-used where possible; and • abstraction volumes would be recorded.	Chapter 12, para 12.8.75
12-38	Diversion of the Allt Choire a' Bhalachain Tributary	As outlined in Section 12.6, a tributary of the Allt Choire a' Bhalachain will be diverted to facilitate construction and use of the main site compound. It has been confirmed by site investigations that the watercourse is small. Again, as part of the detailed design stage of the project the alignment of the diversion will be determined as well as details of the cross section, capacity and design of the diversion channel will be confirmed and agreed with SEPA as a CAR authorisation will be required before any diversion works are undertaken. The design of the diversion channel would be informed by a geomorphological survey and include planting and habitat creation details. It is confirmed that the watercourse will not be culverted beneath or around the main compound.	Chapter 12, para 12.8.76 to 12.8.78
12-39	Forestry felling	Felling required to establish the Proposed Development would be undertaken in accordance with best practice guidance published by Forestry and Land Scotland and overseen by the project ECoW.	Chapter 12, para 12.8.79
Chapter 13 – Land Use			
13-1	Minimising land take	The following design principles have been applied minimise the effect of the Proposed Development on land use: • The footprint of the Proposed Development has been minimised as far as is compatible with its proposed function; • Wherever practicable, infrastructure would be underground; • Where infrastructure is required to be above ground, this would be designed to minimise the land take and impact on the landscape as far as practicable.	Chapter 13, para 13.7.2
Chapter 14 – Recreation and Access			
14-1	Design principles	The following design principles have been applied minimise the effect of the Proposed Development on recreation and access: • Where any existing recreational access would be restricted during either construction or operation of the Proposed Development, alternative access arrangements would be provided in advance of any such restriction; • Construction of the Proposed Development would comply with the requirements of the Construction (Design and Management) Regulations 2017. These regulations require the Developer and Contractor to establish and operate a safety management system encompassing risk assessment, design measures and management instructions to ensure the safety of construction workers and the public;	Chapter 14, para 14.7.2

Ref	Subject	Mitigation Measure	EIAR Reference
		- Wherever practicable, infrastructure would be underground; and - Where infrastructure is required to be above ground, this would be designed to minimise the impact on the landscape as far as practicable.	
14-2	Outdoor Access Management Plan	Mitigation and enhancement during construction and operation is as outlined in Appendix 14.1 - Draft Outdoor Access Management Plan. The Draft Outdoor Access Management Plan has been prepared in consultation with The Highland Council.	Chapter 14, para 14.9.1 to 14.9.2 and Appendix 14.1 – Draft Outdoor Access Management Plan
14-3	Access Improvements	The following access improvements, shown in Figure 14.14 – Proposed Access Improvements, are proposed as part of the Proposed Development: - Upgrading the existing footpath to modern standards between the C1144 and Coire Mheil. - Upgrading approximately 1km of the footpath from the south end of the Quoich dam towards Gairich - Potential increase in size of Munro parking areas (subject to landowner agreement).	Chapter 14, para 14.9.3
Chapter 15 – Transport and Access			
15-1	Safe access junction	The site access junctions on both the A87 and C1144 have been designed to the appropriate standards to operate in a safe and efficient manner throughout the design life of the project. They would be maintained to ensure that road safety at these locations is ensured.	Chapter 15, para 15.7.1
15-2	SAR keeps traffic off the C1144	Construction traffic will be routed to the site via the Southern Access Route during the main construction phase, to reduce the potential impact on the C1144. It is only proposed to utilise the whole of the C1144 while undertaking ground investigation works and to support early enabling works, to allow the completion of the SAR	Chapter 15, para 15.7.2
15-3	Use of residential camp	To reduce traffic volumes during the construction phase, a residential camp would be established on the site to accommodate staff engaged in construction activities at the Site. There will also be a satellite residential camp in the upper reservoir (SC3), to reduce vehicular movements between the main site and site compound (SC1). Having staff based at the site would help reduce the number of vehicular movements on the local road network.	Chapter 15, para 15.7.3
