Scottish & Southern Electricity Networks

TRANSMISSION

Fanellan 400 kV Substation and Converter Station

Environmental Impact Assessment Report

Volume 2 | Chapter 12 – Traffic and Transport

February 2025

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12. TRAFFIC AND TRANSPORT

12.1 Introduction

12.1.1 This chapter considers the access proposals and potential traffic and transport effects associated with the construction and operation of the Proposed Development on the surrounding public road network and on sensitive receptors. This chapter (and its associated figures and appendices) is not intended to be read as a standalone assessment and reference should be made to the introductory chapters of this EIA Report) (**Volume 2, Chapters 1-7**).

12.1.2 Additional information which supports this chapter is presented in the following figures and technical appendices (see **Volume 3: Figures** and **Volume 4: Appendices**, respectively):

- **Volume 3, Figure 12.1**: Phase 1 - Traffic and Transport Study Area;
- **Volume 3, Figure 12.2**: Phase 1 - Traffic Count Site Locations;
- **Volume 3, Figure 12.3**: Phase 1 - Personal Injury Accident Locations;
- **Volume 3, Figure 12.4**: Phase 2 - Traffic and Transport Study Area;
- **Volume 3, Figure 12.5**: Phase 2 - Traffic Count Site Locations;
- **Volume 3, Figure 12.6**: Phase 2 - Personal Injury Accident Locations;
- **Volume 4, Appendix 12.1:** Outline Construction Traffic Management Plan;
- **Volume 4, Appendix 12.2**: Transport Assessment; and
- **Volume 4, Appendix 12.3:** Abnormal Load and Construction Traffic Assessment Report.

12.1.3 The specific objectives of this chapter are to:

- review the relevant policy and legislative framework;
- provide an overview of the background to the assessment;
- describe the assessment methodology and significance criteria used in undertaking the assessment;
- outline the embedded mitigation measures;
- describe the baseline conditions;
- describe the potential effects, including direct, indirect and cumulative effects of both assessments;
- outline the mitigation measures proposed to address likely significant effects; and
- assess the residual effects remaining following the implementation of mitigation measures.

12.1.4 Refer to **Volume 4, Appendix 1.1: EIA Team** for details on the competent experts who undertook the assessment.

Legislation, Policy and Guidance

12.1.5 This assessment is carried out in accordance with the principles contained within the following policy and guidance which has been reviewed:

- Scottish Government – Planning Advice Note (PAN) 75 – Planning for Transport[1] (17 August 2005); and

1 Scottish Government (2005) Planning Advice Note (PAN) 75 – Planning for Transport. (online). Available at: https://www.gov.scot/publications/planning-advice-note-pan-75-planning-transport/ [Accessed February 2025].

- Transport Scotland – Transport Assessment Guidance[2] (July 2012);
- Highlands and Islands Regional Transport Strategy (RTS) (Current[3] and Draft[4]);
- Highland Local Transport Strategy (2025 – 2035 Draft)[5];
- Highland-wide Local Development Plan (2012)[6];
- Roads and Transport Guidelines for New Developments (2013)[7];
- Guidance on the Preparation of Transport Assessments (2014)[8];
- Institute of Environmental Management and Assessment (IEMA); Environmental Assessment Traffic and Movement July 2023[9];
- Environmental Impact Assessment Handbook Nature Scot (2018)[10]; and
- National Highways et. al. (2015). Design Manual for Roads and Bridges, Volume 15, Section 1, Part 1 The Nesa Manual (DMRB)[11].

12.1.6 A full review of the policy identified above is detailed within **Volume 4, Appendix 12.2: Transport Assessment** and has been followed alongside the identified guidance throughout this EIA Traffic and Transport Chapter.

12.2 Assessment Methodology and Significance Criteria

Background

12.2.1 The Proposed Development is located approximately 5 kilometres (km) south west of Beauly within The Highland Council (THC) local authority. The Site will include a new 400 kilovolt (kV) substation and HVDC converter station along with ancillary access roads, drainage and landscaping proposals.

12.2.2 The Site will be accessed using a new permanent access road connecting with the C1106 Fanellan Road via a new junction located approximately 120 meters (m) west of the U1604. It is noted that the most suitable and preferred route to access the Site uses the Black Bridge over the River Beauly close to the A831. Currently, the Black Bridge has limited structural capacity, and replacement is required to facilitate the heavy loads needed to travel to Site. In order that the development can progress prior to completion of replacement works, it is proposed to use an alternate access route to the Site during this

2 Transport Scotland (2012). Transport Assessment Guidance (July 2012). (online). Available at: https://www.transport.gov.scot/media/4589/planning_reform_-_dpmtag_-_development_management__dpmtag_ref__17__-_transport_assessment_guidance_final_-_june_2012.pdf. [Accessed February 2025].

3 HITRANS, (2018). Regional Transport Strategy Refresh. (online). Available at: https://hitrans.org.uk/userfiles/file/Regional_Transport_Strategy_Refresh_2018.pdf [Accessed February 2025].

4 HITRANS, (2024). Draft Regional Transport Strategy. (online). Available at: https://storymaps.arcgis.com/stories/644012c58f61412687ae683e4cb072d8 [Accessed February 2025].

5 The Highland Council, (2024). Highland Local Transport Strategy (2025 – 2035 Draft). (Online). Available at https://www.highland.gov.uk/downloads/file/29476/highland_lts_-_draft_themes_and_policies [Accessed February 2025].

6 The Highland Council (2012). Local Development Plan. (Online). Available at: https://www.highland.gov.uk/info/178/development_plans/199/highland-wide_local_development_plan [Accessed February 2025].

7 The Highland Council, (2013). Roads and Transport Guidelines for New Developments. (Online). Available at: https://www.highland.gov.uk/downloads/file/527/road_guidelines_for_new_developments [Accessed February 2025].

8 The Highland Council, (2014).'Guidance On The Preparation Of Transport Assessments' (Online). Available at: https://www.highland.gov.uk/downloads/file/12194/guidelines_for_transport_assessments [Accessed February 2025].

9 Institute of Environmental Management and Assessment (IEMA), (2023). Environmental Assessment Traffic and Movement - July 2023. (Online). Available at: https://www.iema.net/resources/blog/2023/07/12/new-iema-guidance-environmental-assessment-of-traffic-and-movement. [Accessed February 2025].

10 Nature Scot (2018). Environmental Impact Assessment Handbook. (Online). Available at: https://web.archive.org/web/20220901050635/https://www.nature.scot/sites/default/files/2018-05/Publication%202018%20-%20Environmental%20Impact%20Assessment%20Handbook%20V5.pdf [Accessed February 2025].

11 DMRB (2015). Design Manual for Roads and Bridges (DMRB), Volume 15, Section 1, Part 1 The Nesa Manual - October 2015. (Online). Available at: https://www.standardsforhighways.co.uk/ [Accessed February 2025].

period. This alternative route will run from the A862 to the A833, then to the C1106 via the C1108 and the U1604. It is anticipated that after Black Bridge has been replaced that construction traffic be redirected to the preferred route for the remainder of the Proposed Development. Therefore, this EIA Traffic and Transport Chapter has assessed both proposed routes to Site in two separate assessments.

12.2.3 The applicant is currently working with The Highland Council to refine timescales for the Black Bridge replacement.

Scope of the Assessment

12.2.4 The assessment is made with reference to the Proposed Development as described in **Volume 2, Chapter 3: Description of the Proposed Development**, and has been divided into two sections to assess the effects due to phasing of the construction traffic to Site due to the necessary replacement of Black Bridge. The assessment therefore has the following structure:

- **Section 12.5 Assessment of Effects:**
  - **Phase 1: Before Construction of Black Bridge;** and
  - **Phase 2: After Replacement of Black Bridge**.

12.2.5 The assessment is structured around the consideration of seven potential environmental effects related to traffic and transport within the Study Area outlined in *paragraph 12.2.16*, (as identified by the IEMA Guidance for Environmental Impact Assessment, hereafter referred to as the 'IEMA Guidelines'[9]).

12.2.6 A number of the impacts which are identified within the IEMA Guidelines, fall outwith the scope of this chapter and are discussed and assessed in detail within relevant chapters of **Volume 2** of the EIA Report. These include:

- Landscape and Visual (**Volume 2, Chapter 8: Landscape and Visual**);
- Ecology and Ornithology (**Volume 2, Chapter 9: Ecology and Chapter 10: Ornithology**); and
- Noise and Vibration (**Volume 2, Chapter 14: Noise and Vibration**).

12.2.7 Local air quality and dust / dirt impacts have not been assessed in detail, however actions to ensure appropriate management of these impacts will be included in a Construction Environmental Management Plan (CEMP).

Issues Scoped Out

12.2.8 The following topic areas have been scoped out of detailed assessment:

12.2.9 The effects of construction traffic outwith the Study Area. It is anticipated that the volume of traffic associated with the construction of the Proposed Development will not have a discernible effect on roads and sensitive receptors outwith the Study Area as the effects of traffic are reduced with increasing distance from the point of origin;

12.2.10 The effects of traffic associated with the operational stage. It is expected that the Proposed Development will not require a large permanent workforce, Therefore, the amount of traffic generated will be minimal and generally related to monitoring, training and maintenance activities. Vehicles used are likely to be a small number of private cars and/or utility vehicles (typically 4x4s or light goods vehicles). With respect to traffic and transport, the operational stage of the Proposed Development is therefore not assessed in this chapter;

12.2.11 The effects of traffic associated with the decommissioning stage. As planning permission is pursued in perpetuity, is it considered that decommissioning will not be assessed;

12.2.12 The effect of construction traffic on junction capacity along the road network with respect to traffic flows both in isolation and cumulatively. As this is highly unlikely to be significant in terms of congestion, it is considered that detailed junction capacity assessments are not required and have subsequently not been carried out; and

12.2.13 The effects of hazardous loads. The form of the Proposed Development will not generate hazardous movements in association with its construction or operation and this impact has therefore not been considered as part of this assessment.

Extent of the Study Area

12.2.14 The extent of the Study Area is dependent on the anticipated construction traffic routes to Site. Following a first principles approach and assessment of structures, it is intended that there will be a two-phase approach to construction access, with **Section 12.5** Assessment of Effects**,** Phase 1: Before Construction of Black Bridgeaddressing the temporary traffic routing approach via Kiltarlity, and **Section 12.5** Assessment of Effects**,** Phase 2: After Replacement of Black Bridge addressing the preferred construction traffic routing via the A831 and C1106, following completion of the replacement of Black Bridge.

12.2.15 Overall, it is proposed that the Heavy Goods Vehicles (HGVs) and larger vehicles will access the Site from the A9 which forms part of the trunk road network, approximately 14.0 km from the Site at Tore, and that the Car / Light Goods Vehicles (LGVs) traffic will access the Site via the local road network.

12.2.16 Therefore, the following roads constitute the proposed Study Area:

- A832 between the B9169 and the A9;
- B9169 between the A862 and the A832;
- A862 between the B9169 and the A831;
- A831 between the C1106 and the A862;
- C1106 between the A831 and the U1604;
- A862 between the A831 and the A833;
- A862 between the A833 and the A82;
- A833 between the A862 and the C1108;
- C1108 between the A833 and the U1604;
- U1604 between the C1106 and the C1108; and
- C1106 between the U1604 and the Site Access.

12.2.17 The roads within the overall Study Area have been identified using Link ID numbers, and the Links usage is summarised below in Table 12.1 for each Phase of construction traffic routing. It is considered that once Black Bridge has been replaced that a first principles approach should apply, and that the preferred construction routing would utilise Black Bridge via the A831.

Table 12.1 Phase 1 and 2 Link Routing Assignment

Section Link ID:	Description	Phase 1	Phase 2
1	A832 between the A9 and Muir of Ord	Included in routing	Included in routing
2	B9169 between A832 and A862	Included in routing	Included in routing
3	A862 between the B9169 and A831	Included in routing	Included in routing
4	A831 between the A862 and the C1106	**Not included in routing**	Included in routing
5 (North of Access)	C1106 between the A831 and the U1604	**Not included in routing**	Included in routing
5 (Site Access)	C1106 at the Site Access	Included in routing	Included in routing
6	A862 between A833 and A831	Included in routing	Included in routing
7	A862 between A833 and Drumchardine	Included in routing	Included in routing
8	A862 between Drumchardine and the A82	Included in routing	Included in routing
9	A833 between C1108 and A862	Included in routing	**Not included in routing**
10	C1108 between U1604 and A833	Included in routing	**Not included in routing**
11	U1604 between C1106 and C1109	Included in routing	**Not included in routing**

12.2.18 The extent of the Study Area for each Phase is illustrated in **Volume 3, Figure 12.1: Phase 1 - Traffic and Transport Study Area**, and **Volume 3, Figure 12.4: Phase 2 – Traffic and Transport Area**.

Consultation Undertaken to Date

12.2.19 Comments were provided by The Highland Council (THC) in response to a pre-application submission (*23/04003/PREMAJ) and* the EIA Scoping Response (24/02655/SCOP), and comments which are relevant to this chapter, are captured in Table 12.2.

Table 12.2 Consultation responses of relevance to topic

Body / organisation	Type of consultation/ date	Response	How response has been considered
The Highland Council – Roads Development and Transportation	Pre-App (20/04174 / PREMAJ) 14/11/2023	**CTMP- Routing and Mitigation** THC notes that a Construction Traffic Management Plan (CTMP) will be required detailing the proposed mitigation measures for the Proposed Development that will assist in the managing and routing of construction related traffic to and from the finalised development Site and help to limit impacts on the public road network. Such management measures will be in addition to any physical improvements deemed necessary. The CTMP should clarify the proposed routing of construction traffic and set out what steps will be taken to ensure all construction traffic adheres to that routing. **Traffic Management Measures** The CTMP should also set out any management measures that will be implemented to avoid generating unacceptable construction traffic during sensitive times on the existing local public roads (e.g. during school opening and closing times or large events in the area such as Belladrum). Also, any anticipated measures that will restrict or prevent free use of the local public road network during the works should also be clarified (e.g. temporary traffic lights, road closures, speed limits etc). **Structural Approval** All works on the public local road network will require the approval of the Council as Roads Authority through a Road Construction Consent together with any necessary Technical Approval for structures. Therefore, detailed and dimensioned plans showing the mitigation proposals on and adjacent to the public road will be required to be agreed prior to any works commencing on Site. Early consultation with the Council's Structures Section is recommended with regard to affected Council maintained structures on the routes to the Site. **Physical Mitigation** The assessment of the need for physical road mitigation and/or traffic	The CTMP found within **Volume 4, Appendix 12.1: Outline Construction Traffic Management Plan** details all outline construction traffic routing plans, proposed mitigation measures and traffic management measures for the duration of the works. The CTMP also provides an assessment of the need for physical road mitigation of the proposed construction traffic access routes, and details of works planned for the construction period and permanent infrastructure improvements, including details of early consultation made with the Council's Structures Department. The Principal Contractor is currently assessing the structural integrity of the structures on the proposed access routes and will agree construction traffic routing and any potential mitigation measures with THC prior to commencing construction.

	management measures should include both routes required to access the finalised new substation and converter station, plus any roads impacted by creating the necessary connections to the existing Beauly Substation and the proposed changes to distribution networks. **Loading/Unloading and Parking** Highland Council as the Local Roads Authority will not accept plant or materials being loaded or unloaded on the local public road network. Suitable facilities off the public road should be provided to permit the loading, unloading and storage of plant and materials. Similarly, The Council will not accept construction traffic parking on local public roads during the works. Again, suitable facilities should be provided for all construction traffic to park off the road. Similarly, The Council will not accept construction traffic parking on local public roads during the works. Again, suitable facilities should be provided for all construction traffic to park off the road.	The proposed layout found in **Volume 3, Figure 3.1: Proposed Development** shows the proposed Site layout, which provides detail of the Site access, vehicle holding facilities, car parking provision and laydown area that will permit the loading, unloading and storage of plant and materials.
	Impact on the Trunk Road Network While we would state that Transport Scotland has no comment to make on the individual Site options, it should be noted that in the event that the chosen alignment of the OHL results in crossing any trunk road, a threshold assessment in line with the Institute of Environmental Management and Assessment (IEMA) Guidelines for the Environmental Assessment of Road Traffic will be required to determine whether there are likely to be any significant environmental issues associated with increased traffic on the trunk road network, and any requirement for further trunk road assessment. **AIL Deliveries** It should also be noted that any proposed changes to the trunk road network must be discussed and approved (via a technical approval process) by the appropriate Area Manager. In addition, we would state that in the event that construction works result in the need for Abnormal Load Deliveries (ALD),	Noted. The Site's remote location in relation to the trunk road network, has resulted in the Study Area focusing on the local road network. The section of the Beauly Denny OHL that will be diverted and tied in to Fanellan Hub as part of associated works (to be consented separately under Section 37 of the Electricity Act), will not cross a trunk road. An **Abnormal Load and Construction Traffic Assessment Report** is included within **Volume 4, Appendix 12.3**, which considers the extent of the AIL deliveries to Site, particularly of the transformer deliveries, which are anticipated to take

