Chapter 16: Traffic and Transport

Appendices

Glossary of Terms

Abnormal Load	A vehicle that has a weight of more than 44,000kg, an axle load of more than 10,000kg for a single non driving axle or 11,500kg for a single driving axle.
Automatic Traffic Count (ATC)	Data used to determine the existing traffic flows and speeds on the road network
DMRB	Design Manual for Roads and Bridges.
Heavy Goods Vehicles (HGV)	This is the EU term for any truck with a gross combination mass of over 3,500kg.
Highland wide Local Development Plan (HwLDP)	Forms the basis for spatial planning within the Highland Council area as a whole.
IEMA	Institute of Environmental Management and Assessment
National Road Traffic Forecast	Forecasts of road traffic, congestion and emissions
Planning Advice Note (PAN)	Notes produced by Scottish Government which provide advice on good practice and other relevant information.
Professional Judgement	The informed view of a qualified and experienced professional.
Receptor	Users of roads and users and resident of the settlements through which the roads pass.
Scottish Canals	The British Waterways Board, operating as Scottish Canals – Public body with statutory duty for the operation and maintenance of waterways in Scotland.
Scotways (The Scottish Rights of Way and Access Society)	Voluntary organisation promoting the use of rights of way in Scotland.
Severance	The perceived division that can occur within a community when it becomes separated by a major traffic artery.
Significant Effects	Effects deemed to be significant in relation to the EIA Regulations.
Third National Planning Framework for Scotland (NPF3)	Sets the context for development planning in Scotland and provides a framework for the spatial development of Scotland as a whole.
Transport Scotland	The national transport agency for Scotland.
Trunk Road	A strategic road that connects two or more cities, ports, airports and other places which is the recommended route for long distance and freight traffic. Many trunk roads have segregated lanes.
85th Percentile Speed	This is the speed that 85 percent of vehicles do not exceed (or alternatively, only 15% of vehicles go faster than this speed). It is a reasonable basis for speed limit.

16 Traffic and Transport

16.1 Executive Summary

16.1.1 An assessment of potential impacts on traffic and transport associated with construction of the Revised Coire Glas Pumped Storage Scheme (The Proposed Development) has been undertaken, based upon traffic surveys collected for the road network surrounding and serving it.

16.1.2 The assessment has reviewed existing traffic data and compared it against estimated traffic flows associated with the construction activities of The Proposed Development.

16.1.3 The Proposed Development would lead to increased traffic volumes on roads in the vicinity, during the construction phase.

16.1.4 A percentage impact review has been undertaken to identify the areas where significant impacts may occur.

16.1.5 A review of impact severity has been undertaken in line with recognised guidelines. This identified that significant impacts could develop for some users of two sections of the study area under consideration and led to the development of proposed mitigation measures to help offset the impact.

16.1.6 With the implementation of appropriate mitigation, significant residual effects are still anticipated in respect of traffic and transport issues. The residual effects were assessed to be moderate but as they would occur during the construction phase only, they are temporary and reversible.

16.2 Introduction

16.2.1 This Chapter considers the potential impacts on traffic and transport associated with the Revised Coire Glas Pumped Storage Scheme (The Proposed Development).

16.2.2 Figure 1.1 shows the site boundary, which is referred to as The Proposed Development. Details of The Proposed Development are provided in Chapter 3: Description of Development.

16.2.3 The assessment focuses on the construction phase of The Proposed Development and considers off-site vehicle movements associated with the transportation of construction materials, generator components, site staff and other miscellaneous items. The assessment also includes consideration of the removal of spoil material from site, and to that end should be read in conjunction with Chapter 7: Spoil Management.

16.2.4 This assessment has been undertaken by WYG.

16.3 Scope of Assessment

16.3.1 This Chapter considers the potential for likely significant effects on receptors along the transport routes resulting from vehicle movements associated with the construction of The Proposed Development.

16.3.2 An overview of the impacts of the traffic has been considered in accordance with Institute of Environmental Assessment (now Institute of Environmental Management and Assessment (IEMA) and referred to as such below) Guidelines for the Environmental Assessment of Road Traffic.

16.3.3 The scope of the assessment has been informed by consultation responses summarised in Table 16.1 and the IEMA Guidelines.

Scoping and Consultation

16.3.4 A scoping exercise was carried out and a Scoping Report submitted to the Scottish Government Energy Consents Unit in May 2017. A Scoping Response was received in July 2017, confirming the proposed scope of the traffic and transport assessment. Relevant scoping responses are presented in Table 16.1.

Table 16.1: Scoping Discussions

Consultee	Summary Response	Comment/Action Taken
The Highland Council	Request for the impact that construction traffic will have and what mitigation is proposed, especially for rock extraction from the site.	An assessment has been undertaken and is presented in this chapter and supporting appendices. Chapter 7: Spoil Management considers the re-use and transport options for taking excavated rock off site.
Scottish Canals	Use and development of canal infrastructure. Use of the canal for rock extraction movements.	Consideration of using the canal has been made as demonstrated in this Chapter and supporting appendices. Chapter 7: Spoil Management considers the re-use and transport options for taking excavated spoil off site.
Scotways	Concerns that the proposed infrastructure will impact on rights of ways and other leisure trails.	The construction traffic mitigation proposals detail the proposed mitigation in relation to these matters. Chapter 19: Land Use and Recreation also considers the impact on recreational routes.
Transport Scotland	Request for the impact that construction traffic will have on the trunk road network.	An assessment has been undertaken and is presented in this Chapter and supporting appendices.

16.3.5 In addition to the formal scoping, the Applicant met with interested parties throughout the EIA process to discuss matters of interest. These included:

- Scottish Canals: To determine the feasibility and constraints associated with the use of the Caledonian Canal. This discussion also reviewed the operational issues that needed to be considered with marine access;
- Aggregate Industries: To determine the best practice associated with the processing and transhipment of large volumes of excavated stone;
- Network Rail: To discuss the current rail assets that could be used for the onward shipping by rail of construction material and rock exports; and

- DB Cargo: To discuss the operational aspects of large scale rock extract from the site by rail, what constraints exist and how these could be overcome.

16.3.6 These scoping discussions have helped determine the access scenario assessed in this Chapter and have helped influence the mitigation measures to ensure that these are practical, efficient and can integrate into the existing and proposed transport network.

Issues Scoped Out of Assessment

16.3.7 During operation, The Proposed Development would be manned from the administration building at the lower reservoir. It is estimated that an average of 20 staff would be employed at the facility on a permanent basis, requiring daily access. Infrequent access by heavier vehicles for maintenance would occur as required.

16.3.8 Given the low frequency of such visits, traffic flows are not considered to be significant and the operational phase of The Proposed Development is therefore scoped-out of the detailed assessment.

16.3.9 The decommissioning phase of The Proposed Development could generate movements by Heavy Goods Vehicles (HGVs) for the removal of infrastructure; however, given the longevity of The Proposed Development, it is considered unrealistic to try to estimate the traffic conditions so far ahead in the future. Traffic effects associated with the decommissioning phase of The Proposed Development are therefore scoped-out of this assessment and would be assessed at that point in time, if the ruling planning legislation requires it or could be covered by an appropriate planning condition.

16.4 Policy, Legislation and Guidance

16.4.1 A review of relevant transport and planning policies has been undertaken and is summarised below. The review provides the basis for the wider development context of energy proposals. Detailed information on planning policy is contained within the Planning Statement accompanying the application for The Proposed Development and Chapter 5: Planning Policy.