15-4	Off-site traffic staging	In addition, to further reduce traffic volumes, it is proposed that an off-site staging area (location to be confirmed, however for the purposes of the assessment it is assumed to be located to the south of Invergarry) with staff parking will be used, with site personnel shuttled to and from the site and residential compound. As part of this, the Principal Contractor will make use of a logistics plan to further control vehicular movement to and from the site, thus minimising as far as practicable potential impacts on the local road network.	Chapter 15, para 15.7.4
15-5	Implementation of CTMP	The following measures could be implemented through a Construction Traffic Management Plan (CTMP) during the construction phase. The CTMP would be agreed with THC prior to construction works commencing: - Where possible the detailed design process would minimise the volume of material to be imported to site to help reduce HGV numbers; - A site worker transport and travel arrangement plan, including transport modes to and from the work site (including pick up and drop off times); - All materials delivery lorries (dry materials) should be sheeted to reduce dust and stop spillage on public roads; - Specific training and disciplinary measures should be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway; - Wheel cleaning facilities may be established at the site entrance, depending on the views of THC and TS; - Contractual requirements that contractors will only use the agreed access routes;	Chapter 15, para 15.9.1

Ref	Subject	Mitigation Measure	EIAR Reference
		- Direction signage signposting traffic on the agreed access routes; - Identification numbers of HGV and vans to allow easy recognition; - Providing the public with details of how to report use of unapproved routes or driving issues of concern; - Using GPS trackers to allow the monitoring of bulk delivery vehicle movements; - Setting out site staff disciplinary measures for those who ignore the agreed access route and enforcing these throughout the construction period; - All site vehicles will feature “white noise” reversing warning devices to reduce noise disruption when on site; - Appropriate traffic management measures would be put in place on the A87 and C1144 to avoid conflict with general traffic, subject to the agreement of the THC and TS. Typical measures would include HGV turning and crossing signs and / or banksmen at the site access and warning signs; - Provide construction updates on the project website and or a newsletter to be distributed to residents within an agreed distance of the site; - Adoption of a voluntary speed limit of 20mph for all construction vehicles travelling through local villages and towns; - All drivers would be required to attend an induction to include: - A tool box talk safety briefing; - The need for appropriate care and speed control; - A briefing on driver speed reduction agreements (to slow site traffic at sensitive locations such as Invergarry, Fort Augustus, Spean Bridge, Corpach and Fort William; and - Identification of the required access routes and the controls to ensure no departure from these routes.	
15-6	Wear and tear agreement	TS and THC may require an agreement to cover the cost of abnormal wear and tear on the A87 in close proximity to the access junction and the C1144. Video footage of the pre-construction phase condition of the construction vehicles route would be recorded to provide a baseline of the state of the road prior to any construction work commencing. This baseline would inform any change in the road condition during the construction stage of the Proposed Development. Any necessary repairs would be coordinated with the Roads Authority. Any damage caused by traffic associated with the Proposed Development during the construction period that would be hazardous to public traffic would be repaired immediately. Any damage to road infrastructure caused directly by construction traffic would be made good, and street furniture that is removed on a temporary basis would be fully reinstated.	Chapter 15, para 15.9.2 to 15.9.3
15-7	Road cleaning	There would be a regular road edge review and any debris and mud would be removed from the public carriageway to keep the road clean and safe during the initial months of construction activity, until the construction junction and immediate access track works are complete	Chapter 15, para 15.9.4
15-8	Off-site mitigation	As part of the Proposed Development, it is proposed to implement improvements on approximately 2.3km of the C1144 in the vicinity of Quoich Dam, which is part of the public road network and would provide access between the main site area and the main site compound. The Proposed Development would increase traffic flows on this section of the C1144 road, between the SAR and the proposed site access junction. The section of road in question is a narrow single track road with passing places and, as such, it is proposed to upgrade this section. Through this section, the carriageway would be widened by 4m with associated verge and drainage works, allowing for two-way HGV movements. Details of the proposed works on the C1144 can be seen on Figure 2.19 – C1144 Widening and Figure 2.20 – C1144 Widening Details.	Chapter 15, para 15.9.5 to 15.9.6