		Transport Scotland will require to be satisfied that the size of loads proposed can negotiate the selected route and that their transportation will not have any detrimental effect on structures within the trunk road route path. A full Abnormal Loads Assessment report should be provided that identifies key pinch points on the trunk road network. Swept path analysis should be undertaken and details provided with regard to any required changes to street furniture or structures along the route.	place during Phase 2 of construction traffic routing to Site. There are some plant deliveries to be delivered to Site which will utilise Phase 1 construction traffic routing, which are considered separately as part of the **Volume 4, Appendix 12.2: Transport Assessment** and supported by Swept Path Analysis (SPA).
The Highland Council – Roads Development and Transportation	Scoping (24/02655/SCOP) 06/08/2024	**Black Bridge** THC emphasised that improvements to the Black Bridge are necessary as the only viable access for the development. The requirements must be assessed and agreed upon before any approval for the substation and converter station, with a planning condition requiring these changes to be permitted and implemented before construction begins. THC state that routing HGVs through Kiltarlity due to Black Bridge issues is unsuitable and opposed by the Council, who recommends focusing on improving Black Bridge and using the more appropriate A831 via C1106 route instead.	Noted. The Transport Assessment found within **Volume 4, Appendix 12.2: Transport Assessment** identifies all potential construction traffic routes and the selection process for identifying the proposed route. The preferred route to Site is via Black Bridge via the A831, however as previously mentioned, the Black Bridge will require replacement and therefore a temporary route is explored via Kiltarlity during the period of replacement works, after which the preferred route will be from the A831 via the C1106 to the north.
		Lovat Bridge - Abnormal Loads No abnormal load movements will be permitted across the Lovat Bridge on the A862 over the River Beauly unless detailed inspections, including diving surveys of the bridge piers and foundations, are conducted and approved by the Structures Team.	**Volume 4, Appendix 12.3: Abnormal Load and Construction Traffic Assessment Report** includes details of the proposed AIL routing plan which is anticipated to take place after the replacement of Black Bridge. Therefore, the use of Lovat Bridge will not be necessary for the delivery of the transformers. The routing of plant equipment (some of which are anticipated to be abnormal loads) to Site via Kiltarlity during Phase 1 will not be undertaken without the assessment and approval of THC structures team.
		IEMA Guidelines - Capacity and Condition THC indicate that while environmental impacts from predicted traffic will be assessed using IEMA Guidelines, this method does not evaluate the local road network's condition and capacity to safely handle the traffic, necessitating an additional Transport Assessment to	Noted. The capacity assessment of the Road network is considered in **Section 12.5 Assessment of Effects, Phase 1: Before Construction of Black Bridge,** and **Phase 2: After Replacement of Black Bridge,** which follows the DMRB guidance.

	determine required road improvements and traffic management measures. THC state that both physical road improvements and traffic management measures are necessary, not just the latter as suggested in the scoping report, particularly for access via the C1106 Fanellan Road, which requires upgrades due to its single-track nature, before any construction or operational use is supported by the Council.	It is acknowledged that regarding the condition of the roads, and the impact of this factor on capacity, that these factors will be assessed within **Volume 4, Appendix 12.2: Transport Assessment.** Any necessary plans for roadworks (such as those identified within **Volume 2, Chapter 3: Description of the Proposed Development**) will be submitted following the approval of THC as required. For the avoidance of doubt, the single-track portion of the C1106 (Fanellan Road) is not proposed to be used by construction traffic during the duration of the works. For the western portion of the C1106, in addition to route signage, proposed mitigation for the C1106 carriageway from the A831 to the Site access is considered in *paragraph 12.3.2* which details proposed widening to the C1106 carriageway to a width of approximately 7 m, which will accommodate two-way HGV movements. All public road improvements (PRIs) are detailed within **Volume 2, Chapter 3: Description of the Proposed Development.** The CTMP found within **Volume 4, Appendix 12.1: Outline Construction Traffic Management Plan** also proposes a dilapidation survey of the Study Area and Route Survey to be carried out and circulated with all parties well in advance of construction traffic / deliveries utilising the proposed access routes.
	IEMA Guidelines - Assessment Methodology THC that any single-track roads with passing places be classified as high sensitivity under Rule 2 of the IEMA Guidelines in the EIA, due to their vulnerability to increased traffic, ensuring that the scale of traffic impacts is accurately assessed.	This EIA Traffic and Transport Chapter prepared has taken cognisance of this requirement within **Section 12.4**.
	Traffic Flows- 12-hour comparison Transport Planning recommends using 12-hour average traffic flows from 07:00 to 19:00, instead of Annual Average Daily Flows (AADF), for the environmental assessment, as AADF would underestimate the traffic impact during the proposed construction working hours.	As stated in the CTMP found within **Volume 4, Appendix 12.1: Outline Construction Traffic Management Plan**, the proposed construction traffic HGV movement hours are expected to be: Monday to Friday: 08:00 – 19:00; and Saturday: 08:00 – 13:00.

		However, it is expected that movement of smaller vehicles (Car / LGVs would be outwith this time frame). To align with the Proposed Development Site working hours, it is assumed that Car / LGV movements (not including workforce movements) are expected to be between Monday to Sunday: 07:00 – 19:00. Therefore, the baseline traffic flows have had factors (derived from DfT's TRA0308) applied to convert the 24-hour AADF to comparable 11-hour flows for HGV traffic and for 12-hour flows to compare the car /LGV traffic. The movements of Staff and Workforce are expected to take place before 07:00 and after 19:00 and are therefore outside the proposed construction working hours. It is anticipated that the Principal Contractor will enforce efforts to reduce impact on local receptors during staff and workforce movement hours.
	Construction Traffic Calculations The calculation of predicted construction traffic for the proposed development must include traffic from tree felling and removal, as well as additional trips from related substation developments, connections, and other major projects impacting the road network.	Construction traffic estimates for timber movements provided by the Principal Contractor are estimated to be 120 timber / brash / stump movements from Site. These construction traffic estimates have been included within the trip generation details provided by the Contractor and which have been used to inform the impact assessment, found within **Section 12.5 Assessment of Effects, Phase 1: Before Construction of Black Bridge,** and **Phase 2: After Replacement of Black Bridge** of this EIA Traffic and Transport Chapter.
	Operational Traffic Estimations Post-construction, the Council requires clarification on the expected operational traffic levels, including demands from proposed offices and training facilities, and an evaluation of whether the local road network, improved during development, can physically and safely accommodate this traffic, to determine if a formal assessment is necessary.	It is expected that the Proposed Development will not require a large permanent workforce. Therefore, the amount of traffic generated will be minimal and generally related to monitoring, training and maintenance activities. Vehicles used are likely to be a small number of private cars and/or utility vehicles (typically 4x4s or light goods vehicles). With respect to traffic and transport, the operational stage of the Proposed Development is therefore scoped out and not assessed in this chapter. The TA, which can be found within **Volume 4, Appendix 12.2: Transport**

		Assessment covers the operational impact on the local road network.
	Parking Considering the new development is expected to have offices and training facilities, the TA should evaluate and justify the development's ability to meet travel and parking demands, ensure accessibility by sustainable and non-car modes of travel, and provide adequate cycle and disabled parking, following national policy.	As detailed in the CTMP within **Volume 4, Appendix 12.1: Outline Construction Traffic Management Plan**, the proposed level of on-site parking provision is considered appropriate to support the operational needs of the Proposed Development, which includes a small scale training facility in the form of an office, and which is considered to be ancillary to the substation. Within **Volume 4, Appendix 12.2**: **Transport Assessment,** details regarding the suitability of the development to meet travel and parking demands is considered. It is the responsibility of the Principal Contractor to provide suitable parking facilities for the development, designed in accordance with standards, for approval by THC.

	Transport Assessment (TA) Methodology
	Transport Assessment Methodology
	1. Identify all public roads affected by the development. In addition to transportation of all abnormal loads & vehicles (delivery of components) this should also include routes to be used by local suppliers and staff. It is expected that the developer submits a preferred access route for the development. All other access route options should be provided, having been investigated in order to establish their feasibility. This should clearly identify the pros and cons of all the route options and therefore provide a logical selection process to arrive at a preferred route.
	2. Establish current condition of the roads. This work which should be undertaken by a consulting engineer acceptable to the Council and will involve an engineering appraisal of the routes including the following:
	• assessment of structural strength of carriageway including construction depths and road formation where this is likely to be significant in respect of proposed impacts, including non-destructive testing and sampling as required;
	• road surface condition and profile;
		The TA, which can be found within Volume 4, Appendix 12.2: Transport Assessment, adheres to the methodology identified in the scoping request where practicable with the information available.
		Specifically, the TA's preparation has been supported by the following key tasks to meet the requirements identified by THC:
		• A review of the following roads to support access to the Site prior to and following the upgrade of Black Bridge:
		  • A831 between the A862 and the U1604;
		  • U1604 between the A831 and the C1106; and
		  • C1106 between the U1604 and the A833.
		• A detailed desktop review of the local road network's suitability to accommodate construction traffic, with potential issues highlighted where appropriate, with this including the following:
		  • A review of carriageway width and condition;
		  • Identification of any width and weight restrictions through a

	• assessment of structures and any weight restrictions; • road widths, vertical and horizontal alignment, and • provision of passing places; and • details of adjacent communities. 3. Determine the traffic generation and distribution of the proposals throughout the construction and operation periods to provide accurate data resulting from the proposed development including: • nos. of light and heavy vehicles including staff travel; • abnormal loads; and • duration of works. 4. Current traffic flows including use by public transport services, school buses, refuse vehicles, commercial users, pedestrians, cyclists, and equestrians. 5. Impacts of proposed traffic including: • impacts on carriageway, structures, verges etc.; • impacts on other road users; • impacts on adjacent communities; • swept path and gradient analysis where it is envisaged that transportation of traffic could be problematic; and • provision of Trial Runs to be carried out in order to prove the route is achievable and/or to establish the extent of works required to facilitate transportation. 6. Proposed mitigation measures to address impacts identified in 5 above, including: • carriageway strengthening; • strengthening of bridges and culverts; • carriageway widening and/or edge strengthening; • provision of passing places; • road safety measures; and • traffic management including measures to be taken to ensure that development traffic does not use routes other than the approved routes. 7. Details of residual effects.	review of the ESDAL and THC databases; • Identification of any potential pinch points created by each road's vertical and horizontal alignment; and • Identification of any sensitive areas where measures may be required to be introduced to mitigate the impact of HGV movements. • Analysis of potential access routes to demonstrate that the chosen routes for HGVs and general traffic are the most suitable; • Swept-path analysis to review any pinch points which have been identified outwith the route which has been previously assessed as part of the abnormal load route review; • Identification of infrastructure alterations required to mitigate any remaining pinch points on the proposed access routes; • Promotion of measures to manage the impact on Kiltarlity including minimising the level of construction traffic passing the entrance to Tomnacross Primary School; • Confirmation of the development proposals including: • Proposed access arrangements; • Planned improvements to the C1106 and Black Bridge; • Clarification on the training centre and office elements being ancillary to the main development element; and • Proposed parking provision for vehicles and cycles following a review of Highland Council parking standards. • A parking accumulation analysis to demonstrate that the proposed level of parking is appropriate; • Quantification of the currently estimated level of trips generated by construction activities pre and post upgrade of the Black Bridge ;

		• Quantification of the level of trips generated by the Site's operation; • A detailed review of personal injury accident data, with any existing issues identified; • A qualitative review of the impact of operational traffic on the local road network will determine the likely impact on the local road network, although this is expected to be minimal; • An accessibility review to review the ability of the Site to be accessed by sustainable modes of travel; and • Development of a Travel Plan framework to promote sustainable travel habits to employees.

Method of Baseline Data Collation

Desk Study

12.2.20 The desk study included reviews and identification of the following:

- review of relevant transport policy to the Site;
- review of the baseline data;
- review of personal injury accident data;
- identifying sensitive receptor locations;
- identifying any other traffic sensitive receptors in the area (Core Paths, walking routes, communities, etc.);
- reviewing ordnance Survey (OS) plans;
- determining potential origin locations of construction staff and supply locations for construction materials to inform extent of local area road network to be included in the assessment; and
- identifying constraints to the movement of HGVs traffic and larger loads.

Traffic Data

12.2.21 To establish baseline traffic flows, the most recently available traffic survey data has been obtained from the Department for Transport (DfT)[12] for the road network contained within the Study Area. This data was provided as two-way Average Annual Daily Traffic Flows, by vehicle type including HGVs.

12.2.22 To supplement available traffic data, Automatic Traffic Count (ATC) surveys were also undertaken. Further details of this are discussed in *paragraph 12.4.7*.

[12] Department for Transport (2022). *Road traffic statistics.* (online). Available at: https://roadtraffic.dft.gov.uk/#6/55.254/-11.107/basemap-regions-countpoints. [Accessed February 2025].

Personal Injury Accident Data

12.2.23 Personal Injury Accident data for the most recently available five-year period covering 2018 to 2022, was obtained from the online resource Crashmap.co.uk[13] which uses data collected by Police Scotland.

Characterisation of Effect

12.2.24 The IEMA Guidelines identify the key impacts that are most important when assessing the magnitude of traffic impacts from an individual development. Those key impacts are as follows:

- severance of communities;
- road vehicle driver and passenger delay;
- non-motorised user delay;
- non-motorised user amenity;
- fear and intimidation on and by road users;
- road user and pedestrian safety; and
- hazardous/large loads.

12.2.25 The evaluation methodologies for each of the seven traffic related impacts are discussed individually in turn in the following sections.

Severance of Communities

- "the perceived division that can occur within a community when it becomes separated by major transport infrastructure … severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure", (IEMA, 2023).

12.2.26 The following ranges of levels of change in traffic flow have been considered when assessing the likely level of severance:

- ≤30 % increase in traffic equates to a negligible change in severance;
- >30 % yet ≤60 % increase in traffic equates to a low change in severance;
- >60 % yet ≤90 % increase in traffic equates to a medium change in severance; and
- >90 % increase in traffic equates to a high change in severance.

12.2.27 The guidance outlines that when assessing severance, the assessor should consider any physical infrastructure barriers, road width, traffic flow, traffic composition, traffic speed, crossing facilities and likely crossing movements (e.g. defining facilities to which access may be impaired and the potential total users and user groups), along with considering the impact on vulnerable groups.

Road vehicle driver and passenger delay

12.2.28 The IEMA guidance states that:

- "driver delay is only likely to be significant when traffic on the network surrounding the site is already at, or close to, the capacity of the system", (IEMA, 2023).

12.2.29 Impacts may be 'beneficial' or 'adverse' depending on whether the change in traffic results in an increase or decrease in driver delay. The effect on driver delay on links (excluding

[13] Crashmap, (2022). *crashmap.co.uk*. (online). Available at: https://www.crashmap.co.uk/. [Accessed February 2025].

junctions), has been based on the change in traffic volume that would occur on key links as a result of the Proposed Development. In this case, professional judgement has been used to determine whether there will be a significant impact.

Non-Motorised User Delay

12.2.30 Changes in the volume, composition or speed of traffic may affect the ability of people to cross roads. In general, increases in traffic levels are likely to lead to greater increases in delay. However, delays will also depend upon the general level of pedestrian activity, visibility and general physical condition of the road.

12.2.31 The IEMA guidance does not support the use of threshold assessments to quantify the magnitude of impacts due to changes in delay. Therefore, the magnitude of this impact has been determined using professional judgement based on the predicted increase in traffic levels and the predicted level of pedestrian activity.

Non-Motorised User Amenity

12.2.32 Pedestrian amenity describes the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width / separation from traffic.

12.2.33 The IEMA guidance considers that a suitable threshold for assessing the magnitude of the impact of traffic flow increase on pedestrian amenity is a 100 % increase in traffic levels. Therefore, the magnitude of impact in pedestrian amenity has been determined based on the level of increase in traffic flows on a particular road link and the level of pedestrian activity on that link.

Fear and Intimidation

12.2.34 The level of fear and intimidation experienced by pedestrians is dependent on the volume of traffic, its HGV composition, its proximity to people or the lack of protection caused by such factors as narrow footway widths. Danger is recognised as an important environmental impact and the IEMA guidance suggests a set of thresholds for estimating fear and intimidation caused by traffic based on the following:

- degree of hazard;
- level of fear and Intimidation; and
- resulting magnitude of impact reviewed in relation to the change in traffic flows.

12.2.35 The IEMA guidelines states that, the extent of fear and intimidation is dependent on:

- the total volume of traffic;
- the heavy vehicle composition;
- the speed these vehicles are passing; and
- the proximity of traffic to people and/or the feeling of the inherent lack of protection created by factors such as a narrow pavement median, a narrow path or a constraint (such as a wall or fence) preventing people stepping further away from moving vehicles.

12.2.36 The IEMA guidelines also note that special consideration should be given to areas where there are likely to be:

- high-speed sections of road;
- locations of turning points and accesses;
- narrow pavement median, narrow footway and/or constraints such as fences;
- area frequented with road users unfamiliar with the location such as tourist spots; and

- areas frequented by vulnerable groups.

12.2.37 The IEMA guidelines also details that the assessment should be defined by the degree of hazards to pedestrians by average traffic flow over an 18-hour heavy vehicle flow and average speed over an 18-hour day in miles per hour.

12.2.38 Table 12.3 toTable 12.5 identify the criteria as extracted from the IEMA Guidance, which has been used to review the Proposed Development's impact in relation to Fear and Intimidation.