National Policy

Scottish National Planning Framework (NPF)

16.4.2 The Scottish National Planning Framework (NPF) sets the context for development planning in Scotland and provides a framework for the spatial development of Scotland as a whole. It sets out the Government's development priorities over the next 20-30 years and identifies national developments which support the development strategy. Scotland's third National Planning Framework 3 was set out in the Scottish Parliament on June 23, 2014.

Planning Advice Note (PAN) 75

16.4.3 PAN75: Planning for Transport provides advice on the requirements for Transport Assessments as follows:

16.4.4 "requires a transport assessment to be produced for significant travel generating

developments. Transport Assessment is a tool that enables delivery of policy aiming to integrate transport and land use planning."

16.4.5 "All planning applications that involve the generation of person trips should provide information which covers the transport implications of the development. The level of detail will be proportionate to the complexity and scale of the impact of the proposal...For smaller developments the information on transport implications will enable local authorities to monitor potential cumulative impact and for larger developments it will form part of a scoping exercise for a full transport assessment. Development applications will therefore be assessed by relevant parties at levels of detail corresponding to their potential impact."

Transport Assessment Guidance (2012)

16.4.6 Transport Scotland's (TS) Transport Assessment Guidance was published in 2012. It aims to assist in the preparation of Transport Assessments (TA) for development proposals in Scotland such that the likely transport impacts can be identified and dealt with as early as possible in the planning process. The document sets out requirements according to the scale of development being proposed.

16.4.7 The document notes that a TA will be required where a development is likely to have significant transport impacts but that the specific scope and contents of a TA will vary for developments, depending on location, scale and type of development.

Local Policy

The Highland-wide Local Development Plan

16.4.8 The Highland-wide Local Development Plan (HWLDP) was adopted by the Council in 2012 and is the established planning policy for the area. It sets out the Council's land use strategy which recognises existing developments, promotes sustainable economic growth and conserves the natural and built environment of the Highlands.

16.4.9 The HWLDP indicates that the Council wish to see improvements to the A82 and encourage active travel within the West Highlands area. Policy 67 outlines the Council's views as to sustainable energy projects, with the Council indicating that projects should consider their impact on local amenity of sensitive areas and on public access areas including Core Paths. Land and water access must also be considered.

16.4.10 The HWLDP also refers to the Core Path network and Policy 77 notes that developments that impact the Core Path network should ensure that proposals either maintain or enhance the route or that alternative access provision is made. Major developments should also outline how access is to be provided throughout the lifetime of the development.

16.4.11 The HWLDP also protects Long Distance Routes via Policy 78. This identifies the northwest shore of Loch Lochy as a route and that this should be protected and enhanced where possible.

The Highland Council Local Transport Strategy

16.4.12 The Local Transport Strategy (LTS) sets the Councils' transport policies for the study area. As part of the LTS, the Council would require a Transport Assessment (TA) to accompany major developments. In addition, the Council is supportive of moves to use the Caledonian Canal instead of road transport and supports measures to introduce freight transfer facilities.

16.4.13 The LTS seeks to improve road safety in the area and encourages the interaction between the Council and Transport Scotland (as trunk road operator).

16.4.14 The LTS covers the years 2010 – 2014 and has yet to be updated. There are a number of Active Travel Plans to supplement the LTS, however none of these cover the immediate study area.

16.5 Methodology

16.5.1 The methodology adopted in this assessment has involved the following key stages:

- Determine baselines;
- Review development for impacts;
- Evaluate significance;
- Identify mitigation; and
- Assess residual impacts.

Extent of the Study Area

16.5.2 The study area for the appraisal was identified through an assessment of the likely routes between suppliers of equipment and materials and The Proposed Development site. The study area is defined as the public roads which would be used during the construction phase to access The Proposed Development.

16.5.3 Sensitive receptors within the study area were considered to be users of the roads and users and residents of the settlements through which the roads pass.

Methodology for Establishing Baseline Conditions

Desk Study

16.5.4 The baseline review focuses on the nature of the surrounding road infrastructure and the level of traffic that uses it. It has been informed by the following:

- Review of responses to the Scoping Report;
- Review of roads hierarchy promoted in relevant Local Transport Strategies;
- Identification of sensitive junction locations;
- Identification of constraints to the roads network, with or without height/width/weight restrictions;
- Identification of areas of road safety concerns;

- Identification of other traffic sensitive receptors in the area (routes, communities, buildings etc.);
- Review of Ordnance Survey (OS) plans to derive a local area roads network; and
- Consideration of potential supply locations for construction materials to inform extent of roads network to be considered in the assessment.

16.5.5 The desk study also included a review of the traffic and transport assessment undertaken for The Consented Development. In addition, a review of the Caledonian Canal was undertaken on site and via discussions with Scottish Canals with respect to its ability to transfer freight traffic and for additional trips to be operated along with existing traffic from tourist, leisure and existing freight movements.

Field Study

16.5.6 A site visit was undertaken in September 2017 to review the public road network, canal infrastructure and publicly accessible sections of the rail network that is potentially impacted by The Proposed Development.

16.5.7 Automatic Traffic Count (ATC) surveys to determine existing traffic flows and speeds on the surrounding road network were undertaken to further enhance the understanding of the road network in the study area.

Methodology for Assessment of Effects from Construction

Criteria for Assessing Sensitivity of Receptors

16.5.8 In terms of traffic and transport impacts, the receptors are the users of the roads within the study area and the locations through which those roads pass.

16.5.9 The IEMA Guidelines document includes guidance on how the sensitivity of receptors should be assessed. Using that as a base, professional judgement was used to develop a classification of sensitivity for users based on the characteristics of roads and locations. This is summarised in Table 16.2.

Table 16.2: Classification of Receptor Sensitivity

Receptor	Sensitivity			
	Negligible	**Low**	**Medium**	**High**
Users of Roads	Where roads have no adjacent settlements. Includes new strategic trunk roads that would be little affected by additional traffic and suitable for Abnormal Loads and new strategic trunk road junctions capable of accommodating Abnormal Loads	Where the road is Trunk or A-class, constructed to accommodate significant HGV composition. Includes roads with little or no traffic calming or traffic management measures	Where the road is a local A or B class road, capable of regular use by HGV traffic. Includes roads where there is some traffic calming or traffic management measures	Where the road is a minor rural road, not constructed to accommodate frequent use by HGVs. Includes roads with traffic control signals, waiting and loading restrictions, traffic calming measures
Users / Residents of Locations	Where a location includes individual dwellings or scattered settlements with no facilities	Where a location is a small rural settlement, few community or public facilities or services	Where a location is an intermediate sized rural settlement, containing some community or public facilities and services	Where a location is a large rural settlement containing a high number of community and public services and facilities

16.5.10 Where a road passes through a location, users are considered subject to the highest level of sensitivity defined by either the road or location characteristics.

Potential Impacts and Criteria for Assessing Magnitude of Change

16.5.11 The following rules, also taken from the IEMA Guidelines, are used to determine which links within the study area should be considered for detailed assessment:

- Rule 1 – include highway links where traffic flows are predicted to increase by more than 30% (or where the number of heavy goods vehicles is predicted to increase by more than 30%); and
- Rule 2 – include any other specifically sensitive areas where traffic flows are predicted to increase by 10% or more.

