VOLUME 1: CHAPTER 11: TRAFFIC AND TRANSPORT

Figures (Volume 2 of this EIA Report)

The relevant figures for this Chapter are contained within the Appendix listed below.

Appendices (Volume 4 of this EIA Report)

Appendix 11.1: Transport Assessment

Appendix 11.2: Draft Outdoor Access Management Plan

11. TRAFFIC AND TRANSPORT

11.1 Executive Summary

11.1.1 A review of the transport and access issues associated with the Proposed Development has been undertaken.

11.1.2 The assessment considers the direct effects during construction on increased traffic flows in the surrounding study area, including upon local road users and local residents. Where certain criteria is met in accordance with best practice guidance, a review of the effects on severance, driver delay, pedestrian delay, pedestrian amenity, fear and intimidation and accidents / road safety have been evaluated. The operational phase of the Proposed Development would not have any significant effects on the public road network as a result of the low levels of traffic that are forecast and is scoped out of the assessment.

11.1.3 An assessment of average daily development trips is considered an appropriate method of assessing the impact of the Proposed Development, as this will account for peaks and troughs during the construction programme. The Proposed Development would lead to a temporary increase in traffic volumes on the road network within the study area during the construction phase. However, no link capacity issues are expected on any of the roads assessed due to the additional movements associated with the Proposed Development. The effects of construction traffic are temporary in nature and are transitory.

11.1.4 The assessment identified a significant effect could be expected on Scottish Hill Track 344 by track users during the construction phase. To reduce effects to not significant levels, a series of mitigation measures and management plans have been proposed to help mitigate and offset impacts during the construction phase. These include the implementation of a Construction Traffic Management Plan, Outdoor Access Management Plan and Staff Travel Plan.

11.1.5 The assessment confirms the predicted residual effects (i.e. after the implementation of mitigation) would be minor in nature and they would not be significant. There are no long-term detrimental transport or access issues associated with the construction phase of the Proposed Development.

11.2 Introduction

11.2.1 This Chapter considers the likely significant effects, including cumulative effects, of the Proposed Development on transport and access matters during construction.

11.2.2 The specific objectives of the Chapter are to:

- describe the existing access network and transport baseline;
- describe the assessment methodology and significance criteria used in completing the impact assessment;
- describe the potential effects, including direct, indirect and any potential cumulative effects;
- describe the mitigation measures proposed to address likely significant effects; and
- assess the residual effects remaining following the implementation of mitigation.

11.2.3 An overview of the effects of the traffic movements has been considered in accordance with the Institute of Environmental Management and Assessment (IEMA) Environmental Assessment of Traffic and Movement (2023)[1]. The document is referred to as the "IEMA Guidelines" in this Chapter.

11.2.4 The Chapter is supported by **Appendix 11.1** that contains the Transport Assessment (TA). This is referenced in the body of the text, where relevant.

[1] IEMA (2023), Environmental Assessment of Traffic and Movement, Institute of Environmental Management and Assessment.

11.2.5 The assessment was undertaken by Pell Frischmann Consultants Limited. A table presenting relevant qualifications and experience of key staff involved in the preparation of this Chapter is included in **Appendix 5.1: EIA Team**, contained within Volume 4 of this EIA Report.

11.3 Scope of Assessment

11.3.1 The assessment has fully considered the transport and access issues arising from the construction phase of the Proposed Development. This Chapter considers effects on the following:

- direct effects during construction on traffic flows in the surrounding study area;
- direct effects upon local road users; and
- effects upon local residents due to an increase in construction traffic.

11.3.2 Where the effects meet the criteria set out in the IEMA Guidelines, a review of the effects on severance, driver delay, pedestrian delay, non-motorised user amenity, fear and intimidation and accidents / road safety has been undertaken.

11.3.3 The assessment is based on the Proposed Development as described in **Chapter 3 - The Proposed Development**.

Study Area

11.3.4 The study area encompasses the area over which all desk-based and field data were gathered to inform the assessment presented in this Chapter. The study area comprises the road links assessed as part of this assessment. These are identified in **Appendix 11.1** and listed below:

- The A9 between Georgemas and Scrabster; and
- The A836 between Thurso and Strathy.

11.4 Consultation

11.4.1 The scope of the assessment has been determined through a combination of professional judgement, reference to relevant guidance documents (see Section 11.5) and consultation with stakeholders through pre-application advice and a formal EIA scoping process. **Table 11.1** summarises the scoping responses relevant to transport and access matters and provides information on where and / or how points raised have been addressed in this assessment.