Table 12.3 Fear and Intimidation Degree of Hazard

Average traffic flows over 18-hour day – all vehicles/hour 2-way (a)	Total 18-hour heavy vehicle flow (b)	Average vehicle speed (mph) (c)	Degree of Hazard (DoH) Score
+1,800	+3,00	->40	30
1,200 – 1,80	2,000 – 3,000	30 – 40	20
600 – 1,200	1,000 – 2,000	20 – 30	10
<600	<1,000	<20	0

Source: Table 3.1 of the IEMA Guidelines: Environmental Assessment of Traffic and Movement

Table 12.4 Level of Fear and Intimidation

Level of Fear and Intimidation (LoFI)	Total Hazard Score – (a) + (b) + (c)
Extreme	71+
Great	41 – 70
Moderate	21 – 4
Small	0 – 20

Source: Table 3.2 of the IEMA Guidelines: Environmental Assessment of Traffic and Movement

Table 12.5 Fear and Intimidation Magnitude of Impact

Magnitude of Impact	Change in step/traffic flows (AADT) from baseline conditions
High	Two step changes in level
Medium	One step change in level, but with >400 vehicle increase in average 18-hour average two-way all vehicle flow: and/or >500 Heavy Vehicle (HV) increase in total 18-hour HV flow
Low	One step change in level, but with <400 vehicle increase in average 18-hour average two-way all vehicle flow: and/or <500 HV increase in total 18-hour HV flow
Negligible	No change in step changes

Source: Table 3.3 of the IEMA Guidelines: Environmental Assessment of Traffic and Movement

12.2.39 Assessors should consider the Total Hazard Score per assessment link within the Study Area by adding together the degree of hazard (DoH) scores per the criteria shown in Table 12.4.

12.2.40 Assessors will consider three criteria for this process:

- **(a)** Average total two-way 18 hour traffic flows;

- **(b)** Average HGV two-way 18-hour traffic flows; and
- **(c)** Vehicle speed per link.

12.2.41 Combining these degree of hazard scores will establish a baseline Level of Fear and Intimidation (LoFI), and (with addition of construction traffic), the assessor will be able to demonstrate the magnitude of impact as per Table 12.5.

Road user and pedestrian safety

12.2.42 The IEMA guidance recommends that at locations where high levels of Personal Injury Accidents (PIAs) are recorded, accident statistics should be used to provide an estimate of the existing road link's accident rate. The Proposed Development traffic can then be used to undertake a statistical assessment of the likely increase in accident rates based on the increase in vehicle-kilometres.

Hazardous/large loads

12.2.43 The IEMA guidance states that should the development involve the transportation of hazardous loads, these would need to be considered under the Carriage of Dangerous Goods and the use of Transportable Pressure Equipment Regulations (2009).

12.2.44 As previously stated in *paragraph 12.2.13*, the form of the Proposed Development will not generate hazardous movements in association with its construction or operation and this impact has therefore not been considered further as part of this assessment.

12.2.45 The guidance states that should large or Abnormal Indivisible Loads (AIL's) be anticipated:

- "The traffic and movement expert must consider appropriate routes for abnormal load movements and mitigation strategies to secure safe passage. If frequent abnormal load movements are anticipated (e.g. heavy plant movements), the traffic and transport expert should consider if other traffic impacts could be induced (e.g. fear and intimidation, driver delay, etc", (IEMA, 2023)."

12.2.46 Transport Scotland specify that an AIL Vehicle (AILV) is classified as larger than 2.9 m overall width by 18.3 m rigid length or exceeding 44 tonne gross weight[14]. Movement of AILV's is subject to separate agreement with the relevant road authority and police via notification or an Electronic Service Delivery for AIL's (ESDAL) system. This is considered further as part of the AIL review, the results of which are presented in **Volume 4, Appendix 12.3: Abnormal Load and Construction Traffic Assessment Report**, in Appendix E: Route Feasibility Report.

Sensitive Receptors

12.2.47 The following receptors, including groups and special interests, have been assessed for the identified Study Area in line with the IEMA guidance:

- non-motorised users;
- public right of way users;
- motorists and freight vehicles;
- public transport; and
- emergency services.

[14] Transport Scotland (2007). *Abnormal Load Movements - A brief guide to Notification and Authorisation requirements*. (Online). Available at: https://www.transport.gov.scot/media/33621/abnormal-load-movements-guide-to-regulations.pdf. [Accessed February 2025].

12.2.48 The receptors above can broadly be grouped as the following affected parties; 'Users of Roads', and 'Users / Residents of Locations'. The following list identifies special interests that should be considered when defining sensitive receptor geographic locations, and the sensitive locations will inform the assessment of effect significance when the development traffic is assigned to the network:

- people at home;
- people at work;
- sensitive people including young age; older age; income; health status; social disadvantage; and access and geographic factors;
- locations with concentrations of vulnerable users (e.g. hospitals, places of worship, schools);
- recreational and shopping areas;
- recreation areas including ecological / nature conservation sites;
- tourist / visitor attractions;
- collision clusters and routes with road safety concerns; and
- junctions and road links at (or over) capacity.

12.2.49 The sensitivity level of receptors for the route section has been assessed using the following scale, the number of receptors present and proximity/level of interaction between the receptors and traffic flows:

- high sensitivity;
- medium sensitivity;
- low sensitivity;
- negligible sensitivity; and
- no receptors identified.

12.2.50 The IEMA Guidance includes guidance on how the sensitivity of receptors should be assessed. Professional judgement was subsequently used to develop a classification of sensitivity for users based on the characteristics of roads and locations. This is summarised in Table 12.6.

12.2.51 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.

Table 12.6 Receptor Sensitivity

Receptor	Sensitivity				
	High	Medium	Low	Negligible	No Receptors
Users of Roads	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, and frequent bus services.	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, and bus services.	Where the road is a Trunk or A-class, constructed to accommodate significant HGV composition. Includes roads with little or no traffic calming or traffic management measures, and bus services.	Where roads have few adjacent settlements, and bus services. Includes strategic trunk roads that would be little affected by additional traffic and suitable for construction type vehicles, including Abnormal Loads and new strategic trunk road junctions capable of accommodating similar types of vehicles.	Where roads have no adjacent settlements. Includes routes where there are no bus services.
Users / Residents of Locations	Where a location contains receptors with the greatest sensitivity to traffic flows: Schools, colleges, playgrounds, accident clusters, retirement homes, roads without footways that are used by pedestrians.	Where a location contains receptors with medium sensitivity to traffic flow: congested junctions/ links, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, recreation facilities.	Where a location contains receptors with low sensitivity to traffic flow links: with adjacent land-uses such as public open space, nature conservation areas, listed buildings and residential areas with adequate footway provision and limited pedestrian/cycle users.	Where a location includes individual dwellings or few settlements with no facilities. Including farmland usage and where receptors are sufficiently distant from affected roads and junctions and no /very limited number of pedestrians and cyclists.	Where roads have no adjacent settlements. Includes farmland.

Magnitude of Impact

12.2.52 The IEMA Guidelines recommend the following two rules to be considered when assessing the impact of development traffic on a road link:

- **Rule 1**: Include road links where traffic flows will increase more than 30 % (or the number of HGVs will increase by more than 30 %); and
- **Rule 2**: Include any other specific environmental or population sensitive areas where traffic flows have increased by 10 % or more.

12.2.53 The IEMA guidelines go on to state that any increases in traffic flows of less than 10 % are generally accepted as having no discernible environmental impact as daily variance in traffic flows can be of equal magnitude.

12.2.54 The 30 % threshold relates to the level at which receptors may perceive change and there may therefore be an effect. Impacts above this level therefore do not suggest that there is a significant impact, only that further consideration is required to assess the significance.

12.2.55 The criteria for assessing the magnitude of the predicted impact on severance, pedestrian delay and pedestrian amenity is given in Table 12.7.

Table 12.7 Magnitude of Impact

Transport effect	Magnitude of Impact			
	High	Medium	Low	Negligible
Severance	Change in total traffic or HGV flow of >60 % ≤90%	Change in total traffic or HGV flow of >60 % ≤90%	Change in total traffic or HGV flow of >60 % ≤90%	Change in total traffic or HGV flow of >60 % ≤90%
Driver delay	High increase in queuing at junctions and/or congestion on road links.	Medium increase in queuing at junctions and/or congestion on road links.	Low increase in queueing at junctions and/or congestion on road links.	Low or no increase in queuing at junctions and/or congestion on road links.
Non-motorised user delay	Generally, increases in traffic may lead to greater delay, though it is dependent on the level of non-motorised users' activity in the area. Assessed based on pedestrian delay experienced when crossing highways links considering a range of factors including crossing type, pedestrian flows, traffic levels, visibility and general highway condition.			
Non-Motorised users' amenity	A halving or doubling of traffic flow (or HGV flow) can be used as a broad threshold when considered in the local context and applied with caution.			
Fear and Intimidation	Assessed as per Table 12.3, Table 12.4 and Table 12.5. Note that if there are AILV's users, the perception of fear and intimidation may be heightened.			
Road safety	Assignment informed by a review of existing collision patterns and trends based upon the existing personal injury accident records and the forecast increase in traffic that may change the risk of serious and fatal injuries.			
Large Loads	Generally, the movements of large loads may have an effect on other traffic impacts (e.g. fear and intimidation, driver delay). The number, composition, frequency, timing and nature of the load may induce an effect of the other six traffic impacts.			

12.2.56 The magnitude of each impact has subsequently been determined in accordance with the IEMA guidelines and based on professional judgement.

Assessment of Significance of Effects

12.2.57 The likely significant effects can be:

- **Beneficial (positive):** meaning that the changes produce benefits in terms of transportation and access (such as reduction of traffic, travel time or patronage, or provision of a new service, access or facility);
- **Negligible (neutral):** meaning that there is no measurable effect; or
- **Adverse (negative):** meaning that changes produce disbenefits in terms of transportation and access (such as increase of traffic, travel time, patronage or loss of service or facility).

12.2.58 The significance grading criteria summarised in Table 12.8, have been used in this assessment.

Table 12.8 Significance Criteria

Significance Criteria	Description Criteria
High (beneficial)	Major improvement in transport terms. This has been deemed a significant effect.
Medium(beneficial)	Moderate improvement in transport terms. This has been deemed a significant effect.
Low (beneficial)	Minor improvements in transport terms. This has been deemed a not significant effect.
Negligible	No appreciable impact in transport terms. This has been deemed a not insignificant effect.
Low (adverse)	Minor adverse impact in transport terms. This has been deemed a not significant effect.
Medium (adverse)	Moderate adverse impact in transport terms. This has been deemed a significant effect.
High (adverse)	Major adverse impact in transport terms. This has been deemed a significant effect.

12.2.59 Following the classification of an effect using the significance criteria, a clear statement is then made as to the temporal and spatial scale of the effects on the basis of the following criteria:

- **'Temporary'** – where the effect occurs for a limited period of time (e.g. the construction period) and the change for a defined receptor can be reversed;
- **'Permanent '**– where the effect represents a long-lasting change for a defined receptor;
- **'Local'** effects are those affecting neighbouring receptors;
- **'District'** effects are those which are likely to occur to receptors within the administrative boundary of The Highland Council;
- **'Sub-regional'** effects are those affecting areas adjacent to the administrative area of The Highland Council;
- **'Regional'** effects are those affecting receptors across the region; and
- **'National'** effects are those affecting receptors within the United Kingdom.

12.2.60 Table 12.9 sets out the significance of the effects adopted based on the receptor sensitivity and significance criteria identified in Table 12.7 and Table 12.8.

Table 12.9 Significance Effects Matrix

		Baseline Sensitivity (Environmental Value)				
		High	Medium	Low	Negligible	No Receptor
Magnitude of Impact	High (Beneficial)	High (Beneficial)	High- Medium (Beneficial)	Medium (Beneficial)	Low - Medium (Beneficial)	Negligible
	Medium (Beneficial)	High - Medium (Beneficial)	Medium (Beneficial)	Low - Medium (Beneficial)	Low (Beneficial)	Negligible
	Low (Beneficial)	Medium (Beneficial)	Low - Medium (Beneficial)	Low (Beneficial)	Negligible - Low (Beneficial)	Negligible
	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible
	Low (Adverse)	Medium (Adverse)	Medium – Low (Adverse)	Low (Adverse)	Low - Negligible (Adverse)	Negligible
	Medium (Adverse)	High - Medium (Adverse)	Medium (Adverse)	Medium – Low (Adverse)	Low (Adverse)	Negligible
	High (Adverse)	High (Adverse)	High – Medium (Adverse)	Medium (Adverse)	Medium – Low (Adverse)	Negligible

12.2.61 The combination of the receptor sensitivity and magnitude of impact from the Proposed Development, enables the significance of effects to be determined. Effects have been considered significant where they are assessed to be High or Medium. Where an effect could be one of High / Medium or Medium / Low, professional judgement has been used to determine which option should be applicable.

Requirements for Mitigation

12.2.62 Where potential significant adverse effects are identified, the Applicant will implement mitigation measures to reduce or remove these effects.

12.2.63 At present, outline mitigation measures have been included within this EIA Report based on the current CTMP (found in **Volume 4, Appendix 12.1: Outline Construction Traffic Management Plan**). It will be the responsibility of the Principal Contractor to prepare a final CTMP, developing and refining the outline mitigation measures, and which will be agreed with The Highland Council. The preparation of the CTMP will set out in full, the agreed mitigation measures which will be implemented during construction.

Assessment of Residual Effects

12.2.64 The assessment of residual effects has been undertaken following a similar methodology as for the potential effects but taking into consideration the implementation of the committed mitigation measures.

Assessment of Cumulative Effects

12.2.65 An assessment of potential cumulative effects has been undertaken based on a review of planning applications which are currently in the planning system, including other SSEN

developments that are at an earlier stage of application, or have recently been granted permission, in the vicinity of the A831 and A862. A list of cumulative developments considered is set out in **Volume 2, Chapter 5: EIA Process and Methodology, Table 5-2**.

Limitations and Assumptions

12.2.66 This assessment has been based on the peak daily traffic flows of Site import and exports to provide a worst-case assessment scenario. There may be localised peaks with construction days where flows can be higher for a specific hour, such as a shift change onsite or delivery of specific materials.

12.2.67 The numbers used are estimates at this time provided by the Principal Contractor and may change should design and working method assumptions be altered.

12.2.68 At present, it is not possible to confirm with certainty which routes would be used by development traffic, and how much traffic would utilise each route. The information on routing has therefore been based on a first principles approach as identified in the CTMP, and the traffic numbers provided from the Principal Contractor included within **Volume 4, Appendix 12.1: Outline Construction Traffic Management Plan**. Where information has not been available it has been necessary to make assumptions on the potential construction vehicle generation and routing.

12.2.69 At time of writing, it has been assumed that construction of the Site buildings would be consecutive resulting in the HVDC construction trips not adding to the overall construction traffic peak. Consequently, the overall significance would remain unchanged and therefore an updated quantitative assessment would not be required. However, should this not be the case once the detailed construction methodology is determined, we would submit an appropriately updated assessment at that time.

12.3 Mitigation by Design

Introduction

12.3.1 There are a number of mitigation measures proposed to reduce the significance of the effect of construction traffic on the surrounding road network. These measures are both physical measures, i.e. those that require specific works to be undertaken whether on the existing road network or as part of the Proposed Development, or management measures used to change contractors' behaviours.

Physical Measures

12.3.2 As detailed within the **Volume 4, Appendix 12.1: Outline Construction Traffic Management Plan**, a number of physical measures are proposed within the Study Area to mitigate against the potential impacts of construction traffic associated with the Proposed Development. The proposed measures include the following:

- **Site Access**: formation of a new access on the C1106 immediately to the west of the U1604;
- **HGV Loading and Holding Areas**: formation of these within the Site boundary to avoid any construction traffic idling on the public road network;
- **Replacement of the Black Bridge**: to be undertaken for use by HGV construction traffic and AIL deliveries. Replacement works are currently programmed to be completed by August 2027;
- **Road widening works:** widening of the C1106 to provide a carriageway width of approximately 7 m between the U1604 and the Site access; and

- **Route signage** – temporary signage will be erected on the C1106 in the vicinity of the proposed Site access, and at other locations as considered necessary, to warn people of construction activities and associated construction vehicles. The purpose of such signage is to provide driver information and to maintain road safety along the construction vehicle route. The exact nature and location of the signage would be agreed with The Highland Council prior to the commencement of construction activities.

Good Construction Practices and General Construction Traffic Management

12.3.3 Prior to the commencement of any onsite activities, a detailed CTMP would be prepared and agreed with The Highland Council. The CTMP would include a number of measures to reduce the effects of the construction of the Proposed Development on local receptors and communities. The CTMP which is included within **Volume 4, Appendix 12.1: Outline Construction Traffic Management Plan,** outlines potential mitigation measures, would be updated as and when additional information becomes available.

Description of Effects

12.3.4 The following sections detail the potential effects of the Proposed Development and their significance taking into account embedded mitigation measures.

12.3.5 It is considered that the nature of the Proposed Development will result in no positive effects, with all effects anticipated to be **neutral** or **adverse** following the implementation of appropriate mitigation measures.