Ref	Subject	Mitigation Measure	EIAR Reference
15-9	Specific Abnormal Indivisible Load Mitigation	There are a number of traffic management measures that could help reduce the effect of AIL convoys. All AIL deliveries would be undertaken at appropriate times (to be discussed and agreed with the local authority and police) with the aim to minimise the effect on the local road network. It is likely that the abnormal load convoys would travel in the early morning periods before peak times while general construction traffic would generally avoid the morning and evening peak periods. The majority of potential conflicts between construction traffic and other road users would occur with AIL traffic. General construction traffic is not likely to come into conflict with other road users as the vehicles are smaller and road users are generally more accustomed to them. Potential conflicts between AILs and other road users can occur at a variety of locations and circumstances, for example: • where the loads may straddle the centre line of the carriageway or where fast moving oncoming traffic may be encountered; • at locations where there are significant changes in the horizontal alignment of the carriageway, requiring the loads to use the full carriageway width; • on sections of single carriageway road; • where traffic turns at a road junctions, requiring other traffic to be restrained on other approach arms; and • in locations where high speeds of general traffic are predicted. Advance warning signs would be installed on the approaches to the affected road network. Information signage could be installed to help improve driver information and allow other road users to consider alternative routes or times for their journey (where such options exist). The location and numbers of signs would be agreed post consent and would form part of the wider traffic management proposals for the Proposed Development.	Chapter 15, para 15.9.7 to 15.9.12
15-10	AIL Transport Management Plan	The AIL Transport Management Plan would also include: • procedures for liaising with the emergency services to ensure that police, fire and ambulance vehicles are not impeded by the loads. This is normally undertaken by informing the emergency services of delivery times and dates and agreeing communication protocols and lay over areas to allow overtaking; • a diary of proposed delivery movements to liaise with the communities to avoid key dates such as local events; • a protocol for working with local businesses to ensure the construction traffic does not interfere with deliveries or normal business traffic; and • proposals to establish a construction liaison group to ensure the smooth management of the project / public interface with the applicant, the construction contractors, the local community, and if appropriate, the police forming the committee. This committee would form a means of communicating and updating on forthcoming activities and dealing with any potential issues arising.	Chapter 15, para 15.9.13
15-11	Public information	Information on the AIL deliveries would be provided to local media outlets such as local papers and local radio to help assist the public. Information would relate to expected vehicle movements from the Port of Entry (PoE) through to the site access junction. This would assist residents in understanding the timing of the convoy movements and may help reduce any potential conflicts. The Applicant would also ensure information is distributed through its communication team via the project website, local newsletters, and social media.	Chapter 15, para 15.9.14 to 15.9.16
	AIL convoy system	A police escort would be required to facilitate the delivery of the predicted AILs. The police escort would be further supplemented by a civilian pilot car to assist with the escort duty. It is proposed that an advance escort	Chapter 15, para 15.9.17 to 15.9.19

Ref	Subject	Mitigation Measure	EIAR Reference
		would warn oncoming vehicles ahead of the convoy, with one escort staying with the convoy at all times. The escorts and convoy would remain in radio contact at all times where possible. The AIL convoys would be no more than three AILs vehicles long, or as advised by the police, to permit safe transit along the delivery route, and to allow limited overtaking opportunities for following traffic where it is safe to do so. The times in which the convoys would travel would need to be agreed with Police Scotland who have sole discretion on when loads can be transported.	