Table 11.1: Scoping Responses

Organisation & Date	Summary of Consultation Response	EIA / Design Response to Consultee
Transport Scotland (TS) 12th April 2024	TS consider the assessment approach set out in the Scoping Report appropriate.	Noted.
	Requested a threshold assessment for the trunk road network.	Noted. An assessment of the A9 has been undertaken (see **Appendix 11.1**). No significant impacts are anticipated.
The Highland Council (THC) 27th June 2024	THC recommend that reference is made to the following documents in the EIA Report: • Roads and Transport Guidelines for New Development • Guidance on the Preparation of Transport Assessment	Noted. Reference to both has been made in Chapter 3 of **Appendix 11.1**.
	Any local public road improvements deemed necessary should be designed in	Noted. No public road improvements will be required for the Proposed Development.

Organisation & Date	Summary of Consultation Response	EIA / Design Response to Consultee
	accordance with THC's published Roads and Transport Guidelines for New Developments.	
	THC are content that an assessment of the operational phase is scoped out of assessment.	This has been noted.
	THC are content that an Abnormal Indivisible Load assessment be scoped out of assessment.	This has been noted.
	THC are content that an assessment of the decommissioning phase is scoped out of assessment.	This has been noted.
	To enable consideration of construction traffic, as a minimum, THC expect the following information to be included in the EIAR: • The number and type of vehicle movements that will be generated during the construction phase and details of access routes that will be taken. • A review of the preferred access route for abnormal loads from Port of Entry to the site and details of mitigation measures proposed. • A similar review of the routes to site for general construction traffic and details of mitigation measures proposed. • A framework Construction Traffic Management Plan (CTMP) that sets out how the impact of construction traffic is to be minimised and mitigated.	These details are provided in this Chapter and **Appendix 11.1**, where relevant. No abnormal loads will be required for component delivery to the site.
	When compiling data on predicted traffic movements serving the development the assessment should set out and justify all assumptions made in support of the trip levels used.	Further details of the traffic generation are provided in **Appendix 11.1**.
	THC would prefer if effort could be made to identify other committed developments in the area that have the potential to influence traffic levels on the proposed access routes. It is important to recognise that the public (trunk) roads serving this site are heavily influenced by tourist traffic during the busier summer season. This should be clearly set out how this has been recognised in the assessment process. Any predicted traffic generated by any timber extraction required in connection	Committed developments have been accounted for in the assessment. A list of such schemes is provided in Section 11.11. The assessment for the trunk road network has been based on the annual average daily traffic (AADT) flows to ensure a fair baseline. Additional loading at summer will increase the baseline, resulting in a lower impact on the network, potentially reducing mitigation.

Organisation & Date	Summary of Consultation Response	EIA / Design Response to Consultee
	with the development should be recognised in the assessment.	Timber extraction has been accounted for in the traffic generation and accounts for 14 movements (7 inbound and 7 outbound).
	THC note that a suitable agreement relating to section 96 of the Roads (Scotland) Act and appropriate planning legislation may be required.	This is included in Section 11.9 of this Chapter.
	THC note that intended arrangements for surveying and recording the existing condition of the local public roads impacted by the proposed construction works prior to any works commencing. It should clarify how the condition of roads will be review and at the end of the proposed development, along with how repair will be undertaken.	
	THC provided advice on the detail to be included in the Transport Statement Assessment.	This has been noted and the information has been taken into account in the assessment.
ScotWays 14th April 2024	ScotWays note that Scottish Hill Track 344: Strath Halladale (Trantlebeg) to Strathy runs along an existing track that will be used by the Proposed Development to access the site. ScotWays welcomes that an Outdoor Access Management Plan (OAMP) is prepared.	An Outdoor Access Management Plan (OAMP) will be prepared, a draft of which is included in **Appendix 11.2**, to demonstrate how continued access for recreational users along routes in the area, particularly Scottish Hill Track 344, would be managed during construction. The OAMP would be prepared as part of the CEMP and signage would be erected at suitable locations to warn recreational users of construction traffic.

Issues Scoped Out of Assessment

11.4.2 The potential for the Proposed Development to give rise to traffic impacts would be limited to the construction phase only. No impacts are anticipated during the operational phase as the Proposed Development would not generate any new traffic, apart from during infrequent maintenance activities. On this basis, an operational traffic assessment is scoped out of this assessment in its entirety.

11.4.3 As described in **Chapter 3**, it is anticipated that the effects associated with the construction phase could be considered to be representative of a worst-case, when compared to the decommissioning effects on transport matters. As such, a separate assessment of potential decommissioning effects is not included in this Chapter.