16.5.12 The IEMA Guidelines identify the key impacts that are most important when assessing the magnitude of traffic impacts from an individual development: the impacts and levels of magnitude are discussed below:

- Severance – the IEMA Guidance states that, “severance is the perceived division that can occur within a community when it becomes separated by a major traffic artery.” Further, “Changes in traffic of 30%, 60% and 90% are regarded as producing ‘slight’, ‘moderate’ and ‘substantial’ [or minor, moderate and major] changes in severance respectively”. However, the Guidelines acknowledge that “the measurement and prediction of severance is extremely difficult”. (Para 4.28);
- Driver delay – the IEMA Guidelines note that these delays are only likely to be ‘significant [or major] when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.” (Para 4.32);

- Pedestrian delay – the delay to pedestrians, as with driver delay, is likely only to be major when the traffic on the network surrounding the development is already at, or close to, the capacity of the system. An increase in total traffic of approximately 30% can double the delay experienced by pedestrians attempting to cross the road and would be considered 'major';
- Pedestrian amenity – the IEMA Guidelines suggests that a tentative threshold for judging the significance of changes in pedestrian amenity would be where the traffic flow (or its lorry component) is halved or doubled (Para 4.39). It is therefore considered that a change in the traffic flow of -50% or +100% would produce a 'major' change in pedestrian amenity;
- Fear and intimidation – there are no commonly agreed thresholds for estimating levels of fear and intimidation, from known traffic and physical conditions. However, as the impact is considered to be sensitive to traffic flow, changes in traffic flow of 30%, 60% and 90% are regarded as producing 'minor', 'moderate' and 'major' changes in severance respectively; and
- Accidents and safety – professional judgement would be used to assess the implications of local circumstances, or factors which may elevate or lessen risks of accidents.

Criteria for Assessing Cumulative Effects

16.5.13 Traffic associated with operational developments is currently using the road network so flows are captured in baseline traffic surveys.

16.5.14 Traffic associated with developments that have received consent but have not yet been constructed (committed developments) and which is identified to impact on the study area, is included as part of the future year baseline.

16.5.15 Consideration is also given to developments that are the subject of valid planning applications and where it is identified that construction traffic flows would impact on the study area, over the period of construction of The Proposed Development.

Significance Criteria

16.5.16 To determine the overall significance of the impacts, the results from the receptor sensitivity and effects magnitude assessment are correlated and classified using a scale set out in Table 2.4 of Volume 11, Section 2, Part 5 of the DMRB and summarised in Table 16.3.

Table 16.3: Classification of Receptor Sensitivity

Receptor Sensitivity	Sensitivity			
	Major	**Moderate**	**Minor**	**Negligible**
High	Large	Large/ Moderate	Moderate/ Slight	Slight
Medium	Large/ Moderate	Moderate	Slight	Slight/ Neutral
Low	Moderate/ Slight	Slight	Slight	Slight/ Neutral
Negligible	Slight	Slight	Slight / Neutral	Neutral

16.5.17 Impacts would be considered significant where they are assessed to be large or moderate.

16.6 Baseline Conditions

Current Baseline

Existing Site and Access

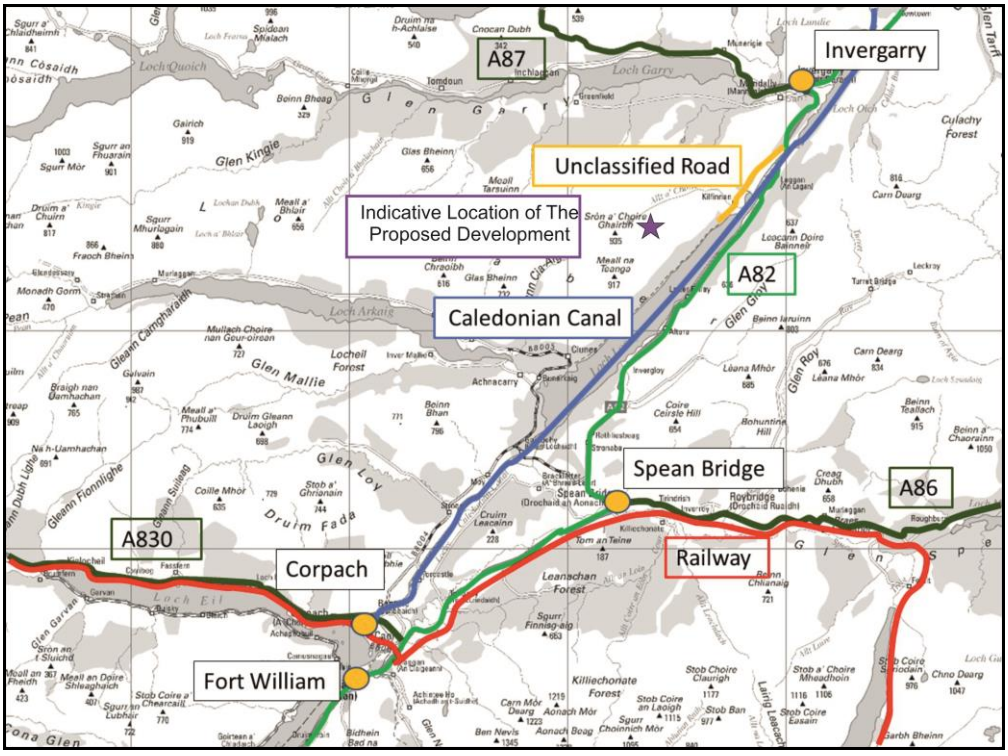
16.6.1 The Proposed Development site is currently undeveloped and no formal public roads provides access to either the upper or lower working areas.

16.6.2 Access to the lower working area of The Proposed Development is made via a private access track that serves agricultural and timber traffic. This is accessed from a public road, the West Loch Lochy Road (known locally as the Kilfinnan Road), an unclassified road that is maintained by The Highland Council. This road forms part of National Cycle Route 78, part of the Great Glen Way and is also used by pedestrians. Access to the upper working area of The Proposed Development is made via foresty tracks that tie into the A87 trunk road at White Bridge (Invergarry).

Study Area

16.6.3 The study area includes the A82 trunk road from the south of Fort Augustus, through to the south of Spean Bridge. The A87 from the west of Invergarry and the A86 to the east of Spean Bridge are also included, as is the unclassified Kilfinnan Road. The study area is indicated in Plate 16.1.

Plate 16.1: Study Area



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16.6.4 Kilfinnan Road joins the strategic trunk road network at Laggan Locks. A simple priority junction provides access to and from the A82 trunk road.

16.6.5 The A82 provides connections to Inverness to the northeast and Fort Willian to the southwest of The Proposed Development. It is managed on behalf of Transport Scotland by BEAR Scotland.

16.6.6 The study area also includes the Caledonian Canal (which includes Loch Lochy) from the proposed jetty on the shore of Loch Lochy through to the canal terminus at Corpach.

16.6.7 The Caledonian Canal connects Corpach to the southwest, with Inverness to the northeast. The canal is operated by Scottish Canals and is predominantly used by leisure craft. The canal is controlled by locks along its route, the largest being Neptune's Staircase at Banavie, near Corpach. This features eight connected locks to raise the canal from sea level to the canal level at Banavie.