15-9	Construction staff travel plan	A Travel Plan for construction staff would be developed to reduce dependency on single occupancy car trips. The Travel Plan would be a contractual requirement for contractors working on the site and would include the following elements: • The provision of staff minibus / coach links from local rail stations; • Staff would be required to park at a satellite parking area and be shuttled to the accommodation camp and main site compound SC1; • The use of limited parking spaces on-site. The level of parking would be agreed with THC, prior to works commencing; • The encouragement for car sharing amongst staff and visitors; • Provision of emergency taxi links from the site in the event of family emergency requirements; • Subsidised rail tickets to the minibus pick up areas; • Reviewing shift changes to ensure that large numbers of staff movements occur outside peak network times to reduce the impact on school trips etc. These could be co-ordinated with other large construction schemes with significant traffic generation in the study area, if required; and • The provision of a staff travel co-ordinator to assist in organising the travel links, reviewing their operation and monitoring compliance with the contractual requirements.	Chapter 15, para 15.9.20
15-10	Draft Outdoor Access Management Plan	Within the site, consideration has been given to pedestrians, cyclists and horse riders alike due to potential interactions between construction traffic and users of the paths and public roads. If required, a Path Planning Study would be conducted post consent and would be secured through a planning condition. Findings from the study would be used to formulate a set of measures into an Outdoor Access Management Plan (OAMP). A draft OAMP, drafted in consultation with the THC Access Officer, is included at Appendix 14.1 – Draft OAMP. Crossing points would be provided where required, with path users having right of way. Appropriate Traffic Signs Manual Chapter 8 compliant temporary road signage would be provided to assist at these crossing for the benefit of all users. The principal contractor would ensure that speed limits are always adhered to by their drivers and associated subcontractors. This is particularly important within close proximity to the tracks / paths and at crossing points. Advisory speed limit signage would also be installed on approaches to areas where path users may interact with construction traffic. Signage would be installed on the site exits that makes drivers aware of local speed limits and reminding drivers of the potential presence of pedestrians and cyclists in the area. This would also be emphasised in the weekly toolbox talks.	Chapter 15, para 15.9.21 to 15.9.24
15-11	Mitigation for horse riders	No scoping response has been received from The British Horse Society, however measures implemented on similar schemes would be given consideration as part of the Proposed Development. These measures are predominantly focused around the interactions between HGV traffic and horses. Horses are normally nervous of large vehicles, particularly when they do not often meet them. Horses are flight animals and will run away in panic if really frightened. Riders will do all they can to prevent this but, should it happen, it could cause a serious accident for other road users, as well as for the horse and rider.	Chapter 15, para 15.9.25 to 15.9.27

Ref	Subject	Mitigation Measure	EIAR Reference
		The main factors causing fear in horses in this situation are: • something approaching them, which is unfamiliar and intimidating; • a large moving object, especially if it is noisy; • lack of space between the horse and the vehicle; • the sound of air brakes; and • anxiety on the part of the rider. The British Horse Society has previously recommended the following actions that would be included in the site training for all HGV staff: • on seeing riders approaching, drivers must slow down and stop, minimising the sound of air brakes, if possible; • if the horse still shows signs of nervousness while approaching the vehicle, the engine should be shut down (if it is safe to do so); • the vehicle should not move off until the riders are well clear of the back of the HGV; • if drivers are wishing to overtake riders, please approach slowly or even stop in order to give riders time to find a gateway or lay by where they can take refuge and create sufficient space between the horse and the vehicle. Because of the position of their eyes, horses are very aware of things coming up behind them; and • all drivers delivering to the site must be patient. Riders will be doing their best to reassure their horses while often feeling a high degree of anxiety themselves.	
15-12	Mitigation during operation	Site entrance roads would be well maintained and monitored during the operational life of the Proposed Development. Regular maintenance would be undertaken to keep the site access track drainage systems fully operation and to ensure there are no run-off issues onto the public road network.	Chapter 15, para 15.9.28
Chapter 16 – Noise and Vibration			
16-1	Underground powerhouse	The reservoirs would be connected by a system of underground waterways, with an underground powerhouse by the shore of the Quoich reservoir. Thus, by the nature of the installation the surrounding topography and physical intervention by significant physical material would offer similarly significant mitigation in respect to noise egress from the turbines within the powerhouse.	Chapter 16, para 16.7.3 to 16.7.4
16-2	Mass balance reduces road transport noise	The location and layout of the scheme also offers the opportunity to win and use materials within the Site associated with borrow pits, which will minimise off-site transport on the road network and noise resulting.	Chapter 16, para 16.7.5
16-3	Construction traffic noise	Traffic during the construction the Proposed Development has been proposed to use the improved Southern Access Route (SAR) which would then avoid direct travel for much of the site traffic via the C1144 during the construction phase, thereby avoiding passage in close proximity to sensitive receptors alongside the C1144, this in itself acts as a form of mitigation for the scheme's construction. Furthermore, the creation of a haul road to connect the lower reservoir works area to the upper reservoir and dam, provides an opportunity to supplement rock quarried within the upper reservoir, with suitable tunnel spoil from the underground works, for dam construction, thus reducing off-site disposal quantities. In regard to works on the SAR, it is highlighted that at the closest approach to receptors works are unlikely continue for more than 2–3-week period for any 1 segment of road improvement works of a 100m span. Thus, it should be understood that the assessment is worst case, and that works at these distances are temporary, and relatively limited in duration.	Chapter 16, para 16.21.1 to 18.21.4

Ref	Subject	Mitigation Measure	EIAR Reference
		The works area will move further away from the identified NSR locations, prior to, and after, this segment of works completes reducing impacts for the remainder of the SAR improvement works as distances to NSR increase respectively.	