11.4.4 As there are no Abnormal Indivisible Load (AIL) access required, an AIL assessment has been scoped out of this assessment.

11.5 Legislation, Policy and Guidance

11.5.1 The scope of the assessment has been informed by scoping responses summarised in **Table 11.1** and the following guidelines / policies (further detail is provided in **Appendix 11.1**):

- National Planning Framework 4 (2023);
- Highland-wide Local Development Plan (2012);

- Caithness and Sutherland Local Development Plan (2018);
- Onshore Wind Energy Supplementary Guidance (2016);
- Guidance on the Preparation of Transport Assessments (2014);
- Environmental Assessment of Traffic and Movement (2023); and
- Road and Transport Guidelines for New Developments (2013).

11.6 Methodology

Desk Study

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

- relevant transport policy;
- accident data;
- sensitive locations;
- any other traffic sensitive receptors in the area (core paths, routes, communities, etc.);
- Ordnance Survey (OS) plans; and
- potential origin locations of construction staff and supply locations for construction material to inform extent of local area roads network to be included in the assessment.

Field Survey

11.6.2 Field surveys were also undertaken and comprised of a site visit in May 2024 to review the general study area.

Assessment of Effects

Sensitivity / Importance of Receptors

11.6.3 In terms of traffic and transport impacts, the receptors are the users of the roads and any core paths within the study area and the users of, and residents within, locations through which those roads pass.

11.6.4 The IEMA Guidelines[1] include guidance on how the sensitivity of receptors should be assessed. Using that as a base, professional judgement was used to develop a classification of sensitivity for users based on the characteristics of roads and locations. This is summarised in **Table 11.2**.

Table 11.2: Classification of Receptor Sensitivity

Receptor	Sensitivity			
	High	Medium	Low	Negligible
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.	Where the road is a local A or B class road, capable of regular use by HGV traffic. Includes roads where there is some traffic calming or traffic management measures.	Where the road is Trunk or A-class, constructed to accommodate significant HGV composition. Includes roads with little or no traffic calming or traffic management measures.	Where roads have no adjacent settlements. Includes new strategic trunk roads that would be little affected by additional traffic and suitable for Abnormal Loads and new strategic trunk road junctions capable of accommodating Abnormal Loads.

Receptor	Sensitivity			
	High	Medium	Low	Negligible
Users / Residents of Locations	Where a location is a large rural settlement containing a high number of community and public services and facilities.	Where a location is an intermediate sized rural settlement, containing some community or public facilities and services.	Where a location is a small rural settlement, few community or public facilities or services.	Where a location includes individual dwellings or scattered settlements with no facilities.

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

Magnitude of Effect

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

- Rule 1 – Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles (HGVs) will increase by more than 30%); and
- Rule 2 – Include highway links of high sensitivity where traffic flows have increased by 10% or more.

11.6.7 Examples of sensitive areas are presented in the IEMA Guidelines as hospitals, churches, schools, historical buildings. These locations are to be assessed in relation to "Rule 2".

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

- Severance – the IEMA guidelines advise that, "*The Department for Transport has historically set out a range of indicators for determining the significance of severance. Changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively. Although these thresholds no longer appear in Department for Transport guidance, they have not been superseded by subsequent changes to guidance and are established through planning case law. However, caution needs to be observed when applying these thresholds as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic*." (Para 3.16). The Guidelines acknowledge that changes in traffic flows should be used cautiously, stating that "*the assessment of severance should pay full regard to specific local conditions, e.g. sensitivity of adjacent land uses, prevalence of vulnerable people, whether or not crossing facilities are provided, traffic signal settings, etc."* (Para 3.17).
- Driver delay – the IEMA Guidelines note that these delays are only likely to be "*significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system.*" (Para 3.20).
- Pedestrian delay (incorporating delay to all non-motorised users) – the IEMA Guidance advises that "*pedestrian delay and severance are closely related effects and can be grouped together. 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. Delays will also depend on the general level of pedestrian activity, visibility and general physical conditions of the development site.*" (Para 3.24). Furthermore, the guidance advises that "*…it is not considered wise to set down definitive thresholds. Instead it is recommended that the competent traffic and movement expert use their judgement to determine whether pedestrian delay constitutes a significant effect."* (Para 3.26).