12.3.6 The assessment of likely significant effects has been summarised in terms of the impact on the key local road links identified in *paragraph 12.2.16*, with the assessment comparing traffic generated by construction activities (as identified in the CTMP), with the Future Base Scenario (i.e. without construction traffic).

Construction Phase

Design Solutions and Assumptions

12.3.7 The assessment of the potential effects has been undertaken in line with **Volume 4, Appendix 12.1: Outline Construction Traffic Management Plan**, assuming a worst-case scenario of the construction phase taking approximately 3 years with commissioning expected to take 2 years. The construction phase includes all activities supporting installation of the substation from establishment of the temporary Site compounds to plant installation and cabling works. It is anticipated that the most intense period of construction activities will take place within the first 2 years when the main civil works are taking place.

12.3.8 As previously discussed, there will be a phased approach to construction traffic routing due to necessary work to replace Black Bridge to enable transformer and other large equipment deliveries. It is anticipated that works on Black Bridge will take approximately 9-12 months, and be completed between at some point December 2026 and August 2027, subject to ongoing discussions with The Highland Council. Therefore, assessment will be carried out at this stage on a pre and post 2027 future base year, as follows:

- **Phase 1 – 2026 Future Base Year**; and
- **Phase 2 – 2027 Future Base Year**.

12.3.9 The level of HGV and non-HGV trips generated by each key construction activity has been estimated by the Principal Contractor as part of the CTMP, included within **Volume 4, Appendix 12.1: Outline Construction Traffic Management Plan.**

General Construction Elements

12.3.10 The construction process for the Proposed Development will broadly comprise the following elements:

- enabling works, Site clearance, tree clearing and demolitions;
- platform earthworks and creation of a level platforms;
- bund/screening earthworks;
- construction of perimeter and Site drainage, including SuDS;
- construction and installation of the buildings;
- installation of electrical plant;
- erection of a palisade security fence up to approximately 3 m in height around platforms;
- commissioning; and
- reinstatement and planting.

12.3.11 The Proposed Development may also require the movement of excess material from the earthworks phase. Details of the surplus earthworks is included within the Earthworks Strategy [Document Ref: LT459-SWE-XX-XX-T-W-1001] found within **Volume 4, Appendix 13.5: Earthworks Strategy Report**. It is proposed that the Principal Contractor will carry out material balance calculations to inform final design which will demonstrate whether additional material will be required / generated, and where it is proposed to be temporarily stored or permanently stored used. Final design will look to achieve a cut and fill balance on or in the immediate vicinity of the Site to avoid haulage via the local road network as far as practicable in order that any potential transport effects on the local network are minimised.

Construction Traffic

12.3.12 Construction traffic associated with the Proposed Development will comprise the following:

- HGVs transporting construction materials, plant and equipment to / from Site;
- AILV's (e.g. for transporting transformers);
- light goods vehicles (LGVs) delivering to / from Site;
- staff travelling to and from the Site; and
- works on or over the public road network (formation of the access junction and potential mitigation works for AIL movements).

Construction Working Hours

12.3.13 Construction activities would in general be undertaken during daytime periods. Working hours are currently anticipated between approximately 07.00 and 19.00 (Shorthand Reference: 12/7). Staff and Workforce movements are expected to be prior to and after these times and are therefore outside the assessment window.

12.3.14 It is, however, expected that Site activities which will generate HGV movements, will take place Monday to Friday 08:00 – 19:00 and Saturday 08:00 – 13:00. To provide a robust estimate of the impact of construction traffic for the purposes of this traffic and transport assessment, it has been assumed that an 11-hour working day will be adopted, with construction activities only undertaken over a 5-day period (Shorthand Reference: 11/5).

12.3.15 As indicated within the CTMP, in **Volume 4, Appendix 12.1: Outline Construction Traffic Management Plan**, the movement of Car / LGV construction traffic is anticipated to

be outwith HGV movement times. For the purposes of the EIA assessment, WSP has assumed that to align with the worst-case Site working hours, that Car / LGV movements (including workforce movements) are expected to take place 07.00 and 19.00, 7 day per week, (Shorthand Reference: 12/7).

12.3.16 During the commissioning phase of the Proposed Development, there may be a requirement for 24 hours a day, seven days a week working (Shorthand Reference: 24/7). If required, this would be agreed in advance with THC. Any out of hours working would also be agreed in advance with THC.

Abnormal Indivisible Loads

12.3.17 As previously stated, AIL's are categorised as vehicles where the weight exceeds 44 tonne gross weight and/or the width exceeds 2.9 m and/or the length exceeds 18.3 m. Based on these parameters, the transformers and the delivery of some plant equipment associated with the construction of the Proposed Development will fall into the category of AIL's.

12.3.18 It is currently assumed that 290 tonne (t) transformers will be required in relation to the construction of the Proposed Development. At the time of writing, the Port of Entry (POE) is also unknown, however it is anticipated that transformers could be delivered from either Port of Nigg, Invergordon or North Kessock Ports.

12.3.19 It is expected that the transformers would be transported using a low loader / flatbed trailer or specialist girder frame HGV and the total number to be transported in convoy (if using the same route to Site).

12.3.20 As stated in the AIL report, included within **Volume 4, Appendix 12.3: Abnormal Load and Construction Traffic Assessment Report**, an initial review of the potential routes for AIL delivery within the Traffic and Transport Study Area has identified the A832, B9169, A862, A831 and C1106 as the route to be used for the transport of AILs associated with the transformers. The report has been completed with swept path analysis undertaken to identify any potential constraints and mitigation works required to accommodate the AIL vehicles on these identified roads for the movement of transformers, which constitutes the largest loads to Site.

12.3.21 It is also anticipated that some plant equipment (listed below, but not limited to) will require transport to the Site, some of which are AILs:

- Rock Crushers;
- Large e.g. 91.85 t excavators;
- Welfare cabins; and
- Large bull dozers.

12.3.22 It is anticipated that the plant will fit on the back of a low loader and that where possible, the largest components will be dismantled to reduce weight and overall width and length.

12.3.23 A review of the potential routes for the Plant equipment AIL deliveries has identified the A832, B9169, A862, A833, the C1108 and U1604 as the route to be used for the transport of these plant AILs. Further details of these movements are considered within **Volume 4, Appendix 12.2: Transport Assessment**.

12.3.24 Prior to the movement of any AIL's to the Site, a public awareness campaign will be run to allow residents to plan and time their journeys to avoid disruption. The movement of AIL's will also be timed to avoid periods of heavy traffic flow to minimise disruption to the public.

These include peak summer periods, normal daily morning and evening peak hours and any major public events.

12.3.25 Also, a trial run will be undertaken on the proposed access route. A temporary frame to simulate the proposed loads will be used during the trial run to confirm the suitability of the route and required mitigation works. The parameters of the trial run will be agreed in advance with The Highland Council, Police Scotland, Transport Scotland and the appointed haulage contractor.

12.3.26 Configuration of the convoy would be confirmed prior to the movement of any loads and directed by the Police escort in attendance. The appointed haulage contractor will provide escort vehicles at the front and rear of the convoy and at any other specific locations deemed necessary following the trial run.

Estimated Delivery Volumes

12.3.27 The CTMP which is included in **Volume 4, Appendix 12.1: Outline Construction Traffic Management Plan**, presents an estimate of the total level of traffic associated with each key element of the Proposed Development's construction and this is summarised in Table 12.10.

Table 12.10 Predicted Traffic Generation per Day and Week Associated with Each Construction Element

Haulage Expected Vehicle	Type	Indicative Duration Two-way	Peak Two-way Trips per Day/Week	Total Two-way Trips
Staff	Cars / Vans	Sep 2025 - Feb 2031	110 / day	54,500
Workforce and subcontractor	Cars / Vans	Sep 2025 - Feb 2031	300 / day	143,000
Site accommodation and maintenance	Vans	Sep 2025 - Feb 2031	7 / week	670
Skips	HGVs / Skips	Sep 2025 - Feb 2031	12 / week	930
HGV	Flatbed lorry	Sep 2025 - Feb 2031	31 / week	1,800
Septic Tank waste removal	HGV	Sep 2025 - Feb 2031	3 / week	250
Aggregates	Flatbed lorry	Sep 2025 - Feb 2028	40 / day	9,130
Disposal of excess material	Tipper lorry	Sep 2027 - Nov 2028	150 / day	9,150
Ready-Mix concrete	Tipper lorry / Mixer	Nov 2025 - Feb 2028	30 / day	6,900
Pre-cast foundations	Flatbed lorry	July 2026 - Jan 2028	15 / day	3,300
Delivery of materials	Various	Sep 2025 – June 2029	60 / day	21,900
Substation road construction	Tipper lorry	Apr 2027 - Dec 2027	10 / week	130
Light Goods Vehicles	Rigid body up 7.5 tonnes	June 2027 – June 2029	32 / week	1,700
Cable Drums	HGV / Flatbed lorry	Jan 2028 – Jan 2030	4 / day	365
Plant Delivery	HGV / Flatbed lorry	July 2027 – April 2030	15 / day	4,300

Miscellaneous	Various	July 2027 – May 2029	15 / day	5,500

12.3.28 The peak daily trip generation estimate has been provided by the Principal Contractor and has been used to inform the Phase 1 and 2 assessments by extracting the peak daily trip generation prior to and post August 2027, when works on Black Bridge are currently programmed to be completed.

12.3.29 While the impact of construction traffic is only temporary in nature, the scale of the Proposed Development will result in construction activities going on for a number of years. The impact of these trips has therefore been assessed in accordance with the following seven criteria as specified by IEMA in *paragraph 12.2.24*.

12.3.30 All construction vehicles will access and leave the Site by one new access junction which is to be formed on the C1106 to the east of the Site, and approximately 120 m west of the U1604.

12.3.31 Larger vehicles will be routed to the Site via the trunk road network (T) to minimise the impact on urban rural areas and sensitive receptors as far as possible. While the assignment of these trips cannot be determined until The Highland Council agrees a routing approach with the Principal Contractor, it has been assumed, to align with the CTMP, that 75 % of HGVs will access the Site from the A9 (T) to the north and 25 % will access the Site from the A82 (T) to the east of the Site.

12.3.32 As confirmed within the CTMP, it is more challenging to anticipate the location where smaller construction vehicles are likely to originate from, at this stage, and therefore a 50/50 % distribution has been applied for the non-HGV construction traffic to the North at the A9 (T) and to the East at the A82 (T).

12.3.33 A summary of the assumed trip assignment is provided in Table 12.11.

Table 12.11 Phase 1 and 2 Construction Traffic Assignment

Study Network Route Section	Phase 1 Assignment (%)		Phase 2 Assignment (%)	
	HGV	Non-HGV	HGV	Non-HGV
Link 1: A832 between the A9 and Muir of Ord	75%	50%	75%	50%
Link 2: B9169 between A832 and A862	75%	50%	75%	50%
Link 3: A862 between the B9169 and A831	75%	50%	75%	50%
Link 4: A831 between the A862 and the C1106	0%	0%	100%	100%
Link 5 (North): C1106 between the A831 and the U1604	0%	0%	100%	100%
Link 5 (Site Access): C1106 at the Site Access	100%	100%	100%	100%
Link 6: A862 between A833 and A831	75%	50%	25%	50%
Link 7: A862 between A833 and Drumchardine	25%	50%	25%	50%
Link 8: A862 between Drumchardine and the A82	25%	50%	25%	50%
Link 9: A833 between C1108 and A862	100%	100%	0%	0%
Link 10: C1108 between U1604 and A833	100%	100%	0%	0%
Link 11: U1604 between C1106 and C1109	100%	100%	0%	0%

12.3.34 As indicated in Table 12.11, as per Phase 2 assumptions, it is not intended to use Links 9, 10 or 11 to route construction traffic during this time, as previously discussed in *paragraph 12.2.17*.

12.4 Baseline Conditions

Site Context

12.4.1 The Site is located close to the unclassified C1106 which connects with the A831 approximately 300 m to the north of Black Bridge which supports the road's crossing of the River Beauly. While not supported by a centre line for the majority of its length, the road is approximately 5 m in width between the A831 and its junction with the U1604 which supports access to the C1108 through Kiltarlity. While Black Bridge currently has no signed restrictions on its usage, its width has been reduced as a result of its current structural condition, with the implementation of an existing priority working arrangement controlled by give way signage.

12.4.2 The A831 connects the A862 with the C1106 and is a rural two-lane single carriageway road which is subject to a national speed limit between the two roads.

12.4.3 The A832, links the A9 (T) at Tore with the A862 at Ord to Marybank. It is a two-lane single carriageway subject to the national speed limit for the majority of its length as it passes through an area which is generally rural in nature.

12.4.4 The A833 forms a junction with the A862 at Phoineas towards Milton via the C1108 as a two-lane single carriageway approximately 6 – 6.5 m in width and subject to the national speed limit. Land use is generally rural agricultural in nature with few residential properties along its length.

12.4.5 The C1108 runs through Kiltarlity from the A833 at Brodie's Corner, located approximately 2.5 km east of the Proposed Site Access. The road is a two-lane single carriageway and is subject to a 30 mph speed limit from Allarburn Drive to Post Office Brae where the speed limit increases to 60 mph. Between these locations there are residential houses either side of the carriageway and beyond is agricultural land.

12.4.6 The U1604 runs between the C1108 at Culburnie Burn to the C1106 at Hill View. The road is approximately 4 - 5 m in width, subject to a 60 mph speed limit, and either side of the carriageway there is mostly agricultural land use with few holiday cottages.

Traffic Flows

12.4.7 Eight automatic Traffic Count (ATC) traffic surveys were installed on Tuesday, 16 April 2024 to provide traffic flow data on the minor roads within the Study Area to enable the Proposed Development's impact on the operation of the local road network to be assessed. The ATC's captured seven days' worth of traffic volume and speed data across the Study Area. Traffic flow data from the survey informs assessment of the impact of construction traffic on the operation of the Study Area.

12.4.8 Additionally, traffic count data for the A862, B9169 and the A832 which will also be used to accommodate construction traffic, has been obtained from the Department for Transport's and Transport Scotland's Traffic Data websites. This data was provided as two-way AADT flows by vehicle type including HGVs, and all data was extrapolated to 2024 to align with the ATC data. A summary of the 7-day, 24-hour, 2024 two-way flows on the road links contained in the Study Area is provided in Table 12.12, with the locations of the traffic count

sites shown in **Volume 3, Figure 12.2: Phase 1 - Traffic Count Site Locations** and **Volume 3, Figure 12.4: Phase 2 - Traffic and Transport Study Area**.

Table 12.12 Annual Average Daily Two-Way Traffic Flows (24-hour over 7 days) 2024

Count Site	Location	2024 Two-Way Flows		HGV Proportion (%)
		HGV (24 / 7)	Total (24 / 7)	
50941	Link 1: A832 between the A9 and Muir of Ord	251	4203	6%
ATC01257	Link 2: B9169 between A832 and A862	43	720	6%
10950	Link 3: A862 between the B9169 and A831	319	6510	5%
ATC 7	Link 4: A831 between the A862 and the C1106	26	2239	1%
ATC 6	Link 5 (North): C1106 between the A831 and the U1604	7	643	1%
ATC 1	Link 5 (Site Access): C1106 at the Site Access	1	239	<1%
30950	Link 6: A862 between A833 and A831	132	5229	3%
80011	Link 7: A862 between A833 and Drumchardine	91	4245	2%
80331	Link 8: A862 between Drumchardine and the A82	75	5345	1%
ATC 8	Link 9: A833 between C1108 and A862	48	3067	2%
ATC 4	Link 10: C1108 between U1604 and A833	7	441	2%
ATC 3	Link 11: U1604 between C1106 and C1109	8	299	3%

12.4.9 Construction activity working hours are estimated to be between 07:00 to 19:00 Monday to Sunday however it is anticipated that construction vehicle access to Site will be restricted. The following working hours are estimated per vehicle type:

- HGV Movements: between 08:00-19:00 Monday to Friday - (Shorthand Reference: 11/5);
- Staff and Workforce: before 07:00 and after 19:00; and
- Non-HGV movements (not including personnel): between 07:00 to 19:00 Monday to Sunday – (Shorthand Reference: 12/7).

12.4.10 It is assumed that construction working hours will take place over an 11 to 12-hour day (between 08:00 and 19:00 and 07:00 and 19:00) over 5 and 7 days per week respectively for HGV and non-HGV movements. A factor has been applied to reduce the AADT flow data to the 11 and 12-hour traffic flows to coincide with the typical 11 and 12-hour working days. Conversion factors have been derived from DfT Road Traffic Statistics – Table TRA0308: 'Traffic distribution on all roads by time of day and day of the week, for selected vehicle types in Great Britain' for the latest data available, 2023, to convert the AADT flows to 11 and 12-hour flows.

12.4.11 The following factors were applied according to vehicle type to convert the AADF to the 11 - 12hour data:

- HGVs – 0.7124, and
- Total Vehicles - 0.7937

12.4.12 Where ATCs have been required, the 11 and 12-hour data has been extracted manually from counts for the period specified.