16-4	Monitoring	Monitoring of noise during construction works would be covered in a section included in the CNVMP (see Appendix 16.3). It is expected that monitoring of noise would only be carried out in response to a specific complaint. Vibration and air-overpressure monitoring would be carried out, either during trials, or during the early stages of blasting operations, for the purpose of predicting site-specific ground vibration and air-overpressure resulting from these operations. Detail of the monitoring programme would be included in the CNVMP, when more detail on the design of the blasting programme is known.	Chapter 16, para 16.21.6 to 16.21.7
16-5	Construction Noise and Vibration General	Construction noise and vibration would primarily be managed through a CNVMP, which would be formally agreed with THC prior to construction work commencing. Adherence to best practicable means (BPM) controlled through a comprehensive CVNMP has been evidentially demonstrated through practice to result reductions in construction noise in the region of 5dB. Once clearer detail of the construction plant and processes are known, the appointed main contractor would develop and submit, for approval by THC, the project specific CNVMP which would detail how noise and vibration emissions would be managed during construction works. The plan would detail control measures, such as hours of work, mitigation strategy, monitoring proposals and protocol for receiving and dealing with any complaints. As a general principle, consideration would be given in the CNVMP for adopting the 'best practicable means' to noise and vibration control, with particular consideration given to the guidance provided in Section 8 (Control of Noise) of BS5228-1, for the purpose of minimising noise emission. For information, an outline of the typical detail provided in the CNVMP, is included in Appendix 16-3 to this chapter.	Chapter 16, para 16.21.8 to 16.21.11
16-6	Blasting Overpressure and Vibration	The air overpressure and vibration effects of blasting can be reduced through good blast design, although this may come at the expense of higher drilling and detonator costs. Smaller, more frequent blasts lead to smaller but more frequent effects, and the balance between these factors will need to be discussed with THC. Generally, it is noted and should be understood that the "drill and blast" method utilises small charges to better control the path of progress which aligns well with the above general best practice. Methods employed to control air overpressure and vibration from blasting operations will need to be agreed with THC prior to any blasting, as well as the frequency of blasting and a 90% confidence limit for blast PPV values at NSRs. The PPV blasting vibration limit should follow the guidance provided within BS 6472-2:2008 of between 6.0 and 10.0mm/s during the daytime and 2.0mm/s at night. Above ground blasting should not be undertaken in the early morning, late afternoon or evening. The local community will be given advance notice prior to any blasting. Given the intervening dense rock, there are not expected to be any significant issues with continuous underground blasting, particularly where tunnel exits are orientated away from receptors and at significant distances. If necessary, trial blasting "above ground" would identify the worst case scenario for either above, or below ground blasting, the results which could be reported on as evidence to support the above underground blasting practices. An air overpressure limit at NSRs should follow the guidance provided within BS 6472-2:2008 (120 - 150 dB(lin)) and be agreed with THC. THC is reminded that overpressure reported in dB(lin) does not correlate with audibility measured in dB(A). It is recommended that a blast monitoring scheme for air overpressure and vibration be implemented.	Chapter 16, para 16.21.12 to 16.21.24

Ref	Subject	Mitigation Measure	EIAR Reference
		Any scheme should include details on the location of monitoring points and vibration sensitive properties, and the equipment to be used. This should include a series of representative initial trial blasts at the start of the blasting to accurately identify allowable MICs to prevent exceedance of the identified limits at nearby receptors. All blasts at the Site should be monitored and records maintained so that the historical peak particle velocity from blasts can be produced as required. A close working relationship between the construction / blasting operator and the local planning authority will be required for the exchange of information regarding blasting events. All blasting should be carried out using Best Practicable Measures (BPM) where available, to ensure that the resultant noise, vibration and air overpressure are minimised in accordance with current British Standards and guidelines. Blast designs should be developed with the aid of regression lines determined from a logarithmic plot of Peak Particle Velocity against scaled distances. The regression lines should be regularly updated using the blasting monitoring information. The regression lines should be made available for inspection upon request. Fly rock requirements will be controlled through Health and Safety legislation.	