- Non-motorised user amenity – the IEMA guidelines advises that, "*The 1993 Guidelines suggest that a tentative threshold for judging the significance of changes in pedestrian amenity would be where the traffic flow (or HGV component) is halved or doubled. Although these thresholds no longer appear in Department for Transport guidance, they have not been superseded by subsequent changes to guidance and are established through planning case law.*" (Para 3.30).
- Fear and intimidation – there are no commonly agreed thresholds for estimating levels of fear and intimidation, from known traffic and physical conditions. However, as the impact is considered to be sensitive to traffic flow, changes in traffic flow of 30%, 60% and 90% are regarded as producing minor, moderate and substantial changes respectively in the guidelines. (Para 2.19). As such, this has been used to assess the potential impacts associated with construction activities around fear and intimidation on people in close proximity to the Proposed Development.
- Road safety – professional judgement has been used to assess the implications of local circumstances, or factors which may elevate or lessen risks of accidents. In line with the IEMA Guidelines, those areas of collision clusters would be subject to detailed review.
- Road safety audits – it would be proposed to undertake any necessary Road Safety Audits (RSA) post consent, if required, given the access junction is an existing junction. If necessary, this can be secured via a condition of consent.
- Large loads – There are no component Abnormal Indivisible Load (AIL) deliveries associated with the Proposed Development and as such, as discussed in paragraph 11.4.4, an AIL assessment has been scoped out of this assessment.

11.6.9 While not specifically identified as more vulnerable road users, cyclists are considered in similar terms to pedestrians.

Significance of Effect

11.6.10 To determine the overall significance of effects, the results from the receptor sensitivity and magnitude of change assessments are correlated and classified using a scale set out in Table 2.4 of Volume 11, Section 2, Part 5 of the Design Manual for Roads and Bridges (DMRB)[2] and summarised in **Table 11.3** below.

11.6.11 The DMRB defines the potential changes in effect as follows:

- Large: These effects are considered to be material in the decision making process;
- Moderate: These effects may be important but are not likely to be material factors in decision making. The cumulative effects of such factors may influence decision-making if they lead to an increase in the overall adverse effect on a receptor;
- Slight: These effects may be raised as local factors. They are unlikely to be critical in the decision-making process, but are important in improving the subsequent design of the project; and
- Neutral: No effects or those that are imperceptible.

Table 11.3: Significance of Effects

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

[2] Design Manual for Roads & Bridges, National Highways & Transport Scotland

Receptor Sensitivity	Magnitude of Impact			
	Major	Moderate	Minor	Negligible
Negligible	Slight	Slight	Slight / Neutral	Neutral

11.6.12 In terms of the EIA Regulations, effects would be considered of significance where they are assessed to be Large or Moderate. Where an effect could be one of Large / Moderate or Moderate / Slight, professional judgement would be used to determine which significance criterion should be applicable.

Limitations to the Assessment

11.6.13 The assessment is based upon average traffic flows. During the construction period, activities at the Site may fluctuate between one day and another and it is not possible to develop fully a day-by-day traffic flow estimate as no Principal Contractor has been appointed and external factors can impact upon activities on a day-by-day basis (weather conditions, availability of materials, time of year, etc).

11.6.14 Assumptions on the origin points for staff and materials have been made to provide a worst-case assessment scenario. Should these origin points change, the effects on the study area may alter to those presented in the assessment.

11.6.15 Please note that variances may occur in the calculations due to rounding. These variances are not considered significant.

11.6.16 It is considered that there is sufficient information to enable an informed decision to be taken in relation to the identification and assessment of likely significant environmental effects on transport matters.

11.7 Baseline Conditions

11.7.1 Access to the Proposed Development would be taken from the existing Strathy North Wind Farm access junction off the A836, approximately 1 km east of Strathy, leading south along an existing access track. The junction off the A836 and the existing track were upgraded ahead of construction of the Strathy North Wind Farm, as far as the Strathy North substation. The upgrade of the track is currently being extended for use during the construction of the consented Strathy Wood and Strathy South wind farms. No further works would be required to the existing track to enable access for the Proposed Development.

11.7.2 Previous experience of projects located along the A836 suggests that THC would resist the use of the north – south access links of the A897 (Melvich – Helmsdale) and A836 between Lairg and Tongue (located to the west of the Proposed Development). As such, it is assumed that delivery of all materials and components for use at the Proposed Development, would be delivered from the east, via the A9 and A836 from Thurso.

Network Conditions: Active Travel Network

11.7.3 A review of Core Paths directly affected by the Proposed Development has been undertaken. There are no Core Paths located near the Proposed Development. The main existing access track to be utilised by the Proposed Development, passing alongside and through Strathy Forest, is featured within the guidebook 'Scottish Hill Tracks'. This is a joint publication between the Scottish Rights of Way and Access Society and The Scottish Mountaineering Trust. The track forms part of Scottish Hill Track 344: Strath Halladale, which travels between Trantlebeg and Strathy.