16.6.8 The canal is a vital marine access and egress route for The Proposed Development.

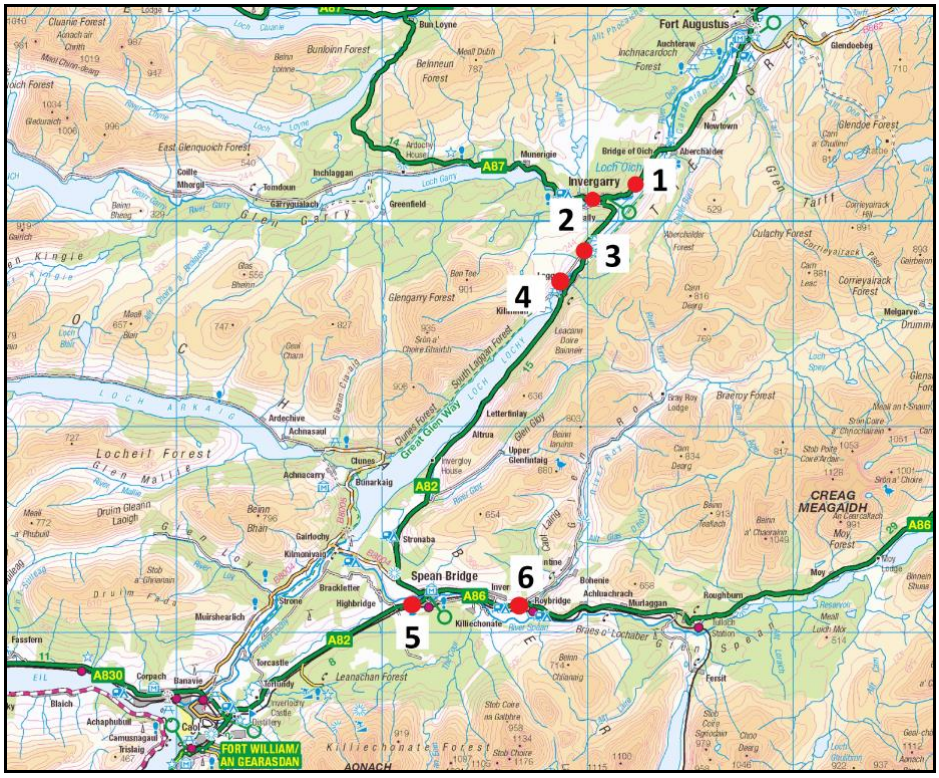
Existing Traffic Movements

16.6.9 To determine the existing road usage, Automatic Traffic Count (ATC) surveys were commissioned. The surveys were undertaken for a one week period at the end of October 2017 to provide a neutral period of traffic flow. These surveys were taken outwith the Half Term holiday period to ensure that normal traffic conditions were observed, in line with industry standard good practice.

16.6.10 The surveys recorded traffic volume, vehicle class and speed at the following locations which are indicated in Plate 16.2:

- A82 North of Invergarry;
- A87 near the proposed northern site access junction;
- A82 at the junction with Kilfinnan Road;
- Kilfinnan Road;
- A82 to the south of Spean Bridge; and
- A86 to the east of Spean Bridge.

Plate 16.2: Locations of Traffic Count Sites



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16.6.11 The average 12 hour and 24 hour two-way traffic flows at each location were calculated and have been used to create a base set of traffic flows for 2017 which are summarised in Table 16.4. The 5-day average and 85th percentile speeds observed at the count locations are also summarised in Table 16.4.

Table 16.4: 2017 Traffic Count and Speed Survey Summary

Survey Location	Time Period	Cars / Lights	HGV	Total	Average Speed (mph)	85th %ile Speed (mph)
A82 North of Invergarry	12 Hour Flow	1680	660	2340	-	-
	24 hour Flow	1861	746	2607	44.9	53.1
A87 West of Invergarry	12 Hour Flow	1378	377	1755	-	-
	24 hour Flow	1530	432	1961	37	43.5
A82 Site Access	12 Hour Flow	2505	879	3383	-	-
	24 hour Flow	2766	1009	3775	46.8	56.0
Kilfinnan Road	12 Hour Flow	41	17	58	-	-
	24 hour Flow	50	19	69	23.6	27.2
A82 south of Spean Bridge	12 Hour Flow	3855	1080	4935	-	-
	24 hour Flow	4389	1259	5649	30.7	36.0
A86 east of Spean Bridge	12 Hour Flow	1447	497	1945	-	-
	24 hour Flow	1628	567	2195	43.1	52.1

16.6.12 The speed statistics indicate average and 85th percentile speeds that are not unusual for

the rural nature of the road network. The low Kilfinnan Road speeds are considered to be a function of the existing road geometry.

Accident History

16.6.13 WYG obtained road traffic accident data from the online resource www.crashmap.co.uk (which provides summaries of personal injury accident data recorded by reporting police officers) for the three previous years (2014 – 2017). It is noted that there were 24 recorded accidents within a 10 km radius of the A82 / Kilfinnan Road junction. Of these, three are listed by the reporting officer as being serious, whilst one resulted in a fatality. The remaining accidents were noted as slight.

16.6.14 A detailed summary of the accidents and plan illustrating the accident locations is presented in Appendix 16.2.

16.6.15 No accidents were recorded on the Kilfinnan Road or at its junction with the A82. No accidents were noted at the A87 White Bridge access junction.

Abnormal Load Access

16.6.16 A review of the study area to accommodate abnormal load access for road based traffic has been undertaken from Inverness to the Kilfinnan Road and A87 White Bridge access points. The results of this study are included in Appendix 16.1.

Walking / Cycling Network

16.6.17 Kilfinnan Road forms part of the Great Glen Way, a long distance path following the Great Glen, running from Fort William in the west to Inverness in the east and covering 79 miles. It also forms part of National Cycle Route 78, The Caledonia Way, a 237 mile route from Inverness to Campbeltown.

16.6.18 The Highland Council Core Path Plan indicates that a number of routes proposed for construction access are either Core Paths or cross Core Paths.

16.6.19 The Great Glen Canoe Trail is a suggested water access route for canoe traffic along the Caledonian Canal and whilst it has no set routes within the loch, it is a known route for leisure users of the canal.

16.6.20 Further details of the Path, Core Path, National Cycle Route and Great Glen Canoe Trail is provided in Chapter 19: Land Use and Recreation (see also Figure 19.1).

Future Baseline

16.6.21 It is anticipated that the main civil engineering construction period would last up to seven years, as described in Chapter 3: Description of Development (Section 3.13). For the purposes of this assessment, it is assumed that the construction start date is 2021. On this basis, it is estimated that the peak period of construction generating the greatest volume of traffic would occur in 2026/2027. Any lengthening in the programme would have a reduced effect on the surrounding road network in peak period trip generation terms.

16.6.22 Future year base traffic flows were determined by applying a National Road Traffic Forecast (NRTF) low growth factors to the surveyed traffic flows. Low NRTF growth rates

have been used given the low potential for significant traffic growth in the vicinity of The Proposed Development, a function of the very rural nature of the study area.

16.6.23 Low NRTF assumes a plateau of traffic growth post 2025 and as such the 2026 and 2027 flows are assumed to be the same.

16.6.24 The future year 2026/2027 base traffic flows are summarised in Table 16.5.

Table 16.5: 2026 / 2027 Base Traffic Conditions (Average Daily Two-Way Flows)

Survey Location	Time Period	Cars / Lights	HGV	Total
A82 North of Invergarry	12 Hour Flow	1689	663	2352
	24 hour Flow	1871	750	2621
A87 West of Invergarry	12 Hour Flow	1386	379	1764
	24 hour Flow	1538	434	1972
A82 Site Access	12 Hour Flow	2518	883	3401
	24 hour Flow	2781	1015	3795
Kilfinnan Road	12 Hour Flow	42	17	58
	24 hour Flow	50	19	69
A82 south of Spean Bridge	12 Hour Flow	3876	1086	4961
	24 hour Flow	4413	1266	5679
A86 east of Spean Bridge	12 Hour Flow	1455	500	1955
	24 hour Flow	1637	570	2207

Summary of Sensitive Receptors

16.6.25 On the basis of the classifications contained within Table 16.2, it is considered that users of:

- The Kilfinnan Road are receptors of High sensitivity;
- The A82 north of Invergarry are receptors of Low sensitivity;
- The A87 Invergarry and the settlement of Invergarry are receptors of Medium sensitivity;
- The A82 near the Kilfinnan Road junction is a receptor of Medium sensitivity;
- The A82 Spean Bridge and the settlement of Spean Bridge through which it passes are receptors of Medium sensitivity; and
- The A86 east of Spean Bridge are receptors of Low sensitivity. However, the road also passes through Spean Bridge, users of / residents of which are considered receptors of Medium sensitivity.