12.4.13 Table 12.13 shows the resulting 11 and 12-hour flows following application of the derived factors.

Table 12.13 2024 Annual Average Daily Two-Way Traffic Flows (11 / 12-hour)

Count Site	Location	2024 Two-Way Flows		HGV Proportion (%)
		HGV (11 / 5)	Total (12 / 7)	
50941	Link 1: A832 between the A9 and Muir of Ord	179	3336	5%
ATC01257	Link 2: B9169 between A832 and A862	31	571	5%
10950	Link 3: A862 between the B9169 and A831	227	5167	4%
ATC 7	Link 4: A831 between the A862 and the C1106	26	1955	1%
ATC 6	Link 5 (North): C1106 between the A831 and the U1604	8	559	1%
ATC 1	Link 5 (Site Access): C1106 at the Site Access	1	207	<1%
30950	Link 6: A862 between A833 and A831	94	4150	2%
80011	Link 7: A862 between A833 and Drumchardine	65	3369	2%
80331	Link 8: A862 between Drumchardine and the A82	53	4242	1%
ATC 8	Link 9: A833 between C1108 and A862	47	2615	2%
ATC 4	Link 10: C1108 between U1604 and A833	7	377	2%
ATC 3	Link 11: U1604 between C1106 and C1109	8	259	3%

12.4.14 The data in Table 12.13 has been used to support the future baseline of the two impact assessments.

Accident Data

12.4.15 Personal Injury Accident (PIA) data for the most recently available five-year period covering 2018 to 2022, was obtained for the Study Area links. The locations and severity of the PIAs reported in the Study Area are shown in **Volume 3, Figure 12.3: Phase 1 - Personal Injury Accident Locations** and **Volume 3, Figure 12.6: Phase 2 - Personal Injury Accident Locations**, and are summarised in Table 12.14. The table also identifies the accident rate associated with each link, comparing this with the national average as identified by the DfT for the road type.

Table 12.14 Personal Injury Accident Summary (2018-2022)

Link ID (#)	Study Area Road	Road Type	Slight	Serious	Fatal	At Junctions (%)	Total	PIA Rate (per Million Veh Km)	National Average (per Million Veh Km)*	Above or Below National Average
1	A832 between the A9 and Muir of Ord	Rural A road	3	3	0	33%	6	0.098	0.12	Below
2	B9169 between A832 and A862	Urban other road	0	2	0	100%	2	1.268	0.40	Above
3	A862 between the B9169 and A831	Urban A road	4	0	0	75%	4	0.078	0.43	Below
4	A831 between the A862 and the C1106	Urban A road	1	0	0	100%	1	0.136	0.43	Below
5	C1106 between the A831 and the U1604	Rural other road	0	0	0	-	0	0.000	0.20	Below
5	C1106 at the Site Access	Rural other road	0	0	0	-	0	0.000	0.20	Below
6	A862 between A833 and A831	Rural A road	1	0	0	0%	1	0.055	0.12	Below
7	A862 between A833 and Drumchardine	Rural A road	2	0	1	33%	3	0.086	0.12	Below
8	A862 between Drumchardine and the A82	Urban A road	5	0	1	33%	6	0.065	0.43	Below
9	A833 between C1108 and A862	Rural other road	0	0	0	-	0	0.000	0.20	Below
10	C1108 between	Urban other road	0	0	0	-	0	0.000	0.40	Below

	U1604 and A833									
11	U1604 between C1106 and C1109	Urban other road	0	0	0	-	0	0.000	0.40	Below
	Total	**-**	**16**	**5**	**2**		**23**	**-**	**-**	**-**

*The DfT reported road casualties for Great Britain 2021 as presented in RAS0302[15]: national accident rate per million vehicle kms by road classification

12.4.16 The IEMA guidance recommends that at locations where high levels of PIAs are recorded, accident statistics should be used to provide an estimate of the existing road link's accident rate. The review of PIAs confirms that none of the route sections experience concerning levels of PIAs.

12.4.17 Overall, there are 23 accidents throughout the 39 km Study Area, averaging 4.6 accidents per year. There were 16 Slight, 5 Serious and 2 Fatal. Of the two fatal incidents, both individual incidents occurred on the A862 between the A833 and the A82 in Inverness, both accidents can be attributed to error for all parties involved.

12.4.18 The results show that no PIAs were recorded on the C1106, C1108, U1604 and the A833 section and the majority of the A831 between the proposed Site access junction and the A862 over the five-year assessment period. It is observed that two links (Link 1 and Link 8) recorded six collisions over the five-year period which averages 1.2 accidents per annum.

12.4.19 As shown in Table 12.14, while these two links had a PIA rate per annum over 1, these road links and the majority of the rest of the road links have annual accident rates that are equal or below the respective national average for each of the road's characteristics, indicating that there are no existing safety concerns on the local road network. However, as shown there is one link (Link 2) that shows above the national average.

12.4.20 Looking closer at Link 2 there are two accidents in total on this link and both individual accidents occurred at the B9169/A832 junction, and which can be attributed to driver error. Therefore, is it considered that regardless of what the national average is for the respective category or road, that there are no specific safety concerns within the Study Area.

Pedestrian Facilities

12.4.21 The Site's rural nature results in there being limited pedestrian facilities being provided in its vicinity. The road network which will be used to support construction access, is also generally rural in nature and while there are pedestrian facilities provided adjacent to the proposed access routes, the majority of pedestrian activity is expected to be generated through the villages which the routes pass. The following list summarises the pedestrian facilities which are present on each of the links contained in the Study Area:

- Link 1 – no pedestrian facilities provided on the A832;
- Link 2 – no pedestrian facilities provided on the B9169;
- Link 3 – footways provided on both sides of the carriageway in Muir of Ord, Windhill and Beauly, with a footway provided adjacent to the carriageway between Windhill and between Beauly and the A831;

[15] Department for Transport (2023). *Reported road collisions, vehicles and casualties tables for Great Britain - RAS0302 - Urban and rural roads.* (online). Available at: https://www.gov.uk/government/statistical-data-sets/reported-road-accidents-vehicles-and-casualties-tables-for-great-britain. [Accessed February 2025].

- Link 4 – pedestrian facilities provided on one side of the carriageway within Wester Balblair;
- Link 5 – no pedestrian facilities provided on the C1106;
- Link 6 – shared pedestrian/cycle facilities provided on one side of the carriageway between Lovat Bridge and the B9164;
- Link 7 - pedestrian facilities provided on one side of the carriageway between Easter Moniack and Drumchardine, footways provided both sides of the carriageway between Drumchardine and Inchmore;
- Link 8 - footway provided adjacent to the carriageway through Brunchrew, and footways provided both sides of the carriageway through Inverness;
- Link 9 - no pedestrian facilities provided on the A833 between the A862 and the C1108;
- Link 10 - pedestrian facilities provided on one side of the C1108 carriageway between Allarburn Drive and Post Office Brae, zebra crossing provided at Kiltarlity Hall; and
- Link 11 - no pedestrian facilities provided on the U1604.

Core Paths

12.4.22 There are a limited number of Core Paths[16] in close proximity to the Proposed Development. The closest Core Path is located approximately 0.5 km to the north east of the proposed Site Access, identified as Core Path IN03.03, and is a path known locally as 'Lovat Bridge to Black Bridge'. It is 5 km in length and routes adjacent east of Black Bridge on the northern bank of the River Beauly. Another core path can be found at Hughton, 2.9 km west of the proposed Site access, named Core Path IN20.11, which is a 2 km length path known locally as 'Home Farm to Hughton by Lonbuie'.

12.4.23 Through Kiltarlity on the C1108, Core Path IN20.07 crosses the carriageway from Beaufort Estate to connect with IN20.09 via zebra crossing at Kiltarlity Hall. Within Kiltarlity where the carriageway crosses Auldearn Burn Core Paths IN20.08 and IN20.10 re found adjacent to the carriageway.

12.4.24 There is one core path crossing on the U1604 at West Lodge where the Beaufort Estate Access meets the carriageway. The route is Core Path IN20.05 which connects to IN20.11 from East lodge to West Lodge and then from Home Farm to Haughton by Lonbuie.

Cycle Facilities

12.4.25 The Site's rural location results in there being no formal cycle facilities provided in its immediate vicinity. There is one shared pedestrian cycle way on Link 4 on the A862 between the A831 and the A333 as mentioned above.

Sensitive Receptor Identification

12.4.26 Based on the classifications set out in Table 12.6, the following receptors have been identified based on the route sections within the Study Area, with the sensitivity classified for each highlighted in Table 12.15.

[16] The Highland Council (THC), (2024). Outdoor access - Paths in the Highlands. (online). Available at: https://www.highland.gov.uk/info/1225/countryside_farming_and_wildlife/161/outdoor_access/4 [Accessed February 2025].

Table 12.15 Classification of Receptor Sensitivity

Study Network Route Section	Motorists and Passengers	Non-Motorised Users	People at Home	People at Work	Sensitive People / Locations	Recreational / Shopping Areas	Recreation / Conservation Sites	Tourist / Visitor Attractions	Road Safety Concerns	Links / Junctions at / over capacity	Overall
Link 1	✓	✓	✓	✓	-	✓	✓	-	-	-	✓
Link 2	✓	✓	-	✓	-	-	-	-	-	-	✓
Link 3	✓✓	✓✓	✓✓	✓✓	✓✓	✓✓	✓	✓✓	-	-	✓✓
Link 4	✓	✓	-	-	-	✓	✓	✓	-	-	✓
Link 5 (North)	✓✓✓	✓✓	-	-	-	✓	✓	✓	-	-	✓✓
Link 5 (Site Access)	✓✓	✓	✓	✓	-	-	-	-	-	-	✓✓
Link 6	✓✓	✓	✓	-	-	-	-	-	-	-	✓
Link 7	✓	✓	✓	✓	-	-	-	-	-	-	✓
Link 8	✓	✓	✓	✓	-	-	-	-	-	-	✓
Link 9	✓✓	✓	✓	✓	-	-	-	-	-	-	✓
Link 10	✓✓	✓✓	✓✓	✓	✓✓	-	✓	-	-	-	✓✓
Link 11	✓✓	✓✓	✓	✓	-	-	-	-	-	-	✓✓

✓✓✓	**High sensitivity**
✓✓	**Medium sensitivity**
✓	**Low sensitivity**
-	**Negligible sensitivity**
×	**No receptors identified**

12.4.27 The results of the classification of receptors on each link reflect the generally rural nature of the local road network, with the greatest amount of sensitivity located at the villages of Beauly (Link 3), on Black Bridge, on the C1106 (both Link 5s) and the C1108 and U1604 (Link 10 and Link 11) through Kiltarlity and rural roads.

12.4.28 It is noted that Link 3 runs through the village of Beauly and hence the classification of sensitivity. It is also noted that whilst there is pedestrian infrastructure within Beauly, the A862 carriageway is wide with land use generally set back from the road, and there are signalised crossings provided for non-motorised users. Therefore, the sensitivity is classed as medium.

12.4.29 The C1106 throughout (both of Link 5s) is noted currently as having a 'medium' sensitivity, this is primarily due to the widths of the carriageway. However, land use is very rural and therefore there are few sensitive receptors in its vicinity. As shown in Table 12.15 the sensitivity is heightened due to a concern about the bridge's structural integrity, which is

identified in the **Volume 4, Appendix 12.1: Outline Construction Traffic Management Plan**. Additionally, the bridge has been restricted to priority working as a result of its condition. A footway is also provided across the bridge linking a small car park with Core Path IN03.03 located on the northern side of the bridge. The barrier which restricts the carriageway width, segregates pedestrians from vehicles. Therefore, at present, the sensitivity rating is 'medium'.

12.4.30 The C1108 (Link 10) which runs through Kiltarlity is graded as more sensitive than other links, this is primarily due to the density of rural residential housing in the area and the primary school located far south of the carriageway. There are few services that would result in frequent trips and as there is a footway on the northern side of the road with a zebra crossing that givens pedestrians right of way, it is considered that this Link is of 'medium' sensitivity.

12.4.31 The U1604 which routes from the C1108 to the C1106 is graded as sensitive due to the rural nature of the carriageway which has no speed restrictions and an approximate width of 4 - 5 m. It is considered that this Link (Link 11) be assigned a 'medium,' sensitivity, given that HGV will require to use this route.

12.4.32 While there are residential properties located in the vicinity of the A831 which forms Link 4, they are set back from the carriageway and it is therefore considered that this link, which supports strategic traffic movements, is of a 'low' sensitivity. The A832 which forms Link 1 is also rural in nature, with few sensitive receptors identified, and is therefore also considered to be of 'low' sensitivity. While the B9169 (Link 2) passes through an industrial estate on the southern edge of Muir of Ord, the nature of the area which is currently served by HGVs, is considered to result in the link being of 'low' sensitivity. The A833 (Link 10), which connects the A862 to the C1108 at Kiltarlity, and the A862 Links (Link 6, 7 and 8 routing from the A831 to Inverness) are assigned a 'low' sensitivity as these Links supports strategic movements as part of the A-Road network and have few sensitive receptors which are set back or segregated from the carriageway.

12.4.33 Based on professional judgement it can be concluded the following links are subject to **Rule 2** as having '**medium** to **high'** sensitivity overall:

- Link 3: A862 between the B9169 and A831;
- Link 5: C1106 between the A831 and the U1604
- Link 5: C1106 between the U1604 and the Site Access;
- Link 10: C1108 between U1604 and A833, and
- Link 11: U1604 between C1106 and C1109.

12.4.34 The following links are therefore considered to be subject **to Rule 1** as having '**low'** sensitivity overall:

- Link 1: A832 between the A9 and Muir of Ord;
- Link 2: B9169 between A832 and A862;
- Link 4: A831 between the A862 and the C1106;
- Link 6: A862 between A833 and A831;
- Link 7: A862 between A833 and Drumchardine;
- Link 8: A862 between Drumchardine and the A82; and
- Link 9: A833 between C1108 and A862.

12.4.35 These classifications are used throughout the following Phase 1 and Phase 2 assessments.

12.5 Assessment of Effects

Phase 1: Before Construction of Black Bridge

Future Phase 1 Baseline

12.5.1 Construction of the Proposed Development could commence in late 2025 if consent is granted, with construction activities likely to take around 3 years, and commissioning to take another 2 years.

12.5.2 As previously stated, the Phase 1 assessment constitutes the 'before construction of Black Bridge' scenario, which is anticipated to take approximately 9-12 months with completion currently programmed to be by August 2027. It is necessary to assess the worst-case scenario for the purpose of this EIA, and therefore the assessment period should cover the peak of construction movements. Peak Daily Trip Generation figures for Phase 1 have been provided by the Principal Contractor which (based on the current programme) addare anticipated to occur in November 2026 for a period of 1 month. The forecast flows are as follows:

- 68 HGV daily movements;
- 44 non-HGV movements; and
- 112 total daily movements.

12.5.3 To assess the likely effects during the construction phase, 2026 base year traffic flows were determined by applying a National Road Traffic Forecast (NRTF) low growth factor (1.0106) to the 2024, 11 and 12-hour traffic flows. The resulting 2026 11 and 12-hour base traffic flows are presented in Table 12.16.

Table 12.16 Phase 1 2026 Annual Average Daily Two-Way Traffic Flows (11 / 12-hour)

Count Site	Location	2026 Two-Way Flows		HGV Proportion (%)
		HGV (11 / 5)	Total (12 / 7)	
50941	Link 1: A832 between the A9 and Muir of Ord	181	3371	5%
ATC01257	Link 2: B9169 between A832 and A862	31	578	5%
10950	Link 3: A862 between the B9169 and A831	230	5222	4%
ATC 7	Link 4: A831 between the A862 and the C1106	27	1976	1%
ATC 6	Link 5 (North): C1106 between the A831 and the U1604	8	565	1%
ATC 1	Link 5 (Site Access): C1106 at the Site Access	1	209	<1%
30950	Link 6: A862 between A833 and A831	95	4194	2%
80011	Link 7: A862 between A833 and Drumchardine	66	3405	2%
80331	Link 8: A862 between Drumchardine and the A82	54	4287	1%
ATC 8	Link 9: A833 between C1108 and A862	48	2643	2%
ATC 4	Link 10: C1108 between U1604 and A833	7	381	2%
ATC 3	Link 11: U1604 between C1106 and C1109	8	262	3%

12.5.4 The data in Table 12.16 has been used to support the impact assessment.

Phase 1 Assessment of Significant Effects

12.5.5 A detailed assessment has been undertaken to determine the potential level of effect the construction traffic would have on the study network. Table 12.17 quantifies the impact which construction traffic is forecast to have on the operation of each of the links in the Study Area.