16-7	Operational Noise and Vibration	The best available operational methods should be employed at all times, having regard to the principles of BPM to minimise noise and vibration from the development. Control measures to prevent underground plant noise from exceeding appropriate operational noise limits will be finalised during detailed design. These control techniques may include measures such as orientation away from NSRs, vent attenuators, acoustic lining within the vent shaft, and acoustic louvres at intake and extract terminals. If required, mitigation for LFN and groundborne noise and vibration could include vibration isolation, mufflers, attenuators, etc. and will be considered during the detailed design stage. Distance attenuation noting the site layout and context would also be significantly beneficial as would the enclosing structure design as noted to equipment proposed in relation to the switchyard.	Chapter 16, para 16.21.25 to 16.21.28
16-8	Operational Traffic Noise	Operational traffic noise was scoped out of the EIA at consultation. Nonetheless for context, traffic associated with the operational phase would be considered of negligible importance with 30 staff travelling to the site daily split across 3 circa 8 hour shift patterns. This would result in no more than an estimated 20 car movements (10 in either direction) in any one hour period of shift change. Car passes will typically be isolated, in that they will not all occur simultaneously. On this basis haul route methods of assessment as referenced above from BS5228:2014 where traffic flows are low have been considered, SLR calculate a noise level of <16dB LAeq, 1 hour at distance of 10m from the C1144 reflective of NSRs along the C1144. When considered against the BS4142:2014 1 hour assessment period for daytime. This aligns with compliance of the discussed operational noise level limits at consultation of 25dBA LAeq, T.	Chapter 16, para 16.21.29 to 16.21.33
Chapter 17 – Socioeconomics and Tourism			
17-1	Mitigation During Construction	No socioeconomic or tourism mitigation measures have been considered for the Proposed Development at construction stage as there are no significant adverse effects anticipated. Furthermore, there are mitigation measures contained within the Access and Recreation Chapter, to maintain access during construction and operation, to reduce the landscape and visual effects of the Proposed Development. This assessment demonstrates that there are beneficial socioeconomic effects across the construction and operational phases of the Proposed Development. For example, the local economy would be supported by the Proposed Development through direct and indirect employment and expenditure opportunities.	Chapter 17, paras 17.7.1 to 17.7.2

Ref	Subject	Mitigation Measure	EIAR Reference
17-2	Mitigation During Operation	No socioeconomic or tourism mitigation measures have been considered for the Proposed Development at the operation stage as there are no significant adverse effects anticipated. Furthermore, there are mitigation measures contained within the Access and Recreation Chapter, to maintain access during construction and operation, to reduce the landscape and visual effects of the Proposed Development.	Chapter 17, para 17.7.3
Chapter 18 – Cultural Heritage			
18-1	Archaeologist of historic environment assets found	The Proposed Development would be situated in an area containing no recorded historic environment assets and the potential for the presence and survival of unrecorded remains is considered by both the Highland Council Historic Environment Team and Historic Environment Scotland to be low. On this basis, cultural heritage has been scoped out of the EIA. Should any potential historic environment assets be identified within the site during construction, these would be investigated by an appropriately qualified archaeologist before proceeding with any activity which could destroy them.	Chapter 18, paras 18.1.1 to 18.1.2