16.7 Potential Effects

16.7.1 This assessment has assumed that the main civil engineering construction period would last up to seven years (see Chapter 3: Description of Development, Plate 3.8), with the total construction programme extending over a 9 year period. A construction start date of 2021 is also assumed.

Construction Vehicles

16.7.2 Traffic approaching The Proposed Development would be formed of:

- Staff transport, either cars or staff buses;
- Vehicles, largely HGVs transporting construction equipment and materials, machinery and supplies such as cement and reinforcement;
- HGVs removing excavated spoil material from the site that cannot be used within the construction process;
- Abnormal loads associated with the generating plant; and
- Vehicles transporting sundry plant and general supplies.

Development Traffic Generation

Staff Traffic

16.7.3 A project of this size would require a large workforce that would need to be housed nearby, as sufficient temporary accommodation does not exist in the surrounding area at present. It is anticipated that worker accommodation would be provided to support the project within the general vicinity of The Proposed Development.

16.7.4 It is anticipated that staff would generally arrive on coaches to coincide with their shift patterns. The workforce would typically be around 500 on average but this would vary throughout the construction period.

16.7.5 Client and site supervision staff have been assumed to arrive by 4x4 vehicle and would car share as much as is possible.

Construction Traffic

16.7.6 An estimate of concrete and steel reinforcement requirements for the various structures required as part of The Proposed Development has been undertaken, assuming on-site batching. Approximately 50,000 tonnes of cement are likely to be required on-site at the dam, whilst approximately 145,000 tonnes are likely to be required at the lower control works to allow construction activities within the tunnels and underground cavern power station.

16.7.7 Approximately 18,000 tonnes of reinforcement are likely to be required for the dam site, whilst approximately 8,000 tonnes are likely to be required for lower control works construction.

16.7.8 Cement would arrive to site using three axle cement tankers. Reinforcement would arrive using standard articulated HGVs.

16.7.9 Access during construction and operation of The Proposed Development would utilise existing public roads and forestry tracks where possible, and upgraded as required. The construction of new tracks to the upper reservoir works would also be required.

16.7.10 Following construction activities, the off-road elements of some tracks would be restored and narrowed, although the works to Kilfinnan Road are proposed to be permanent and constructed to adoptable standards.

16.7.11 Site establishment areas would require to be constructed to serve the upper and lower reservoir works. These would require the import of material, site huts, facilities and regular service deliveries throughout the construction period.

16.7.12 Deliveries of plant and material to site would be undertaken by HGVs, none of which would be classified as Abnormal Loads. These would access the site via the two access junctions, depending upon the loads / materials carried.

16.7.13 Construction plant would need to be delivered to site. Normal construction plant would be delivered using low loader articulated HGVs. Larger scale equipment such as large loaders would be brought in using specialist abnormal load transporters. Further details can be found in Appendix 16.1.

16.7.14 There are a number of abnormal loads associated with The Proposed Development, mainly relating to tunnel liners, turbine gear and transformers. It is anticipated that these would be brought to site by barge in line with the government's "Water Preferred" policy for the transport of large and heavy loads.

Spoil Extraction

16.7.15 As explained in Chapter 7: Spoil Management it is anticipated that the quantity of spoil generated by The Proposed Development would result in approximately 3.9 million tonnes of surplus material at the lower reservoir works. This would require on-site reuse or onward transportation for re-use off site.

16.7.16 Following a review of the options available for the transport of excavated material from site, based on the 'worst case scenario' (i.e. a 1500 MW scheme), it is clear that no one access solution has the capacity to accommodate the removal of all spoil material at the rate of excavation.

16.7.17 The use of the Caledonian Canal would feature in the rock extraction and details of how this is to be undertaken are provided in Chapter 7: Spoil Management. Large capacity barges would take material from The Proposed Development site and transport it using the canal to Corpach, where it would be then sent on by either rail, sea or road.

16.7.18 A new temporary haul road to connect the lower reservoir works area to the upper reservoir and dam, would provide an opportunity to supplement rock quarried for dam construction with suitable tunnel spoil from the underground works. The viability of constructing this temporary haul road would be dependent on the scale of the project (i.e. 1500 MW or less), and the outcome of the final Spoil Management Plan (see Chapter 7: Spoil Management).

16.7.19 Given the uncertainty associated with the ability to use tunnel spoil in the construction of

the dam, the viability of constructing the temporary haul road and the potential to use the Caledonian Canal to transport all spoil, the scenario (in transport terms) that is assessed in this EIA Report for the re-use and transportation of spoil assumes that circa 3.9 million tonnes of excavated material is transported off site. This would result in the following peak road and canal traffic scenario:

- HGV Road access from the site of no more than 120 trips per day[1] (1200 tonnes per day) accessing the trunk road network and allowing access to the A82 (north and south), A86 (east) and A87 (west). This represents fewer than 9 loaded vehicles per hour departing the site (assuming a 7 hour working day), which is considered to be within acceptable levels of disturbance and impact on the trunk road network; and
- Transport to Corpach by 1,000 tonne barge on the Caledonian Canal for residual material. At the peak of operation this would result in 3 loaded barges per day leaving the site.

16.7.20 As referred to above, The Proposed Development includes the construction of a temporary haul road to connect the lower reservoir works with the upper reservoir works. It has been estimated that up to 1.9 million tonnes of excavated spoil material could be incorporated into the construction of the dam should tunnel spoil be suitable. This has the potential to reduce road and / or canal traffic volumes during the period of dam construction (see paragraph 16.7.37 to 16.7.39).

Total Construction Generation

16.7.21 The construction phase road traffic has been distributed to the various phases of the construction process as set out in the indicative construction programme described in Chapter 3: Description of Development.

16.7.22 The peak barge traffic movements associated with the extraction of spoil material are outlined in Appendix 7.2. The maximum level of barge traffic is 6 trips (3 In and 3 Out) per day. The barge traffic has been excluded from the IEMA assessment tables.

16.7.23 Given the above, the generation of traffic has been established for all staff and construction traffic movements. The flows have then been added to traffic volumes associated with the development scenario for the transport of excavated material from site as described above (see also Chapter 7: Spoil Management). The peak of traffic generation occurs in June 2026.

Development Traffic Distribution

16.7.24 The distribution of development trips on the road network would vary depending on the types of loads being transported.

16.7.25 Traffic has been divided between the two access points, namely:

- Upper Reservoir: Accessed from the A87; and
- Lower Reservoir: Accessed from Kilfinnan Road.

[1] Note that other construction related HGV and Light Good Vehicle (LGV) would be in addition to this, as is described later in this Section.

16.7.26 The assessment has assumed the distribution outlined in Table 16.6 which is based upon previous experience of recent construction projects in the area and the likely supply locations for materials.