11.7.4 A review of the Sustrans cycle network plan of the United Kingdom indicates that the A836 is part of National Cycle Network 1 (NCN1) between Lairg and Thurso. There is however no dedicated cycle infrastructure on the road, other than directional signage.

Network Conditions: Vehicle Access

11.7.5 The A9 is the main trunk road in the area and connects Polmont to Scrabster. The road is operated on behalf of Transport Scotland by BEAR Scotland. Within the study area, the road is subject to a 60 miles per hour (mph) speed limit in the main and typically varies between 7 metres (m) and 8 m in width.

11.7.6 The A836 is a two-way single carriageway road which is a district distributor road that provides connections between Tain and Thurso by way of Lairg and Tongue. The road is maintained by THC and is generally of a good standard and typically varies between 6 m and 7 m in width, with a speed limit of 60 mph, with 30 mph restrictions within settlements.

11.7.7 The section between Scrabster and the Site access junction is in good relative condition, as observed during the time of a site visit. There are sections to the west of the study area where sections of the road surfacing would benefit from re-dressing and areas of minor edge cracking. There are no posted weight limits on the road.

11.7.8 The A9 and A836 within the study area form part of the North Coast 500 (NC500) tourist route. This 830 km (516 mile) route is now a popular tourist sightseeing route around the northwest Highlands and Sutherland and has been responsible for an increase in traffic visiting the study area.

Network Conditions: Accident Review

11.7.9 Road traffic accident data for the five-year period commencing 01 January 2018 through to the 31 December 2022 was obtained from the online resource Crashmap[3] which uses data collected by the police about road traffic crashes occurring on British roads.

11.7.10 Nine accidents were recorded on the A836 between the Site and Thurso. A further seven were noted on the A9. Further details of the accidents are provided in **Appendix 11.1**. Based on the information available, it has been established that there are no specific road safety issues within the immediate vicinity of the Proposed Development that currently require addressing or would be exacerbated by the construction of the Proposed Development.

11.7.11 Traffic data used in the assessment has been sourced from the following sources:

- Transport Scotland (TS) database; and
- Department for Transport (DfT) Traffic Statistics database.

11.7.12 The locations of the count points on the A836 and the A9 are shown in **Appendix 11.1**.

11.7.13 The traffic count data allowed the traffic flows to be split into vehicle classes and the data has been summarised into cars / light goods vehicles (LGV) and heavy goods vehicles (HGVs) (i.e. all goods vehicles >3.5 tonnes gross maximum weight). The baseline data for 2024 is illustrated in **Table 11.4**.

Table 11.4: 2024 Existing Traffic Conditions (Average Daily Two Way Flows)

Site Ref. No.	Survey Location	Car / LGV	HGV	Total
1	A9 north of Georgemas Junction	3,077	436	3,512
2	A9 Thurso	2,908	136	3,044
3	A836 near Forss	2,286	31	2,318

[3] CrashMap: www.crashmap.co.uk

Site Ref. No.	Survey Location	Car / LGV	HGV	Total
4	A836 near Strathy	623	20	643

Future Baseline

11.7.14 Construction of the Proposed Development is expected to commence in 2025, if consent is granted, construction is anticipated to take approximately twelve months.

11.7.15 To assess the likely effects during the construction and typical operational phases, base year flows were forecast by applying a National Road Traffic Forecast (NRTF) low growth factor to the 2025 flows in **Table 11.5**. The NRTF low growth factor for 2024 to 2025 is 1.005.

Table 11.5: Future Baseline Flows (2025 Flows)

Site Ref. No.	Survey Location	Car / LGV	HGV	Total
1	A9 north of Georgemas Junction	3,095	438	3,533
2	A9 Thurso	2,926	136	3,062
3	A836 near Forss	2,300	31	2,331
4	A836 near Strathy	627	20	647

Please note minor variances due to rounding may occur.

11.7.16 It has been assumed for the purposes of this assessment that both Strathy South and Strathy Wood Wind Farms, as consented developments for which this grid connection is required, would be constructed at the same time as the Proposed Development. Their peak construction traffic has therefore been included in the baseline 2025 traffic flows. The Base + Committed Development traffic flows are summarised in **Table 11.6**.

Table 11.6: Future Baseline Flows (2025 Base + Committed Flows)

Site Ref. No.	Survey Location	Car / LGV	HGV	Total
1	A9 north of Georgemas Junction	3,205	469	3,674
2	A9 Thurso	3,036	167	3,203
3	A836 near Forss	2,410	62	2,472
4	A836 near Strathy	737	51	788

Please note minor variances due to rounding may occur.