Table 12.17 Phase 1 Construction Traffic Impact Assessment Summary

Link	Threshold (HGV or Total)	Scenario	2026 Two-Way Flows			HGV Split	Non-HGV Split	Further Assessment Required? (Yes / No)
			HGV (11/5)	Non-HGV (12/7)	Total (Combined)			
1	30%	Baseline	181	3191	3371	75.00%	50.00%	No
		Baseline + Construction Traffic	232	3213	3444			
		% Impact	28.22%	0.7%	2.17%			
2	30%	Baseline	31	547	578	75.00%	50.00%	Yes
		Baseline + Construction Traffic	82	569	651			
		% Impact	164.74%	4.02%	12.64%			
3	10%	Baseline	230	4992	5222	75.00%	50.00%	Yes
		Baseline + Construction Traffic	281	5014	5295			
		% Impact	22.21%	0.44%	1.40%			
4	30%	Baseline	27	1949	1976	0.00%	0.00%	No
		Baseline + Construction Traffic	27	1949	1976			
		% Impact	0.00%	0.00%	0.00%			
5 (North)	10%	Baseline	8	557	565	0.00%	0.00%	No
		Baseline + Construction Traffic	8	557	565			
		% Impact	0.00%	0.00%	0.00%			
5 (Site)	10%	Baseline	1	208	209	100.00 %	100.00 %	Yes
		Baseline + Construction Traffic	69	252	321			
		% Impact	5607.07 %	21.20%	53.65%			
6	30%	Baseline	95	4099	4194	75.00%	50.00%	Yes
		Baseline + Construction Traffic	146	4121	4267			
		% Impact	53.66%	0.54%	1.74%			
7	30%	Baseline	66	3340	3405	25.00%	50.00%	No
		Baseline + Construction Traffic	83	3362	3444			
		% Impact	25.95%	0.66%	1.15%			
8	30%	Baseline	54	4233	4287	25.00%	50.00%	Yes
		Baseline + Construction Traffic	71	4255	4326			
		% Impact	31.48%	0.52%	0.91%			
9	30%	Baseline	48	2596	2643	100.00 %	100.00 %	Yes
		Baseline + Construction Traffic	116	2640	2755			
		% Impact	142.55%	1.70%	4.24%			
10	10%	Baseline	7	374	381	100.00 %	100.00 %	Yes
		Baseline + Construction Traffic	75	418	493			
		% Impact	934.51%	11.76%	29.36%			
11	10%	Baseline	8	254	262	100.00 %	100.00 %	Yes
		Baseline + Construction Traffic	76	298	374			
		% Impact	862.63%	17.34%	42.81%			

12.5.6 As previously highlighted, the IEMA guidance sets the following thresholds for assessing the impact of generated traffic on a road link:

- Rule 1: Include road links where traffic flows will increase more than 30 % (or the number of HGVs will increase by more than 30 %); and
- Rule 2: Include any other specifically sensitive areas where traffic flows have increased by 10 % or more.

12.5.7 Table 12.17 shows that most of the assessed links experience an increase in the volume of total or HGV vehicles of more than their respective thresholds apart from Links 4 and 5 (north of the Site Access) which is to be expected, as these route sections are not included in the Phase 1 routing assignment.

12.5.8 Of the remaining links, the percentage increase in HGV flows is considerably higher when compared to that associated with the total vehicles on all Links, although this is primarily due to the low local levels of HGVs currently recorded to use the links.

12.5.9 The level of impact is forecast to trigger Rule 1 on Link 1, 2, 6 7, 8 and 9 and Rule 2 on Links 3, 5(at the Site Access), 10 and 11. However given the scale of the development, it is pertinent to assess the full Study Area. Therefore, the impact of the Proposed Development has been assessed on these Links included in the Rule selection process, and the following sections summarise the results of the assessment.

Phase 1 Road Capacity Assessment

12.5.10 An assessment has been undertaken to determine the effects of the temporary increase in traffic flow generated by construction activities, on the capacity of the identified Links.

12.5.11 Theoretical road capacities are based on the DMRB, Volume 13, Section 1, Part 5: Speeds on Links 2002[17]. The theoretical road capacity equates to the maximum traffic volumes which a road is able to accommodate. Above this level, traffic conditions would become unstable and queuing along the road section would occur.

12.5.12 Capacity assessments have been conducted under the worst-case construction traffic levels that are forecast to occur on the future base year of 2026 as identified in *paragraph 12.5.2*, and the results of the assessment can be seen in Table 12.18.

[17] DMRB, (2002). *Volume 13, Section 1, Part 5: Speeds on Links - May 2002.* (online). Available at: http://www2.westsussex.gov.uk/handt/poe/n.pdf [Accessed February 2025].

Table 12.18 Phase 1 Road Capacity Assessment

Study Network Route Section	2026 Two-Way Hourly Flows			
	Total Base Traffic Flows	Theoretical Road Capacity (12-hour period)	Base + Construction Traffic Flows	Spare Capacity
Link 1: A832 between the A9 and Muir of Ord	3371	15600	3444	78%
Link 2: B9169 between A832 and A862	578	13200	651	95%
Link 3: A862 between the B9169 and A831	5222	21600	5295	75%
Link 4: A831 between the A862 and the C1106	1976	15600	1976	87%
Link 5 (North): C1106 between the A831 and the U1604	565	13200	565	96%
Link 5 (Site Access): C1106 at the Site Access	209	13200	321	98%
Link 6: A862 between A833 and A831	4194	15600	4267	73%
Link 7: A862 between A833 and Drumchardine	3405	15600	3444	78%
Link 8: A862 between Drumchardine and the A82	4287	15600	4326	72%
Link 9: A833 between C1108 and A862	2643	13200	2755	79%
Link 10: C1108 between U1604 and A833	381	10800	493	95%
Link 11: U1604 between C1106 and C1109	262	8400	374	96%

12.5.13 The results presented Table 12.18 show that with the addition of the worst-case construction traffic levels, there will be significant spare capacity on all of the links. As such, it is considered that the temporary increase in traffic during the worst-case scenario will not result in an impact on road capacity on the study network.

12.5.14 Therefore, based on the results of the road capacity assessment, during the Phase 1 construction phase it is considered that the sensitivity of the capacity of the traffic network to changes in traffic flows is **low** and the magnitude of impact is predicted to be negligible compared to the link capacities. Therefore, it is likely that the greatest impact is to have **temporary, short term, negligible** and **not significant** transport effects.

Phase 1 Severance Assessment

12.5.15 The predicted change in severance on the links has been evaluated based on the percentage increase in total traffic levels expected during the construction phase, in line with IEMA guidance. The significance of the predicted change in severance has been determined based on factors including the road conditions, traffic flows and level of pedestrian activity. Table 12.19 sets out the sensitivity grading of receptors as per Table 12.15 and the magnitude of impact due to construction traffic in relation to the results of the severance assessment.

Table 12.19 Phase 1 Severance Assessment

Link (#)	2026 Two-Way AADT flows						
	Total Base Traffic Flows	Base + Construction Traffic Flows	Percentage Traffic Increase	Percentage HGV Traffic Increase	Sensitivity of Reception to Change	Magnitude of Change	Significance of Adverse Change in Severance
1	3371	3444	2.17%	28.22%	Low	Negligible	Negligible, Not Significant
2	578	651	12.64%	164.74%	Low	High	Negligible, Not Significant
3	5222	5295	1.40%	22.21%	Medium	Negligible	Minor, Not Significant
5 (Site access)	209	1976	53.65%	5607.07%	Medium	High	Minor, Not Significant
6	4194	565	1.74%	53.66%	Low	Low	Minor, Not Significant
7	3405	321	1.15%	25.95%	Low	Negligible	Negligible, Not Significant
8	4287	4267	0.91%	31.48%	Low	Low	Negligible, Not Significant
9	2643	3444	4.24%	142.55%	Low	High	Minor, Not Significant
10	381	4326	29.36%	934.51%	Medium	High	Minor, Not Significant
11	262	2755	42.81%	862.63%	Medium	High	Minor, Not Significant

12.5.16 Whilst the assessment suggests that all links could experience an impact on severance, the IEMA guidelines note that the original 30, 60, 90 % DfT thresholds for assessment do not take into account instances where there are low baseline flows and the local context of the link. The thresholds are therefore applied above as a starting point for the assessment.

12.5.17 The following assessment explains the significance of the construction traffic impact on each link:

- **Link 1**: As indicated in Table 12.19 the increase in construction HGV traffic triggers the 'negligible' severance threshold. However, the link is high speed and rural in nature, with no pedestrian facilities, indicating a low desirability for pedestrians to cross the road. As shown in Table 12.16, with a baseline average of 16 HGVs per hour (2 inbound and 2 outbound movements every 15 minutes), the addition of 2 construction traffic vehicles movement (1 inbound and 1 outbound) every 20 minutes, indicates a low level of difficulty of crossing for any persons within catchment areas on this link, of which there are few. Therefore, the impact is **negligible**, and this is considered **not significant**;
- **Link 2**: Table 12.19 indicates that the impact of total construction traffic triggers the 'High' severance threshold due to HGV traffic. While a proportion of Link 2 passes through the Muir of Ord Industrial Estate, there are no formal footway facilities or crossings provided within, it is therefore considered that there is a low desirability for pedestrians to cross the road. Table 12.16 indicates a baseline average of 3 HGV movements (2 inbound and 1 outbound) per hour, and 48 total movements per hour, therefore the addition of 1 HGV delivery (1 inbound and 1 outbound movement) every 20 minutes indicates a low level of difficulty of crossing for any persons located along this link, therefore, the impact is **negligible**, and this is considered **not significant**;

- **Link 3**: Table 12.19 indicates a 'negligible' severance due to the increase of construction HGV traffic, however as shown in Table 12.16, this is due to a low level of existing HGV traffic. Along Link 3 through Beauly, services and footways are provided either side of the carriageway, indicating a high likelihood of pedestrian crossings being made. However, three signalised crossing facilities are provided within the village, with these expected to mitigate the temporary increase in construction traffic, therefore, the impact is **minor**, and this is considered **not significant**;
- **Link 5 Site Access**: Table 12.19 indicates a 'High' severance due to the increase of construction HGV traffic, however this route has no formal pedestrian facilities provided along its length. This section of the C1106 forms the proposed Site Access and where there the link is not expected to support substantial pedestrian activity. Table 12.16 indicates a low baseline average of 17 total vehicles per hour (1 vehicle movement every 3.5 minutes), the addition of 9 total construction traffic vehicles per hour (1 delivery every 10 minutes) would not result in any significant severance along this rural link, the impact is considered **minor**, and considered **not significant** given the existing conditions;
- **Link 6**: Table 12.19 indicates a 'Low' severance as per the DfT count thresholds along the A862 between the A831 and the A833 due to HGV increase. The link is rural in nature, high-speed and while a shared footway-cycleway is provided on the south side of the carriageway between the B9164 and Lovat Bridge crossing, there is likely to be a low desirability for pedestrians to cross the road. Table 12.16 indicates that there is an existing baseline of 350 total movements per hour on this road (equating to 3 movements in each direction per minute). The addition of 2 total construction movements every 15 minutes (including 1 HGV movement) is not anticipated to significantly increase ability to cross the carriageway above the baseline. Therefore, the impact of construction traffic is **minor**, and this is considered **not significant**;
- **Link 7**: Table 12.19 indicates a 'negligible' severance as per the DfT count thresholds due to a HGV increase. The link is rural in nature and while a footpath, separated by a verge, is provided adjacent to the link for a proportion of its length, there is a limited need for pedestrians to cross the A862 outwith Drumchardine, where a signalised crossing is provided. As Table 12.16 indicates, this link is anticipated to accommodate 1 construction traffic delivery every half hour, and which is not expected to cause severance. The presence of the crossing facility indicates evidence of a desire to cross the carriageway within Drumchardine, but it is considered that this is sufficiently accommodated for, therefore the impact is **negligible,** and this is considered **not significant**;
- **Link 8**: Table 12.19 indicates a 'Low' severance as per the DfT count thresholds due to HGV increase. While the eastern portion of the link passes through Inverness where footways are provided adjacent to the carriageway, the remainder of the link is predominantly rural in nature, being supported by limited pedestrian facilities indicating a low desirability for pedestrians to cross the road outwith the city. As Table 12.16 indicates, the addition of 2 total construction movements every 30 minutes (including 1 HGV movement) upon a baseline average of 6 vehicles per minute will not result in any significant severance. Therefore, the impact is **negligible,** and this is considered **not significant;**
- **Link 9**: The A833 connects the A862 and the C1108 (Kiltarlity Road) and is predominantly rural in nature. Table 12.19 indicates a 'High' severance as per the DfT count thresholds due to HGV increase. The link is rural in nature, high-speed and while the road connects to Kiltarlity Village at Brodie's Corner, this route has no formal

pedestrian facilities provided along its length indicating a low desirability of pedestrians to use this route. As indicated in Table 12.16, the A833 experiences a baseline of 220 total vehicle movements per hour, with only 4 HGV movements. It is considered that the addition of 1 HGV construction delivery every 10-15 minutes is not expected to result in any severance. Therefore, the is impact is **minor**, and this is considered to be **not significant**;

- **Link 10**: The C1108 through Kiltarlity Village is predominantly rural residential with a reduced speed limit of 30 mph and with one footway on the northern side of the carriageway throughout the urban extents. There is a zebra crossing near Kiltarlity Hall which indicates the desirability of crossing in this location. Table 12.19 indicates a 'High' severance as per the DfT count thresholds. As Table 12.16 indicates, this village experiences a low average of 32 total vehicles, including 1 HGV movement per hour. The addition of 2 total construction movements every 10-15 minutes (including 1 HGV movement) upon a baseline average of 1 vehicles every 2 minutes will not result in any significant severance given there is a zebra crossing. Therefore, the is impact is **minor**, and this is considered to be **not significant**; and
- **Link 11**: The U1604 which routes form the C1108 through Kiltarlity to the C1106 (Fanellan Road) is a rural single carriageway road, there are no speed restrictions assuming a 60 mph route, and Core Path IN20.05 connects to Core Path IN20.11 along this route across the carriageway. There are no formal crossing facilities, path facilities or route signage. As Table 12.16 indicates, this rural road experiences a low baseline of 22 total vehicle movements per hour, (including 1 HGV movement) equating to 1 vehicle movement every 2.5 minutes. It is anticipated that the addition of 2 total construction movements every 10-15 minutes (including 1 HGV movement) upon a baseline average of 1 vehicle movement every 2.5 minutes will not result in any substantial severance along this rural link, the impact is considered **minor** and is considered **not significant** given the existing conditions.

12.5.18 Taking into account the rural locations of the links, and the sensitivity of the receptors along each link to a change in traffic flow, it is unlikely that the change in traffic flow will result in significant severance. Therefore, it is anticipated that the overall magnitude of impact is to have **temporary, short term, minor** and **not significant** transport effects.

Phase 1 Road vehicle driver and passenger delay

12.5.19 The proposed form of the Site access junction will result in minimal driver delay being generated when vehicles are accessing the construction Site. The IEMA guidance states that driver delay is only likely to be significant when traffic on the network surrounding the Proposed Development is already at, or close to, the capacity of the system. As established in Table 12.18, there are no links that are forecast to operate close to capacity following the addition of traffic generated by construction activities, with significant spare capacity available and therefore the change in driver delay is considered to be **negligible, not significant**.

12.5.20 Construction activities will also be supported by AIL deliveries which will be generated at the beginning on construction in delivering plant to Site. It is not currently known where movements will originate from, however at present and as suggested in the CTMP which is included in **Volume 4, Appendix 12.1: Outline Construction Traffic Management Plan**, it is considered that abnormal loads associated with plant deliveries will route to the Site via Links 1, 2, 3, 6, 9, 10, 11 and 5 (at the Site Access).

12.5.21 It is recognised that movement of AIL's may cause delays for drivers. However, the movements will be preceded by a public awareness campaign, and they will be undertaken outwith major events and the morning and evening peaks of the local road network's operation. It is therefore considered that construction traffic will have **temporary, short term, negligible and not significant** impacts to transport.

Phase 1 Pedestrian and Non-Motorised User Delay and Amenity

12.5.22 For the majority of the Study Area between Tore, the Site and Inverness, there is a limited number of pedestrian facilities, with the road network generally rural in nature. Pedestrian facilities within the Study Area include:

- Link 1 – no pedestrian facilities provided on the A832;
- Link 2 – no pedestrian facilities provided on the B9169;
- Link 3 – footways provided on both sides of the carriageway in Muir of Ord, Windhill and Beauly, with a footway provided adjacent to the carriageway between Windhill and between Beauly and the A831;
- Link 4 – pedestrian facilities provided on one side of the carriageway within Wester Balblair;
- Link 5 – no pedestrian facilities provided on the C1106;
- Link 6 – shared pedestrian/cycle facilities provided on one side of the carriageway between Lovat Bridge and the B9164;
- Link 7 - pedestrian facilities provided on one side of the carriageway between Easter Moniack and Drumchardine, footways provided both sides of the carriageway between Drumchardine and Inchmore;
- Link 8 - footway provided adjacent to the carriageway through Brunchrew, and footways provided both sides of the carriageway through Inverness;
- Link 9 - no pedestrian facilities provided on the A833 between the A862 and the C1108;
- Link 10 - pedestrian facilities provided on one side of the C1108 carriageway between Allarburn Drive and Post Office Brae; and
- Link 11 - no pedestrian facilities provided on the U1604.

12.5.23 Links 4 – 5 (North of Site Access) are forecast to experience no changes in traffic volume during Phase 1 and have no proposed changes to speed. There is a change in the traffic composition due to low HGV flows, however as the majority of the links have limited pedestrian infrastructure and few residential properties, the change in composition is not expected to generate any significant impact to pedestrian delay and amenity. Where there are urban areas, pedestrian delay and amenity is negated with use of the pedestrian crossing facilities found within each.

12.5.24 As discussed in *paragraph 12.5.17*, this details the assessment of severance for each link, which is closely linked to pedestrian delay, and shows that whilst the magnitude of impact appears to be 'Low to High' compared to the baseline for all links, this is due to the low traffic flows (particularly HGV flows) currently in the Study Area. The severance assessment concludes that the impact of construction traffic is not significant when compared to the baseline, and as stated previously, the rural nature of the Study Area and lack of residential areas indicates a low level of general pedestrian activity.