Table 16.6: Road Traffic Distribution

Survey Location	Origin			
	A82 South	A82 North	A87	A86
Compound Supplies	50%	50%	0%	0%
Plant Deliveries	100%	0%	0%	0%
Cement Deliveries	100%	0%	0%	0%
Reinforcement Deliveries	0%	0%	0%	100%
Cranes	100%	0%	0%	0%
Upper Reservoir Site Staff 4x4	40%	30%	30%	0%
Upper Reservoir Site Staff Coaches	50%	50%	0%	0%
Lower Reservoir Site Staff 4x4	40%	30%	30%	0%
Lower Reservoir Site Staff Coaches	50%	50%	0%	0%
	Destination			
	A82 South	A82 North	A87	A86
Extracted Rock	40%	40%	0%	20%

Predicted Impact

16.7.27 The development of traffic flows indicates a peak period of traffic occurring in 2026.

16.7.28 Peak traffic flows were distributed through the road network and the resulting flows are illustrated in Table 16.7. These are daily flows (i.e. include both inbound and outbound movements).

Table 16.7: 2026 Peak Construction Traffic Flow (Average Daily Two-Way Flows)

Survey Location	Time Period	Cars / Lights	HGV	Total
A82 North of Invergarry	12 Hour Flow	18	182	200
	24 hour Flow	18	182	200
A87 West of Invergarry	12 Hour Flow	30	64	94
	24 hour Flow	30	64	94
A82 Site Access	12 Hour Flow	42	282	324
	24 hour Flow	42	282	324
Kilfinnan Road	12 Hour Flow	30	264	294
	24 hour Flow	30	264	294
A82 south of Spean Bridge	12 Hour Flow	24	119	143
	24 hour Flow	24	119	143
A86 east of Spean Bridge	12 Hour Flow	0	27	27
	24 hour Flow	0	27	27

16.7.29 To estimate the total trips on the study network during the construction phase for the assessment scenario, peak daily construction traffic flows were combined with the future year base traffic flows. The resulting figures were compared with the daily future year base traffic in terms of percentage change in traffic volumes. Table 16.8 summarises the percentage increase in total traffic over base traffic.

Table 16.8: 2026 Development Impact

Survey Location	Time Period	Cars / Lights	HGV	Total
A82 North	12 Hour Flow	1.1%	27.5%	8.5%
	24 hour Flow	1.0%	24.3%	7.6%
A87 Invergarry	12 Hour Flow	2.2%	16.8%	5.3%
	24 hour Flow	2.0%	14.6%	4.7%
A82 Site Access	12 Hour Flow	1.7%	32.0%	9.5%
	24 hour Flow	1.5%	27.8%	8.5%
Kilfinnan Road	12 Hour Flow	72.0%	1572.4%	503.3%
	24 hour Flow	60.2%	1383.2%	426.8%
A82 Spean Bridge	12 Hour Flow	0.6%	11.0%	2.9%
	24 hour Flow	0.5%	9.4%	2.5%
A86 east of Spean Bridge	12 Hour Flow	0.0%	5.3%	1.4%
	24 hour Flow	0.0%	4.7%	1.2%

16.7.30 With reference to Rule 1 of the IEMA guidance, the results in Table 16.8 indicate that neither total nor HGV flows are predicted to increase by more than 30% on the A82 North, A87 Invergarry, A82 Spean Bridge or A86 east of Spean Bridge. As the receptors (users of these links and locations through which they pass) are not considered to be especially sensitive to HGV traffic (medium or low sensitivity only), no further assessment has been undertaken of this part of the study area.

16.7.31 On the A82 at the Kilfinnan Road junction, total traffic flows are anticipated to increase by less than 10%. However, HGV flows are predicted to increase by just over 30%. On this basis, a detailed assessment has been undertaken of the impact significance.

16.7.32 On Kilfinnan Road, total and traffic flows are anticipated to increase by over 30%. The impact on Kilfinnan Road is large in percentage terms due to the low level of traffic use of the road. On the basis of Rule 1 of the IEMA guidance, a detailed assessment has been undertaken of the impact significance.

Assessment of Impacts

16.7.33 Table 16.9 summarises the potential effects (as identified in the IEMA Guidelines) and the assessment of the magnitude and significance of the impact from the increase in traffic movements on the A82 at the site access junction and on Kilfinnan Road, assuming no mitigation is in place.

Table 16.9: Assessment of Impact Significance

Receptor	Potential Effect	Magnitude of Impact	Significance of Impact	Comment
A82 at Site Access Junction				
Users of / residents adjacent to A82 – medium sensitivity	Severance	Minor	Slight	Total traffic volumes are not anticipated to increase by more than 30%. In addition, while the A82 provides access to pedestrian and cycle routes, as there are no pedestrian or cycle facilities on the A82 it is unlikely there is a high demand for these users to cross the road.
	Driver Delay	Major	Moderate	At this location, the road network is not considered to experience operational difficulties and the change in traffic volumes would not take the system close to capacity limits. However, drivers may be delayed by construction traffic, especially slow-moving HGVs turning off the A82 into Kilfinnan Road which is not currently wide enough to accommodate two-way HGV traffic.
	Pedestrian Delay	Minor	Slight	Total traffic volumes are not anticipated to increase by more than 30%. In addition, while the A82 provides access to pedestrian routes, as there are no pedestrian facilities on the A82 it is unlikely there are significant pedestrian flows on the A82.
	Pedestrian Amenity	Moderate	Moderate	The HGV component of the traffic flows may increase by over 30%. Although pedestrian flows on the A82 are unlikely to be high, the route does provide access to pedestrian routes. Pedestrian amenity could be affected where their movements conflict with those of construction traffic.
	Fear and Intimidation	Minor	Slight	Total traffic volumes are not anticipated to increase by more than 30%.
	Accidents and Safety	Moderate	Moderate	There is potential for impact on safety due to driver frustration and an increase in turning movements on and off the A82.

16.7.34 Before the introduction of mitigation, it is considered that significant impacts (large or moderate) could arise for users of the:

- A82 in the vicinity of the site access junction in relation to driver delay, pedestrian amenity and accidents and safety; and
- Kilfinnan Road in relation to severance, driver delay, pedestrian delay, pedestrian amenity, fear and intimidation and accidents and safety.

Limitations to the Assessment

16.7.35 The assessment is based upon an assumed construction programme for a 1500MW scheme as set out in Chapter 3: Description of Development.

16.7.36 This assessment is based upon average traffic flows. There may be localised peaks with construction days where flows can be higher for a specific hour, such as a shift change on site.

16.7.37 The assessment covers road impacts. The operation of spoil barge traffic on the canal would have an impact on the canal, however, discussions with Scottish Canals have indicated that this traffic can be accommodated. To assist in managing the additional canal traffic, a Canal Management Plan is outlined as part of the wider mitigation package.

Potential use of Material On-Site

16.7.38 As described above (see paragraph 16.7.18), a new temporary haul road to connect the lower reservoir works area to the upper reservoir and dam, provides an opportunity to supplement rock quarried for dam construction with suitable tunnel spoil from the underground works. It has been estimated that this option could use approximately 1.8 million tonnes as infill material in the construction of the dam.

16.7.39 An indicative assessment of this has option has been undertaken and indicates that the impact on the A82 would be reduced so that the 30% threshold for HGVs would not be reached. The impact on Kilfinnan Road would however be sufficient for an assessment to be required.

16.7.40 Given the uncertainty associated with the ability to use tunnel spoil in the construction of the dam, the viability of constructing the temporary haul road and the potential to use the Caledonian Canal to transport all spoil, the scenario (in transport terms) that is assessed in this EIA Report for the re-use and transportation of spoil assumes a worst case scenario i.e. that circa 3.9 million tonnes of excavated material is transported off site.