Summary of Sensitive Receptors

11.7.17 A summary of the sensitive receptors within the study area is presented in **Table 11.7**.

Table 11.7: Summary of Sensitive Receptors

Receptor	Sensitivity	Justification
A836 Users	**Medium**	Where the road is a local A or B class road capable of regular use by HGV traffic.
A9 Road Users	**Low**	Where the road is a Trunk or A-class, constructed to accommodate significant HGV composition.
Thurso Residents	**High**	Where a location is a large rural settlement containing a high number of community and public services and facilities.
Reay Residents	**Medium**	Intermediate rural settlement with some community facilities.
Melvich Residents	**Medium**	Intermediate rural settlement with some community facilities.
Hill Track / Access Track Users	**High**	Where the road is a minor rural road.
Residents living along the A9	**Low**	Where a location is a small rural settlement, few community or public facilities or services.
Residents living along the A836	**Low**	Where a location is a small rural settlement, few community or public facilities or services.

11.7.18 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.

11.7.19 Based on the examples of sensitive areas (e.g., hospitals, churches, schools, historical buildings, tourist attractions etc.), as outlined in paragraph 11.6.7, the following areas are considered sensitive and will be subject to 'Rule 2' of the IEMA Guidelines which requires a full assessment of effects if the locations are subject to an increase in 10% of traffic:

- Thurso;
- Reay; and
- Melvich.

11.7.20 All other locations within the study area are subject to 'Rule 1' and are assessed if traffic flows (or HGV flows) on road links increase by more than 30%.

11.8 Assessment of Likely Significant Effects

11.8.1 This section considers the potential impacts and associated effect significance of the construction of the Proposed Development, based on the typical activities described in **Chapter 3**.

Construction Effects

11.8.2 Traffic generation for the Proposed Development, including ancillary works, is presented in **Appendix 11.1**.

11.8.3 The peak traffic flows indicate 46 car / LGV and 38 HGV two way movements are predicted per day, at the peak of construction activity (Month 4).

11.8.4 The construction traffic was compared against the future baseline traffic to estimate the increase in traffic associated with the Proposed Development. **Table 11.8** illustrates the potential traffic impact of the peak month of construction activity.

Table 11.8: Traffic Impact Summary

Site Ref. No.	Survey Location	Car / LGV	HGV	Total	Car / LGV % Increase	HGV % Increase	Total % Increase
1	A9 north of Georgemas Junction	3,219	507	3,726	0.4%	8.0%	1.4%
2	A9 Thurso	3,078	205	3,283	1.4%	22.5%	2.5%
3	A836 near Forss	2,452	100	2,552	1.7%	60.5%	3.2%
4	A836 near Strathy	783	89	872	6.2%	73.6%	10.6%

Please note minor variances due to rounding may occur.

11.8.5 The total traffic movements are not predicted to increase by more than 10.6% across the whole study area network, with the highest increase occurring on the A836 Strathy. This is similar to the average daily variance in traffic flows (+ / -10 %) that naturally occurs.

11.8.6 The highest total HGV movements will increase by 73.6 % on the A836 Strathy. Whilst this increase could be considered high, the increase is caused by the relatively low HGV flows on the road at this location. The increase represents 38 HGV movements per day, which equates to approximately three HGV movements per hour over a typical 12 hour working day on site, which is not considered significant in terms of overall traffic flows.

11.8.7 It should be noted the construction phase is transitory in nature and the peak of construction activities is short lived, occurring over a relatively short timeframe when taking account of the whole construction programme.

11.8.8 A review of theoretic road link capacity has been undertaken in **Appendix 11.1** and indicates that none of the proposed public roads would experience a road capacity issue as a result of construction traffic associated with the Proposed Development.

11.8.9 In accordance with the IEMA Guidelines Rules 1 and 2 and based on the construction traffic data shown in **Table 11.8**, detailed assessments have been undertaken on the following receptors:

- A836 Users (Medium Sensitivity);
- Reay Residents (Medium Sensitivity);
- Melvich Residents (Medium Sensitivity); and
- Scottish Hill Track 344 / Access Track Users (High Sensitivity).

11.8.10 The significance of the potential effects has been determined using the rules and thresholds discussed previously. **Table 11.9** summarises the significance on the receptors for the construction phase.