12.5.25 Therefore, it is considered that all links will have **temporary, short term, minor and not significant** transport effects in regards to delay and amenity.

Phase 1 Fear and Intimidation

12.5.26 To assess fear and intimidation, IEMA guidelines suggest thresholds based on 18-hour daily flow and vehicle speeds, indicating that an average traffic 18-hr flow of over 1800 vehicles and 1,000 HGVs per hour using a road subject to a 60 mph speed limit would be considered a great degree of hazard.

12.5.27 As previously mentioned, the peak construction phase is expected to generate a maximum of with 68 HGV daily movements and 112 total daily movements within the 11 and 12-hour period when construction traffic movements are expected to be generated. Table 12.20 summarises the comparison of the 18-hour baseline with a threshold for level of fear score assigned to each link and the magnitude of impact as a result of the forecast increase in vehicle movements on each link.

Table 12.20 Phase 1 Fear and Intimidation Assessment

Link (#)	18 hr Base – Daily Trips		Speed Limit	DoH Score	LoFI	18hr Base + Peak Construction Daily Trips		DoH Score	LoFI	Magnitude of Impact
	Vehicles	HGVs				Vehicles	HGVs			
1	4062	293	60	60	Great	4333	512	60	Great	Negligible
2	696	50	60	40	Moderate	967	269	40	Moderate	Negligible
3	6292	372	20	40	Moderate	6563	591	40	Moderate	Negligible
4	2235	34	40	50	Great	2631	326	50	Great	Negligible
5 (North)	644	10	60	40	Moderate	1040	302	40	Moderate	Negligible
5 Site Access	238	2	60	30	Moderate	634	294	40	Moderate	Negligible
6	5054	154	60	60	Great	5179	227	60	Great	Negligible
7	4103	106	60	60	Great	4228	179	60	Great	Negligible
8	5166	88	30	50	Great	5291	161	50	Great	Negligible
9	3042	61	60	60	Great	3042	61	60	Great	Negligible
10	438	9	30	20	Small	438	9	20	Small	Negligible
11	300	11	60	30	Moderate	300	11	30	Moderate	Negligible

12.5.28 The results of the assessment which is presented in Table 12.20 shows that with the addition of the worst-case construction traffic levels, there will be no step changes in the level of fear and intimidation on all of the assessed links. As such, it is considered that the temporary increase in traffic during the worst-case scenario will not result in an impact on the perception of road fear and intimidation, on the study network, and therefore the magnitude of impact is considered **negligible, not significant**.

12.5.29 Based on the estimated construction traffic generated, there could be a requirement for AIL movements to deliver plant equipment to Site via Links 1, 2, 3, 6, 9, 10, 11 and 5 (at the Site Access).

12.5.30 It is recognised that movement of AIL's may heighten the perception of fear and intimidation. However, the movements will be preceded by a public awareness campaign, and they will be undertaken outwith major events and the morning and evening peaks of the local road network's operation. It is therefore considered that construction traffic will have **temporary**, **short term**, **negligible** and **not significant** impacts to transport.

Phase 1 Road User and Pedestrian Safety

12.5.31 As shown in Table 12.14 there is no requirement to introduce specific casualty reduction measures as an average or low number of injury accidents have been reported within the Study Area in the most recently available five year period. Construction activities are forecast to generate a maximum of 9 total trips per hour (equating to 1 delivery every 15 minutes) on any of the links contained within the Study Area and it is therefore considered that the magnitude of impact is **negligible** and the overall significance of effect to be **temporary, short term, minor and not significant**.

Phase 1 Summary of Likely Effects Generated by Construction Traffic

12.5.32 The greatest significance of the effect generated by construction traffic is considered to **have temporary, short term, minor and not significant** transport effects when compared to the seven key criteria and it is not intended to assess the construction impacts further as part of this EIA.

12.5.33 All of the impacts will be generated at a **local** level.

Phase 2: After Replacement of Black Bridge

Future Phase 2 Baseline

12.5.34 As previously stated, the Phase 2 assessment constitutes the 'after replacement of Black Bridge' scenario, which is anticipated to take approximately 9-12 months with completion currently programmed to be by August 2027. It is necessary to assess the worst-case scenario for the purpose of this EIA, and therefore the assessment period should cover the peak of construction movements. Peak Daily Trip Generation figures for Phase 2 have been provided by the Principal Contractor which (based on the current programme) are anticipated to occur in October 2027 for a period of 1 month. The forecast flows are as follows:

- 292 HGV daily movements;
- 104 non-HGV movements; and
- 396 total daily movements.

12.5.35 To assess the likely effects during the construction phase, 2027 base year traffic flows were determined by applying a National Road Traffic Forecast (NRTF) low growth factor (1.0156) to the 2024, 11 and 12-hour traffic flows. The resulting 2027 11 and 12-hour base traffic flows are presented in Table 12.21.

Table 12.21 Phase 2 2027 Annual Average Daily Two-Way Traffic Flows (11 / 12-hour)

Count Site	Location	2027 Two-Way Flows		HGV Proportion (%)
		HGV (11 / 5)	Total (12 / 7)	
50941	Link 1: A832 between the A9 and Muir of Ord	182	3388	5%
ATC01257	Link 2: B9169 between A832 and A862	31	580	5%
10950	Link 3: A862 between the B9169 and A831	231	5248	4%
ATC 7	Link 4: A831 between the A862 and the C1106	27	1985	1%
ATC 6	Link 5 (North): C1106 between the A831 and the U1604	8	568	1%
ATC 1	Link 5 (Site Access): C1106 at the Site Access	1	210	<1%
30950	Link 6: A862 between A833 and A831	96	4215	2%
80011	Link 7: A862 between A833 and Drumchardine	66	3422	2%
80331	Link 8: A862 between Drumchardine and the A82	54	4308	1%
ATC 8	Link 9: A833 between C1108 and A862	48	2656	2%
ATC 4	Link 10: C1108 between U1604 and A833	7	383	2%
ATC 3	Link 11: U1604 between C1106 and C1109	8	263	3%

12.5.36 The data in Table 12.21 has been used to support the impact assessment.

Phase 2 Assessment of Significant Effects

12.5.37 A detailed assessment has been undertaken to determine the potential level of effect the construction traffic would have on the study network. Table 12.22 quantifies the impact

which construction traffic is forecast to have on the operation of each of the links in the Study Area.

Table 12.22 Phase 2 Construction Traffic Impact Assessment Summary

Link	Threshold (HGV or Total)	Scenario	2026 Two-Way Flows			HGV Split	Non-HGV Split	Further Assessment Required? (Yes / No)
			HGV (11/5)	Non-HGV (12/7)	Total (Combined)			
1	30%	Baseline	182	3206	3388	75.00%	50.00%	Yes
		Baseline + Construction Traffic	401	3258	3659			
		% Impact	120.59%	1.6%	8.00%			
2	30%	Baseline	31	549	580	75.00%	50.00%	Yes
		Baseline + Construction Traffic	250	601	851			
		% Impact	703.97%	9.47%	46.69%			
3	10%	Baseline	231	5017	5248	75.00%	50.00%	Yes
		Baseline + Construction Traffic	450	5069	5519			
		% Impact	94.89%	1.04%	5.16%			
4	30%	Baseline	27	1959	1985	100.00%	100.00%	Yes
		Baseline + Construction Traffic	319	2063	2381			
		% Impact	1089.09%	5.31%	19.95%			
5	10%	Baseline	8	560	568	100.00%	100.00%	Yes
		Baseline + Construction Traffic	300	664	964			
		% Impact	3594.00%	18.58%	69.72%			
5 (Site)	10%	Baseline	1	209	210	100.00%	100.00%	Yes
		Baseline + Construction Traffic	293	313	606			
		% Impact	23960.03 %	49.86%	188.76%			
6	30%	Baseline	96	4119	4215	25.00%	50.00%	Yes
		Baseline + Construction Traffic	169	4171	4340			
		% Impact	76.44%	1.26%	2.97%			
7	30%	Baseline	66	3356	3422	25.00%	50.00%	Yes
		Baseline + Construction Traffic	139	3408	3547			
		% Impact	110.88%	1.55%	3.65%			
8	30%	Baseline	54	4254	4308	25.00%	50.00%	Yes
		Baseline + Construction Traffic	127	4306	4433			
		% Impact	134.53%	1.22%	2.90%			
9	30%	Baseline	48	2608	2656	0.00%	0.00%	No
		Baseline + Construction Traffic	48	2608	2656			
		% Impact	0.00%	0.00%	0.00%			
10	10%	Baseline	7	376	383	0.00%	0.00%	No
		Baseline + Construction Traffic	7	376	383			
		% Impact	0.00%	0.00%	0.00%			
11	10%	Baseline	8	255	263	0.00%	0.00%	No
		Baseline + Construction Traffic	8	255	263			
		% Impact	0.00%	0.00%	0.00%			

12.5.38 As previously highlighted, the IEMA guidance sets the following thresholds for assessing the impact of generated traffic on a road link:

- Rule 1: Include road links where traffic flows will increase more than 30 % (or the number of HGVs will increase by more than 30 %); and
- Rule 2: Include any other specifically sensitive areas where traffic flows have increased by 10 % or more.

12.5.39 Table 12.22 shows that all of the assessed links experience an increase in the volume of total or HGV vehicles of more than their respective thresholds apart from Links 9, 10, and 11 (south of the Site Access through Kiltarlity and the A833) which is to be expected, as these route sections are not included in the Phase 2 routing assignment.

12.5.40 Of the remaining links, the percentage increase in HGV flows is considerably higher when compared to that associated with the total vehicles on all Links, although this is primarily due to the low local levels of HGVs currently recorded to use the links, particular on the unclassified road network.

12.5.41 The level of impact is forecast to trigger Rule 1 on Link 1, 2, 4, 6, 7, and 8 and Rule 2 on Links 3, 5 (north of and at the Site Access). Therefore, the impact of the Proposed Development has been assessed on these Links included in the Rule selection process, and the following sections summarise the results of the assessment.

Phase 2 Road Capacity Assessment

12.5.42 An assessment has been undertaken to determine the effects of the temporary increase in traffic flow generated by construction activities, on the capacity of the identified Links.

12.5.43 Theoretical road capacities are based on the DMRB, Volume 13, Section 1, Part 5: Speeds on Links 2002[17]. The theoretical road capacity equates to the maximum traffic volumes which a road is able to accommodate. Above this level, traffic conditions would become unstable and queuing along the road section would occur.

12.5.44 Capacity assessments have been conducted under the worst-case construction traffic levels that are forecast to occur on the future base year of 2027 as identified in *paragraph 12.5.34,* and the results of the assessment can be seen in Table 12.23.

Table 12.23 Phase 2 Road Capacity Assessment

Study Network Route Section	2027 Two-Way Hourly Flows			
	Total Base Traffic Flows	Theoretical Road Capacity (12-hour period)	Base + Construction Traffic Flows	Spare Capacity
Link 1: A832 between the A9 and Muir of Ord	3388	15600	3659	77%
Link 2: B9169 between A832 and A862	580	13200	851	94%
Link 3: A862 between the B9169 and A831	5248	21600	5519	74%
Link 4: A831 between the A862 and the C1106	1985	15600	2381	85%
Link 5 (North): C1106 between the A831 and the U1604	568	13200	964	93%
Link 5 (Site Access): C1106 at the Site Access	210	13200	606	95%
Link 6: A862 between A833 and A831	4215	15600	4340	72%
Link 7: A862 between A833 and Drumchardine	3422	15600	3547	77%
Link 8: A862 between Drumchardine and the A82	4308	15600	4433	72%
Link 9: A833 between C1108 and A862	2656	13200	2656	80%
Link 10: C1108 between U1604 and A833	383	10800	383	96%
Link 11: U1604 between C1106 and C1109	263	8400	263	97%

12.5.45 The results presented Table 12.23 show that with the addition of the worst-case construction traffic levels, there will be significant spare capacity on all of the links. As such,

it is considered that the temporary increase in traffic during the worst-case scenario will not result in an impact on road capacity on the study network.

12.5.46 Therefore, based on the results of the road capacity assessment, during the Phase 2 construction phase it is considered that the sensitivity of the capacity of the traffic network to changes in traffic flows is **low** and the magnitude of impact is predicted to be negligible compared to the link capacities. Therefore, it is likely that the greatest impact is to have **temporary, short term, negligible** and **not significant** transport effects.

Phase 2 Severance Assessment

12.5.47 The predicted change in severance on the links has been evaluated based on the percentage increase in total traffic levels expected during the construction phase, in line with IEMA guidance. The significance of the predicted change in severance has been determined based on factors including the road conditions, traffic flows and level of pedestrian activity. Table 12.24 sets out the sensitivity grading of receptors as per Table 12.15, and the magnitude of impact due to construction traffic in relation to the results of the severance assessment.

Table 12.24 Phase 2 Severance Assessment

2027 Two-Way AADT flows							
Link (#)	Total Base Traffic Flows	Base + Construction Traffic Flows	Percentage Traffic Increase	Percentage HGV Traffic Increase	Sensitivity of Reception to Change	Magnitude of Change	Significance of Adverse Change in Severance
1	3388	3659	8.00%	120.59%	Low	High	Minor, Not Significant
2	580	851	46.69%	703.97%	Low	High	Minor, Not Significant
3	5248	5519	5.16%	94.89%	Medium	High	Minor, Not Significant
4	1985	2381	19.95%	1089.09%	Low	High	Minor, Not Significant
5 (North)	568	964	69.72%	3594.00%	Medium	High	Minor, Not Significant
5 (Site Access)	210	606	188.76%	23960.03%	Medium	High	Minor, Not Significant
6	4215	4340	2.97%	76.44%	Low	Medium	Minor, Not Significant
7	3422	3547	3.65%	110.88%	Low	High	Minor, Not Significant
8	4308	4433	2.90%	134.53%	Low	High	Minor, Not Significant

12.5.48 Whilst the assessment suggests that all links could experience an impact on severance, the IEMA guidelines note that the original 30, 60, 90 % DfT thresholds for assessment do not take into account instances where there are low baseline flows and the local context of the link. The thresholds are therefore applied above as a starting point for the assessment.

12.5.49 The following assessment explains the significance of the construction traffic impact on each link:

- **Link 1**: As indicated in Table 12.24 the increase in construction HGV traffic triggers the 'High' severance threshold. However, the link is high speed and rural in nature, with no

pedestrian facilities, indicating a low desirability for pedestrians to cross the road. As shown in Table 12.21, with a baseline average of 16 HGVs and 281 total vehicles per hour, the addition of 1 construction traffic delivery (1 inbound and 1 outbound) every 10 minutes, indicates a low level of difficulty of crossing for any persons within catchment areas on this link, of which there are few. Therefore, the impact is **minor**, and this is considered **not significant**;

- **Link 2**: Table 12.24 indicates that the impact of total construction traffic triggers a 'High' severance threshold due to total traffic. While a proportion of Link 2 passes through the Muir of Ord Industrial Estate, there are no formal footway facilities or crossings provided within, it is therefore considered that there is a low desirability for pedestrians to cross the road. Table 12.21 indicates a baseline average of 3 HGV movements (2 inbound and 1 outbound) per hour, and 48 total movements per hour, therefore the addition of 1 construction delivery HGV and a further 3 non-HGV movements every 10 minutes indicates a low level of difficulty of crossing for any persons located along this link, therefore, the impact is **minor**, and this is considered **not significant**;
- **Link 3**: Table 12.24 indicates a 'High' severance due to the increase of construction HGV traffic, however as shown in Table 12.21, this is due to a low level of existing HGV traffic. Along Link 3 through Beauly, services and footways are provided either side of the carriageway, indicating a high likelihood of pedestrian crossings being made. However, three signalised crossing facilities are provided within the village, with these expected to mitigate the temporary increase in construction traffic, therefore, the impact is **minor**, and this is considered **not significant**;
- **Link 4**: The A831 connects the C1106 (Fanellan Road) and the A862 and is predominantly rural in nature. Table 12.24 indicates that the 'High' severance threshold is triggered due to HGV increases. While there is a footway provided on the northern side of the carriageway between the A862 and the hamlet of Wester Balblair, there are no pedestrian facilities provided on the opposite side which would prompt non-motorised users to cross the carriageway. This indicates a low desirability to cross, and with Table 12.21 indicating a baseline average of 2 HGVs per hour, the addition of 1 HGV construction traffic delivery every 5 minutes is not expected to not result in any significant severance given the existing flows. Therefore, the impact is **minor**, and this is considered **not significant**;
- **Link 5 (North)**: Table 12.24 indicates a 'High' severance due to the increase of construction total traffic, however this rural route has no formal pedestrian facilities provided along its length. While Black Bridge which is provided on the link does support pedestrian activity, Table 12.21 indicates a baseline average of 47 total vehicles, including 1 HGV per hour. The addition of 3 construction traffic deliveries every 10 minutes including 1 HGV movement every 5 minutes would not result in any substantial severance along this rural link with low existing baseline flows. Therefore, the impact is considered **minor** and is considered **not significant** given the existing conditions;
- **Link 5 Site Access**: Table 12.24 indicates a 'High' severance due to the increase of construction HGV traffic, however this route has no formal pedestrian facilities provided along its length. This section of the C1106 forms the proposed Site Access and where there the link is not expected to support pedestrian activity. Table 12.21 indicates a low baseline average of 17 total vehicles per hour (1 vehicle movement every 3.5 minutes) and only 1 HGV movement recorded in a 24-hour day, 3 construction traffic deliveries every 10 minutes including 1 HGV movement every 5 minutes would not result in any substantial severance along this rural link with low existing baseline flows. Therefore,

the impact is considered **minor** and is considered **not significant** given the existing conditions;