16.8 Site Access Assessment

16.8.1 Access to each of the two main areas of The Proposed Development would be taken from existing accesses onto the A82 and A87 trunk roads. The detailed design of the access junctions would be undertaken post consent and would feature the provisions described in the application for The Consented Development. The principle of the accesses remains the same as The Consented Development with improvements to junction visibility and widening of the junction bellmouths to accommodate passing traffic and abnormal loads.

16.8.2 The detailed design would incorporate the abnormal load assessment works noted in the Route Survey Report (Appendix 16.1). Full detailed layout drawings would be presented to The Highland Council and Transport Scotland for their consideration and would feature the proposed construction details, drainage and level information. A full Roads Construction Consent (RCC) application would be made.

16.8.3 The RCC application would be accompanied by Road User Safety Audit and any further assessment works required by both road authorities.

16.9 Mitigation

Physical Measures to Design Out Issues

16.9.1 The approach to the Kilfinnan Road / A82 junction would be widened on its north side to permit the two-way movement of HGVs so reducing delay to drivers on the A82.

16.9.2 Kilfinnan Road would be widened to approximately 8 m to facilitate use by construction vehicles, including the potential upgrade or replacement of three of the existing bridges along this route. Upon completion, this section of road would be narrowed to a width sufficient to maintain operational and maintenance activities, assumed to be approximately 6 m. The proposed improvement works would be designed to ensure that access for all existing households and businesses along this road would be maintained during the construction and operation of the scheme. The improved geometry would enhance the road's capacity and remove below standard geometric features.

16.9.3 Suitable pedestrian and cyclist facilities would be provided along Kilfinnan Road to provide appropriate provision. The design of these facilities would be discussed with The Highland Council at the detailed design stage.

16.9.4 Designated pedestrian crossing points across the Kilfinnan Road arm of the A82 junction and along various points of Kilfinnan Road would be provided to assist non-motorised road user access.

16.9.5 In the vicinity of the lower reservoir works, the existing forestry tracks are incorporated in the Great Glen Way. Where required for safety, alternative provision would be made to separate walkers and cyclists from the works, constructed to the same standard as the existing Great Glen Way. Any such provisions would be agreed with the local Access Officer in the form of an Outdoor Access Management Plan, and constructed in accordance with the requirements of the Land Reform (Scotland) Act 2003 where this does not conflict with the health and safety requirements of the construction site. Alternative access provision would be constructed at commencement of works in the area and where appropriate could remain in place as a permanent realignment to this section of the Great Glen Way.

16.9.6 In order to further reduce potential impacts on the road network and waterways, a temporary haul road to connect the lower reservoir works area to the upper reservoir and dam, provides an opportunity to supplement rock quarried for dam construction with suitable tunnel spoil from the underground works. The viability of constructing this temporary haul road would be dependent on the scale of the project (i.e. 1500 MW or less), and the outcome of the final Spoil Management Plan (see Chapter 7: Spoil Management). Should this route be constructed, it would result in a reduction in spoil removal from the site by approximately 1.8 million tonnes over a 22 month period. This would equate to 31,380 outbound HGV movements over that period.

General Construction Traffic

16.9.7 A Construction Traffic Management Plan (CTMP) would be developed in consultation with the police and roads authorities and agreed before deliveries to The Proposed Development commence, to ensure road safety for all road users during the construction period and to minimise any impacts.

16.9.8 The following measures would be implemented in relation to site operation and maintenance during the construction phase:

- All materials on delivery lorries (dry materials) would be sheeted to reduce dust and stop spillage on public roads;
- Specific training and disciplinary measures would be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and other debris onto the carriageway; and
- Wheel wash facilities would be established at the site entrances onto the public road network.

16.9.9 Method statements covering the construction phases would be prepared, setting out measures to be put in place to reduce the impact of noise, dust and excessive speed from vehicles associated with The Proposed Development.

16.9.10 Drivers would be required to pass through sensitive areas, including the settlements of Invergarry, Spean Bridge and along the upgraded Kilfinnan Road, at low speed.

16.9.11 Appropriate traffic management measures would be put in place on the A82 at its junction with Kilfinnan Road, on Kilfinnan Road and on the forestry paths / tracks to avoid conflict with general traffic and pedestrians, subject to the agreement of the roads authority. Typical measures would include HGV Turning and Crossing signs and/ or banksmen and pedestrian / cyclist warning signs.

16.9.12 All drivers would be required to attend an induction to include:

- A safety briefing;
- The need for appropriate care and speed control;
- A briefing on driver speed reduction agreements (to slow site traffic at sensitive locations);
- Identification of specific sensitive areas;
- Identification of the specified route;
- The requirement not to deviate from the specified route; and
- The need to be aware of pedestrians on Kilfinnan Road and in the forestry sections.

16.9.13 Normal construction shifts would generally apply for the surface works but these would be subject to some variation to suit the work in hand and weather conditions, to be agreed with The Highland Council. It is anticipated that underground operations would need to continue 24 hours a day, seven days a week.

Abnormal Loads

16.9.14 A detailed Traffic Management Plan (TMP) would also be developed in consultation with the police and roads authorities and agreed before deliveries to the site commence, to ensure road safety for all road users during transit of development loads and to minimise any impact. Measures within the TMP could include:

- methods for managing wide loads (such as construction plant) and 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;
- specific construction traffic routes to minimise impact on unsuitable routes;
- a communications protocol to avoid delays with emergency vehicle traffic;
- a diary of proposed delivery movements to liaise with the communities to avoid key dates (such as fetes, etc); and
- working with local businesses to ensure the construction traffic does not interfere with deliveries or normal business traffic.

16.9.15 Any road based abnormal load transports would be escorted by a number of vehicles, potentially including a police escort to assist a civilian escort car on specific sections of the route. It is proposed that an advance escort would warn oncoming vehicles ahead of the convoy, with the other escorts staying with the convoy at all times. The escorts and convoys should remain in radio contact at all times, where possible.

16.9.16 The transit of abnormal loads along areas of restricted geometry should be undertaken as a rolling closure to reduce the level of disruption to local traffic and residents.

16.9.17 Advance warning signs would be installed on the approaches to the Kilfinnan Road / A82 junction and at the A87 White Bridge site access junction. The purpose of signage is to help improve driver information and allow drivers of oncoming traffic to consider proceeding to the nearest convenient passing point, or breaking their journey until the convoy has moved on.

Information

16.9.18 During the construction period, the Applicant would maintain a website containing the latest information relating to traffic movements associated with vehicles accessing the site. This would be agreed with the roads authorities (The Highland Council and Transport Scotland).

16.9.19 To further improve driver information, it is suggested that any Variable Message Signs (VMS), operated by Transport Scotland, are used to warn drivers of construction traffic operating on the trunk road sections of the route. This would display information warning of possible delays and would allow drivers to consider alternative routes if possible.

16.9.20 Additionally, information on the construction traffic could be provided to local media outlets to help assist the public. These could include:

- Local Newspapers;
- Local Radio Stations;
- Community Councils;
- SSE website, Twitter Feed and Facebook Group; and
- The Highland Council website.

16.9.21 A construction liaison committee would be established to ensure the smooth management of the project/public interface. It is proposed that the Applicant, the construction contractors, the local community, and if appropriate, the police form the committee. This committee would form a means of communicating and updating on forthcoming activities and dealing with any potential issues arising.

General

16.9.22 The Highland Council and Transport Scotland may require an agreement under Section 96 of The Roads (Scotland) Act 1984, to cover the cost of abnormal wear and tear on roads not designed for that purpose. It is suggested that this is restricted to the Kilfinnan Road and within 100 m of the site access junctions on the A82 and A87.