Table 11.9: Overall Construction Effects

Receptors	Severance	Driver Delay	Pedestrian Delay	Non-motorised User Amenity	Fear & Intimidation	Accidents & Safety
A836 Users	Slight	Slight	Slight	Slight	Slight	Slight
Reay Residents	Slight	Slight	Slight	Slight	Slight	Slight
Melvich Residents	Slight	Slight	Slight	Slight	Slight	Slight
Scottish Hill Track 344 / Track Users	Slight	Slight	Large	Large	Large	Slight

11.8.11 The assessment of significance suggests that **Large** and **significant effects** could be expected on Scottish Hill Track 344 / Track Users. As such mitigation measures will be required.

11.9 Mitigation

Mitigation During Construction

Construction Traffic Management Plan (CTMP)

11.9.1 A CTMP is proposed to help reduce the slight traffic impact of the construction phase on the study area.

11.9.2 The following measures would be implemented through a CTMP during the construction phase. The CTMP would be agreed with THC prior to construction works commencing:

- Where possible the detailed design process would minimise the volume of material to be imported to Site to help reduce HGV numbers;
- Explore whether onsite borrow pits could be used to reduce or eliminate the need for external sources of aggregate, thus reducing the traffic accessing the site;
- A Site worker transport and travel arrangement plan, including transport modes to and from the work Site (including pick up and drop off times);
- All materials in delivery lorries (dry materials) should be sheeted to reduce dust and stop spillage on public roads;
- Specific training and disciplinary measures should be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway;
- Wheel cleaning facilities may be established at the A836 junction, depending on the views of THC;
- Normal Site working hours would be limited to between the following hours:
  - March to September – 07:00 to 19.00 – 7 days a week
  - October to February – 07.30 to 17.00 (or within daylight hours)
- Appropriate traffic management measures would be put in place on the A836 to avoid conflict with general traffic, subject to the agreement of THC and TS. Typical measures would include HGV turning and warning signs;
- Provide construction updates on the project website and or a newsletter to be distributed to residents within an agreed distance of the Site;

- Adoption of a voluntary speed limit of 20 mph for all construction vehicles travelling through local villages and towns;
- Adoption of a maximum speed limit of 15 mph for all construction vehicles travelling on the access track south of the A836;
- All drivers would be required to attend an induction to include:
  - A tool box talk safety briefing;
  - The need for appropriate care and speed control;
  - A briefing on driver speed reduction agreements (to slow Site traffic at sensitive locations through the villages); and
  - Identification of the required access routes and the controls to ensure no departure from these routes.

11.9.3 THC may require an agreement to cover the cost of abnormal wear and tear on the A836 between Thurso and the Site access junction with the A836. Video footage of the pre-construction phase condition of the construction vehicles route would be recorded to provide a baseline of the state of the road prior to any construction work commencing. This baseline would inform any change in the road condition during the construction stage of the Proposed Development. Any necessary repairs would be coordinated with the Roads Authority. Any damage caused by traffic associated with the Proposed Development, during the construction period that would be hazardous to public traffic, would be repaired immediately.

11.9.4 Any damage to road infrastructure caused directly by construction traffic would be made good, and street furniture that is removed on a temporary basis would be fully reinstated.

11.9.5 There would be a regular road edge review and any debris and mud would be removed from the public carriageway to keep the road clean and safe during the initial months of construction activity, until the construction junction and immediate access track works are complete.

11.9.6 It is not anticipated that abnormal load components would be required to be delivered to the Site. Access for an erection crane would be required.

Public Information

11.9.7 The Applicant would ensure information was distributed through its communication team via the project website, local newsletters and social media.

Outdoor Access Management Plan

11.9.8 Consideration would be given to pedestrians and cyclists alike due to potential interactions between construction traffic and users of Scottish Hill Track 344. These measures would be formulated into an Outdoor Access Management Plan (OAMP) (see **Appendix 11.2**).

11.9.9 The Principal Contractor would ensure that speed limits are adhered to by their drivers and associated subcontractors. Advisory speed limit signage would also be installed on approaches to areas where core path users may interact with construction traffic.

11.9.10 Signage would be installed on the Site exit that makes drivers aware of local speed limits and reminding drivers of the potential presence of pedestrians and cyclists in the area. This would also be emphasised in weekly toolbox talks.

11.9.11 On similar projects, The British Horse Society has made recommendations on the interactions between HGV traffic and horses. Horses are normally nervous of large vehicles, particularly when they do not often meet them. Horses are flighty animals and will run away in panic if really frightened. Riders will do all they can to

prevent this but, should it happen, it could cause a serious accident for other road users, as well as for the horse and rider. The main factors causing fear in horses in this situation are:

- Something approaching them, which is unfamiliar and intimidating;
- A large moving object, especially if it is noisy;
- Lack of space between the horse and the vehicle;
- The sound of air brakes; and
- Anxiety on the part of the rider.