- **Link 6**: Table 12.24 indicates a 'Medium' severance as per the DfT count thresholds along the A862 between the A831 and the A833 due to HGV increase. The link is rural in nature, high-speed and while a shared footway-cycleway is provided on the south side of the carriageway between the B9164 and Lovat Bridge crossing, there is likely to be a low desirability for pedestrians to cross the road. Table 12.21 indicates that there is an existing baseline of 350 total movements per hour on this road (equating to 3 movements in each direction per minute). The addition of 1 construction traffic delivery every 10 minutes including 1 HGV delivery every 20 minutes is not anticipated to significantly increase ability to cross the carriageway above the baseline. Therefore, the impact is considered **minor** and is considered **not significant** given the existing conditions;
- **Link 7**: Table 12.24 indicates a 'High' severance as per the DfT count thresholds due to HGV increase. The link is rural in nature and while a footpath, separated by a verge, is provided adjacent to the link for a proportion of its length, there is a limited need for pedestrians to cross the A862 outwith Drumchardine, where a signalised crossing is provided. As Table 12.21 indicates, this link is anticipated to accommodate 1 construction traffic delivery every 10 minutes and 1 HGV delivery every 20 minutes, which is not expected to cause severance. The presence of the crossing facility indicates evidence of a desire to cross the carriageway within Drumchardine, but it is considered that this is sufficiently accommodated for, therefore the impact is **minor,** and this is considered **not significant**; and
- **Link 8**: Table 12.24 indicates a 'High' severance as per the DfT count thresholds due to HGV increase. While the eastern section of the link passes through Inverness where footways are provided adjacent to the carriageway, the remainder of the link is predominantly rural in nature, being supported by limited pedestrian facilities indicating a low desirability for pedestrians to cross the road outwith the city. As Table 12.21 indicates, the addition of 2 total construction movements every 10 minutes including 1 HGV delivery every 20 minutes upon a baseline average of 6 vehicles per minute will not result in any significant severance. Therefore, the impact is **minor,** and this is considered **not significant**.

Phase 2 Road vehicle driver and passenger delay

12.5.50 The proposed form of the Site access junction will result in minimal driver delay being generated when vehicles are accessing the construction Site. The IEMA guidance states that driver delay is only likely to be significant when traffic on the network surrounding the Proposed Development is already at, or close to, the capacity of the system. As established in Table 12.23 there are no links that are forecast to operate close to capacity following the addition of traffic generated by construction activities, with significant spare capacity available and therefore the change in driver delay is considered to be **negligible, not significant**.

12.5.51 Construction activities will also be supported by AIL deliveries which will be generated in Phase 2 such as the delivery of transformers. It is not currently known where these movements will originate from, however at present and as suggested within **Volume 4, Appendix 12.3: Abnormal Load and Construction Traffic Assessment Report**, it is considered that transformer related abnormal loads will be delivered to the Site via Links 1, 2, 3, 4 and 5 (north of and at the Site Access).

12.5.52 It is recognised that movement of AIL's may impact driver delay. However, the movements will be timed following a public awareness campaign, and that they will be undertaken outwith major events and the morning and evening peaks of the local road network's operation. It is therefore considered that construction traffic impact will **have temporary, short term, negligible** and **not significant** in terms of transport effects.

Phase 2 Pedestrian and Non-Motorised User Delay and Amenity

12.5.53 For the majority of the Study Area between Tore, the Site and Inverness, there is are a limited number of pedestrian facilities, with the road network generally rural in nature. Pedestrian facilities within the Study Area include:

- Link 1 – no pedestrian facilities provided on the A832;
- Link 2 – no pedestrian facilities provided on the B9169;
- Link 3 – footways provided on both sides of the carriageway in Muir of Ord, Windhill and Beauly, with a footway provided adjacent to the carriageway between Windhill and between Beauly and the A831;
- Link 4 – pedestrian facilities provided on one side of the carriageway within Wester Balblair;
- Link 5 – no pedestrian facilities provided on the C1106;
- Link 6 – shared pedestrian/cycle facilities provided on one side of the carriageway between Lovat Bridge and the B9164;
- Link 7 - pedestrian facilities provided on one side of the carriageway between Easter Moniack and Drumchardine, footways provided both sides of the carriageway between Drumchardine and Inchmore; and
- Link 8 - footway provided adjacent to the carriageway through Brunchrew, and footways provided both sides of the carriageway through Inverness.

12.5.54 Links 4 – 5 (North of Site Access) are forecast to experience no changes in traffic volume, and have no proposed changes to speed. There is a change in the traffic composition due to low HGV flows, however as the majority of the links have limited pedestrian infrastructure and few residential properties, the change in composition is not expected to generate any significant impact to pedestrian delay and amenity. Where there are urban areas, pedestrian delay and amenity is negated with use of the pedestrian crossing facilities found within each.

12.5.55 As discussed in *paragraph 12.6.17,* details the assessment of severance for each link, which is closely linked to pedestrian delay, and shows that whilst the magnitude of impact appears to be 'Medium to High' compared to the baseline for all links, this is due to the low traffic flows (particularly HGV flows) currently in the Study Area. The severance assessment concludes that the impact of construction traffic is not significant when compared to the baseline, and as stated previously, the rural nature of the Study Area and lack of residential areas indicates a low level of general pedestrian activity.

12.5.56 Therefore, it is considered that all links will have **temporary, short term, minor** and **not significant** transport effects in regards to delay and amenity.

Phase 2 Fear and Intimidation

12.5.57 To assess fear and intimidation, IEMA guidelines suggest thresholds based on 18-hour daily flow and vehicle speeds, indicating that an average traffic 18-hr flow of over 1800 vehicles and 1,000 HGVs per hour using a road subject to a 60 mph speed limit would be considered a great degree of hazard.

12.5.58 As previously mentioned, the peak construction phase is expected to generate a maximum of with 292 HGV daily movements and 396 total daily movements within the 11 and 12-hour period when construction traffic movements are expected to be generated. Table 12.25 summarises the comparison of the 18-hour baseline with a threshold for level of fear score assigned to each link and the magnitude of impact as a result of the forecast increase in vehicle movements on each link.

Table 12.25 Phase 2 Fear and Intimidation Assessment

Link (#)	18 hr Base – Daily Trips		Speed Limit	DoH Score	LoFI	18hr Base + Peak Construction Daily Trips		DoH Score	LoFI	Magnitude of Impact
	Vehicles	HGVs				Vehicles	HGVs			
1	4062	293	60	60	Great	4333	512	60	Great	Negligible
2	696	50	60	40	Moderate	967	269	40	Moderate	Negligible
3	6292	372	20	40	Moderate	6563	591	40	Moderate	Negligible
4	2235	34	40	50	Great	2631	326	50	Great	Negligible
5 (North)	644	10	60	40	Moderate	1040	302	40	Moderate	Negligible
5 Site Access	238	2	60	30	Moderate	634	294	40	Moderate	Negligible
6	5054	154	60	60	Great	5179	227	60	Great	Negligible
7	4103	106	60	60	Great	4228	179	60	Great	Negligible
8	5166	88	30	50	Great	5291	161	50	Great	Negligible

12.5.59 The results of the assessment which is presented in Table 12.25 shows that with the addition of the worst-case construction traffic levels, there will be no step changes in the level of fear and intimidation on all of the assessed links. As such, it is considered that the temporary increase in traffic during the worst-case scenario will not result in an impact on the perception of road fear and intimidation, on the study network, and therefore the magnitude of impact is considered **negligible, not significant**.

12.5.60 Based on the estimated construction traffic generated, there could be a requirement for AIL movements to deliver plant equipment to Site via Links 1, 2, 3, 4 and 5 (north of and at the Site Access).

12.5.61 It is recognised that movement of AIL's may heighten the perception of fear and intimidation. However, the movements will be timed following a public awareness campaign, and that they will be undertaken outwith major events and the morning and evening peaks of the local road network's operation. It is therefore considered that construction traffic will have **temporary**, **short term**, **negligible** and **not significant** impacts to transport.

Phase 2 Road User and Pedestrian Safety

12.5.62 As shown in Table 12.14 there is no requirement to introduce specific casualty reduction measures as an average or low number of injury accidents have been reported within the Study Area in the most recently available five year period. Construction activities are forecast to generate a maximum of 56 total trips per hour (equating to 1 movement per minute) on any of the links contained within the Study Area and it is therefore considered that the magnitude of impact is negligible and the overall significance of effect to be **temporary, short term, minor and not significant**.

Phase 2 Summary of Likely Effects Generated by Construction Traffic

12.5.63 The greatest significance of the effect generated by construction traffic is considered to **have temporary, short term, minor and insignificant** transport effects when compared to

the seven key criteria and it is not intended to assess the construction impacts further as part of this EIA.

12.5.64 All of the impacts will be generated at a **local** level.

12.6 Operational Phase

12.6.1 As previously highlighted, the operational phase of the development is forecast to generate a low level of vehicle trips which would result in **no significant traffic increase**. The assessment of operational traffic has therefore been scoped out of this assessment.

12.6.2 The trip generation for the operational phase is assessed within the Transport Assessment within **Volume 4, Appendix 12.2: Transport Assessment**.

12.7 Residual Effects

12.7.1 Subject to the successful implementation and monitoring of the CTMP, it is considered that any residual effects associated with the construction of the Proposed Development, would be of a temporary nature and the magnitude of any residual effects would be of the same or lesser significance. The implementation of the CTMP will address any specific issues on the proposed access routes, thus ensuring the impact on local residents and existing road users is appropriately mitigated against.

12.7.2 A summary of the residual effects associated with the Proposed Developments construction following the implementation of the mitigation measures identified within the CTMP is summarised in Table 12.26.

Table 12.26 Residual Effects

Description of Effect	Significance of Potential Effect		Mitigation Measure	Residual Effects and Significance (Post Mitigation)	
	Significance	Beneficial/ Negligible/ Adverse		Significance	Beneficial/ Negligible/ Adverse
Phase 1 Construction					
Road Capacity	Negligible	Negligible	Implementation of a CTMP to include a range of measures which will mitigate the impact of construction traffic on the operation of the local road network.	Negligible	Negligible
Severance	Minor	Negligible		Negligible	Negligible
Driver Delay	Negligible	Negligible		Negligible	Negligible
Pedestrian Delay	Minor	Negligible		Negligible	Negligible
Pedestrian Amenity	Minor	Negligible		Negligible	Negligible
Fear and Intimidation	Negligible	Negligible		Negligible	Negligible
Accidents and Safety	Minor	Negligible		Negligible	Negligible
Phase 2 Construction					
Road Capacity	Negligible	Negligible	Implementation of a CTMP to include a range of measures which will mitigate the impact of construction traffic on the operation of the local road network.	Negligible	Negligible
Severance	Minor	Negligible		Negligible	Negligible
Driver Delay	Negligible	Negligible		Negligible	Negligible
Pedestrian Delay	Minor	Negligible		Negligible	Negligible
Pedestrian Amenity	Minor	Negligible		Negligible	Negligible
Fear and Intimidation	Negligible	Negligible		Negligible	Negligible
Accidents and Safety	Minor	Negligible		Negligible	Negligible
Operation					
No significant effects are anticipated due to traffic during operation.					

12.8 Cumulative Effects

12.8.1 A review of The Highland Council's planning portal and the Energy Consent Unit's website and in discussion with SSEN Transmission has been undertaken to determine the cumulative developments that have the potential to have in combination traffic and transport cumulative effects with regards to the Proposed Development.

12.8.2 As shown in **Volume 2, Table 5-2,** there are a number of proposals which are currently being progressed in the area that is relevant to the cumulative development. All proposals relevant to traffic and transport have been identified below in Table 12.27 alongside the level of daily vehicle trips forecast to be generated by each.

Table 12.27 Cumulative Development

Planning application reference	Description	Status	Daily Trips	Comments
24/02831/FUL) (see also 22/04837/PAN; 23/05130/PAN; 23/04885/SCRE relating to the same project)	Kilmorack Power Station – replacement of existing Kilmorack Substation	Under Consideration	No data	
22/03536/PNO	Erection of replacement Overhead Line	Decided – Prior approval not required.	No data	
24/04588/SCOP	The Spittal-Beauly 400 kV OHL adjacent to the Proposed Development	Submission in process	No data	SSEN Transmission Project
ECU00005165	The Beauly-Peterhead 400 kV OHL adjacent to the Proposed Development	Submission in process	76 Daily Cars / Vans and 18 Daily HGVs for each Section of the OHL	SSEN Transmission Project
-	The Western Isles Link HVDC underground cable (tying into the Proposed Development)	Permitted Development	No data	SSEN Transmission Project
EC00003128	The Beauly-Denny OHL Diversion, which will be required to facilitate the Proposed Development	Decided – Screening application - EIA not required.	No data	SSEN Transmission Project
24/02830/FUL	SSENT Aigas Substation - Construction of 132kV replacement substation	Under consideration	8 Daily Cars / Vans and 8 Daily HGVs	SSEN Transmission Project
-	Black Bridge replacement	Subject to ongoing discussion with The Highland Council	No data	SSEN Transmission Project

20/02801/FUL	Fanellan Farmhouse Kiltarlity – Erection of agricultural building	Decision: Application permitted. The agricultural building has now been constructed	N/A
20/04849/PAN	Proposed energy storage facility	Case Closed	N/A
24/01548/FUL (see also 23/03772/SCRE relating to the same project)	Erection and operation of battery energy storage system up to 49.9 MW, substations, switchgear and control buildings, landscaping, fencing and ancillary infrastructure	Under consideration	No data
24/02885/SCRE	Construction and operation of Battery Energy Storage System	Decision: Screening Application – EIA not required	No data
22/04835/PAN	Replacement of existing Aigas Substation	Case Closed	N/A
Total Daily Trips			**84 Daily Cars / Vans and 26 Daily HGVs**

12.8.3 As shown in Table 12.27 there are three SSEN Transmission projects identified which are currently at the scoping stage and therefore do not have the required information relating to vehicle trips which can be used in this study.

12.8.4 One SSEN Transmission project (Ref ECU00005165), the Beauly-Peterhead 400 kV overhead line (OHL) project which is located adjacent to the Proposed Development has indicative trip generation, however as these are all being delivered by SSEN Transmission, this will provide an opportunity for construction activities to be coordinated to minimise the effects generated by construction traffic. The daily trip generation of the Beauly-Peterhead 400 kV OHL project equates to a maximum of 7 Car / LGV movements and 2 HGV movements on any link within the study area within an hour, which is not estimated to cause any significant environmental effects.

12.8.5 Another SSEN Transmission project (Ref 24/02830/FUL), Aigas Substation - Construction of 132kV replacement substation which is located approximately 1.5 km north west of the Converter Station has indicative trip generation, however as these are all being delivered by SSEN Transmission, this will provide an opportunity for construction activities to be coordinated to minimise the effects generated by construction traffic. The daily trip generation of this project is 8 Cars / Vans and 8 HGVs daily which would amount to less than 1 delivery per hour, and which is not estimated to cause any significant environmental effects.

12.8.6 The CTMP implemented to support the Proposed Development and committed developments would implement measures to mitigate the impact of construction traffic as far as possible and it is therefore considered that the cumulative effect would be **temporary, short term, minor** and **not significant.**

12.9 Summary

12.9.1 This Traffic and Transport chapter has set out the methods used to assess the likely significant effects, the baseline conditions currently existing at the Site, the potential direct and indirect effects of the Proposed Development arising from traffic generated by its construction, and the mitigation measures required to prevent, reduce, or offset the identified significant effects and the residual effects.

12.9.2 Operational traffic is considered to be so low that its effect will be **negligible** and has therefore been scoped out of further assessment.

12.9.3 Baseline traffic flows were gathered, and sensitive receptors identified for the construction traffic routes to the Site and an assessment undertaken. The overall increase in vehicle trips compared to the existing capacity of the road network, has been assessed to be low. It is therefore considered that the existing road network can accommodate the anticipated temporary increase in traffic generated by construction activities and that the effects are not significant. Seven key IEMA criteria were assessed against thresholds identified by guidance and using professional judgement, with the greatest significance found to have **temporary, short term, minor** and **not significant** transport effects.

12.9.4 In relation to the cumulative impact of the Proposed Development with local developments, it is considered that the coincidence of the construction phases is not predicted to result in significant cumulative traffic effects on the study network. The study has demonstrated that there is significant spare capacity on the local road network to accommodate the predicted level and type of vehicles associated with the various schemes.

12.9.5 Construction traffic will be managed through the implementation of a Construction Traffic Management Plan (CTMP) and the residual effect has been determined to be negligible when assessed in relation to the seven key IEMA indicators.