16.9.23 Video footage of the pre-construction phase condition of the trunk road near the site access junctions and the upgraded Kilfinnan Road would be recorded to provide a baseline of the state of the road prior to any substantial construction works commencing. This baseline would inform any change in the road condition during the construction stage of The Proposed Development and an appropriate proportion of the responsibility for the resulting repairs and maintenance would be agreed with the relevant road authority at the end of the construction phase. 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.

16.9.24 Minor road improvement alterations would be carried out in agreement with both road authorities (The Highland Council and Transport Scotland) and the appropriate statutory authorities to ensure that during delivery of road based abnormal loads that minimal damage is caused to road surfaces, verges, street furniture and surrounding vegetation. 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.

Canal Management Plan

16.9.25 A Good Practice guide would be produced in conjunction with Scottish Canals to manage construction traffic for The Proposed Development using the canal. This would include:

- Measures to accommodate construction canal traffic and other canal users;
- Maximum permitted speeds on sections of the canal;
- Advertising the general traffic movements on the canal on a month by month basis or more frequently if required by Scottish Canals;
- The use of barge lookouts to spot canoe and other small craft;
- Navigation lights for the barges to make them visible to all loch users;
- Specific route paths within Loch Lochy to help avoid other traffic;
- Providing canal users with an information pack advising canal users of the likely movements and how to contact site with queries;
- Establishing a Canal Liaison Group with Scottish Canals to discuss common issues, interface issues, moorings, lock usage, etc. This would include existing tourist boat operators and known local operators; and

- Canal bank side signage advising other marine traffic of the potential for site barges operating.

16.9.26 The management plan would be agreed with Scottish Canals prior to implementation.

16.10 Residual Effects

16.10.1 This section considers the assessment of traffic impacts following the incorporation of the mitigation measures identified above.

16.10.2 An evaluation of the potential effects of the increase in traffic on the roads to be used as part of the route for construction traffic was undertaken. This considered the traffic impacts on different environmental receptors identified in the IEMA Guidelines with no mitigation in place (see Table 16.9). Table 16.10 summarises the assessment of residual effects identified in the evaluation with mitigation in place.

Table 16.10: Assessment of Residual Effects Post Mitigation

Receptor	Potential Effect	Mitigation	Magnitude of Impact Post Mitigation	Significance of Residual Effect
A82 at Site Access Junction				
Users of / residents adjacent to A82 – medium sensitivity	Severance	Implementation of CTMP and TMP, maintenance of access to pedestrian and cycle routes, traffic management at A82 / Kilfinnan Road junction.	Minor	Slight
	Driver Delay	Implementation of CTMP and TMP, advance warning signage, widening of A82 / Kilfinnan Road junction, traffic management at A82 / Kilfinnan Road junction.	Moderate	Moderate
	Pedestrian Delay	Implementation of CTMP and TMP, maintenance of access to pedestrian and cycle routes, traffic management at A82 / Kilfinnan Road junction.	Minor	Slight
	Pedestrian Amenity	Implementation of CTMP and TMP, maintenance of access to pedestrian and cycle routes, traffic management at A82 / Kilfinnan Road junction.	Minor	Slight
	Fear and Intimidation	Implementation of CTMP and TMP, traffic management at A82 / Kilfinnan Road junction.	Minor	Slight
	Accidents and Safety	Implementation of CTMP and TMP, advance warning signage, widening of A82 / Kilfinnan Road junction, traffic management at A82 / Kilfinnan Road junction.	Minor	Slight
Kilfinnan Road				
Users of / residents adjacent to Kilfinnan Road	Severance	Implementation of CTMP and TMP, widening of Kilfinnan Road, maintenance of access to pedestrian and cycle routes, traffic	Moderate	Moderate

Receptor	Potential Effect	Mitigation	Magnitude of Impact Post Mitigation	Significance of Residual Effect
– high sensitivity		management.		
	Driver Delay	Implementation of CTMP and TMP, widening of Kilfinnan Road, traffic management.	Minor	Slight
	Pedestrian Delay	Implementation of CTMP and TMP, widening of Kilfinnan Road, maintenance of access to pedestrian and cycle routes, traffic management.	Minor	Slight
	Pedestrian Amenity	Implementation of CTMP and TMP, widening of Kilfinnan Road, maintenance of access to pedestrian and cycle routes, implementation of speed limits and traffic management.	Moderate	Moderate
	Fear and Intimidation	Implementation of CTMP and TMP, widening of Kilfinnan Road, maintenance of access to pedestrian and cycle routes, implementation of speed limits and traffic management.	Minor	Slight
	Accidents and Safety	Implementation of CTMP and TMP, widening of Kilfinnan Road, implementation of speed limits traffic management.	Minor	Slight

16.10.3 The information in Table 16.11 confirms that following the implementation of the identified mitigation, the residual effects considered to be significant in terms of the EIA Regulations are those on severance and pedestrian amenity on Kilfinnan Road, and in relation to driver delay in the vicinity of the A82 / Kilfinnan Road junction. The impacts are assessed to be potentially moderate in all cases. Impacts would be minimised through development of the Construction Traffic Management Plan and Traffic Management Plan, maintenance of access to formal pedestrian and cycle routes, implementation of speed limits for construction traffic and provision of appropriate traffic management which would be agreed with The Highland Council.

16.11 Cumulative Effects

16.11.1 The use of Low NRTF traffic flows in the estimation of the future year traffic flows has accounted for normal development within the local area. There are currently no other publicly known major schemes proposed in the area that would coincide with the peak years of construction for The Proposed Development. No cumulative effects are therefore anticipated at this stage.

16.12 Conclusions

16.12.1 The Proposed Development would lead to increased traffic volumes on a number of roads in the vicinity of The Proposed Development during the construction phase.

16.12.2 The proposed construction process requires the export of a large volume of spoil from The

Proposed Development. It may be possible to utilise a large proportion of this material for reuse in construction of the dam via the temporary haul road, resulting in fewer vehicles movements through the study area.

16.12.3 The greatest percentage impacts associated with construction of The Proposed Development are predicted to occur on the A82 in the vicinity of its junction with Kilfinnan Road and on Kilfinnan Road itself. The very high percentage increases in traffic on Kilfinnan Road are, in part, due to the existing very low vehicle use.

16.12.4 An assessment of potential effect using IEMA guidelines has been undertaken. This determined that prior to the implementation of mitigation, significant impacts (large or moderate) could arise for users of the A82 in the vicinity of the site access junction in relation to driver delay, pedestrian amenity and accidents and safety; and of Kilfinnan Road in relation to severance, driver delay, pedestrian delay, pedestrian amenity, fear and intimidation and accidents and safety.

16.13 Statement of Significance

16.13.1 With the implementation of appropriate mitigation, no significant residual effects are anticipated in respect of traffic and transport issues except in relation to driver delay in the vicinity of the A82 / Kilfinnan Road junction and severance and pedestrian amenity on Kilfinnan Road. The residual effects all occur in the construction phase and are all assessed to be moderate. As they would occur during the construction phase only, they are temporary and reversible.

16.14 References

Institute of Environmental Assessment (1993) Guidelines for the Environmental Assessment of Road Traffic

Institution of Environmental Management and Assessment (IEMA) (2005) Guidelines for Environmental Impact Assessment

Highways Agency (2008) Table 2.2 of Volume 11, Section 2, Part 5 of the Design Manual for Roads and Bridges (DMRB)