11.9.12 The British Horse Society recommends the following actions that will be included in the Site training for all HGV staff:

- On seeing riders approaching, drivers must slow down and stop, minimising the sound of air brakes, if possible;
- If the horse still shows signs of nervousness while approaching the vehicle, the engine should be shut down (if it is safe to do so);
- The vehicle should not move off until the riders are well clear of the back of the HGV;
- If drivers are wishing to overtake riders, please approach slowly or even stop in order to give riders time to find a gateway or lay by where they can take refuge and create sufficient space between the horse and the vehicle. Because of the position of their eyes, horses are very aware of things coming up behind them; and
- All drivers delivering to the Site must be patient. Riders will be doing their best to reassure their horses while often feeling a high degree of anxiety themselves.

Operational Phase

11.9.13 Whilst operational phase impacts have been scoped out of the assessment given the low levels of traffic that are forecast, best practice measures would be put in place. This would include ensuring Site entrance roads are well maintained and monitored during the operational life of the Proposed Development. Regular maintenance would also be undertaken to keep the Site access track drainage systems fully operational and to ensure there are no run-off issues onto the public road network.

11.10 Residual Effects

11.10.1 An evaluation of the potential effects of the increase in traffic on the study area roads used for construction traffic has been undertaken. The summary of this assessment is provided in **Table 11.10**.

11.10.2 The assessment confirms the predicted residual effects (i.e. after the implementation of mitigation) would be **Minor** in nature and they would **not be significant**. The construction traffic effects are transitory in nature. There are no long-term detrimental transport or access issues associated with the construction phase of the Proposed Development.

Table 11.10: Summary of Residual Effects

Description of Effect	Significance of Effect		Mitigation Measure	Significance of Residual Effect	
	Significance	Beneficial / Adverse		Significance	Beneficial / Adverse
Scottish Hill Track 344 / Track Users: Pedestrian Delay	Large	Adverse	CTMP and OAMP Measures and Staff Travel Plan	Slight	Adverse
Scottish Hill Track 344 / Track Users: Amenity	Large	Adverse	CTMP and OAMP Measures and Staff Travel Plan.	Slight	Adverse
Scottish Hill Track 344 / Track Users: Fear & Intimidation	Large	Adverse	CTMP and OAMP Measures and Staff Travel Plan.	Slight	Adverse

11.11 Cumulative Effects

11.11.1 The baseline traffic flows already include the committed developments of Strathy Wood and Strathy South wind farms, in line with accepted transport planning guidelines.

11.11.2 Only consented schemes are considered as committed developments and are included in the assessment of cumulative effects. A review of consented developments within the study area includes Spaceport Sutherland.

11.11.3 The operational phase traffic associated with Spaceport Sutherland has been obtained from the EIA Transport Assessment produced in support of the planning application for that project. A typical launch event would result in 400 car and LGV movements and 4 HGV movements per day.

11.11.4 As these events are expected to occur on one day per month, it is not considered appropriate to include them as fully committed traffic as the high levels of traffic on launch days would mask the true impact of the construction phase associated with the Proposed Development.

11.11.5 There are no other significant, consented planning applications noted within the study area. The imposition of further committed development traffic into the baseline to undertake a cumulative assessment dilutes the potential traffic impact that the Proposed Development would have. The level of traffic generation associated with the Proposed Development is such that it, combined with the committed development and the future proposed development traffic, would not impact on the road link capacity.

11.11.6 As set out in Section 11.9, it is proposed that a CTMP is developed to include the wider impacts of any further projects in the area that are eventually consented and have similar construction timescales to this project. This would be agreed with THC and TS.

11.12 Summary and Conclusions

11.12.1 The Proposed Development would lead to a temporary increase in traffic volumes on the road network within the study area during the construction phase. Traffic volumes would fall outside the peak period of construction.

11.12.2 An assessment of average daily development trips is considered an appropriate method of assessing the impact of the Proposed Development as this will account for peaks and troughs during the construction programme.

11.12.3 No link capacity issues are expected on any of the roads assessed due to the additional movements associated with the Proposed Development. The effects of construction traffic are temporary in nature and are transitory.

11.12.4 The increase in traffic has been assessed as not significant in EIA terms following the application of a series of mitigation measures and management plans proposed to reduce the impacts of the traffic flows from the construction phase of the Proposed Development.