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## **Chapter 10: Transport & Access**

## **Cossans Solar & BESS EIA Report**

## **TRIO POWER Limited**

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Making Sustainability Happen

## **Revision Record**

Revision	Date	Prepared By	Checked By	Authorised By
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## Acronyms and Abbreviations

AC	Angus Council
ACRD	Angus Council Road Department
BESS	Battery Energy Storage System
CEMP	Construction Environmental Management Plan
СТМР	Construction Traffic Management Plan
EIA	Environmental Impact Assessment
HGV	Heavy Goods Vehicles
IEMA	Institute of Environmental Management and Assessment
IHT	Institution of Highways and Transportation
NPF4	National Planning Framework 4
NTS2	National Transport Strategy
SG Guidelines	Scottish Government: 'Transport Assessment Guidance 2012
тсс	Temporary Construction Compound
TS	Transport Assessment

### 10. Transport & Access

#### **10.1** Executive Summary

- 10.1.1 The assessment considers the construction and operational phases of the Proposed Development on the local transport network. The study network extends form the Site to the A90 trunk road and includes Drumgley Road and the A94.
- 10.1.2 The construction impacts will be temporary and, in the main, will result in a **negligeable** and **not significant** impact given the minor increase in traffic on a daily basis.
- 10.1.3 The Proposed Development will result in one additional vehicle per week on the public road network which ensures that the impact is **negligeable** and **not significant**.

#### 10.2 Introduction

- 10.2.1 This chapter of the Environmental Impact Assessment (EIA) provides an assessment of the potential effects of the Proposed Development on the surrounding transport network and sensitive receptors with respect to Traffic and Transport.
- 10.2.2 A full description of the existing Site and details of the Proposed Development are presented in **Chapter 3: Proposed Development Description**.
- 10.2.3 The assessment methodology and effect significance criteria used are explained, prior to setting out baseline conditions. An assessment of potential effects for both the construction and operational phases of the Proposed Development is then set out, with mitigation measures prescribed to remove, reduce or offset any potential adverse effects as far as possible. Residual effects are then assessed, taking into account any necessary mitigation measures.
- 10.2.4 This assessment has been undertaken by Michael Summers of ECS Transport Planning Ltd, a Director with over 25 years' experience including the preparation of EIA Chapters and providing expert witness evidence in transportation matters.
- 10.2.5 A separate Transport Statement (TS), has also been prepared by ECS, which is submitted separately as **Technical Appendix 10.1**,

#### 10.3 Legislation, Policy and Guidelines

- 10.3.1 This section identifies the policy and other documentation that has informed the assessment of effects with respect to transport.
- 10.3.2 The assessment has been undertaken in accordance with relevant transport related planning policy and guidance at the national, regional and local level. This has helped to identify requirements which the Proposed Development needs to



consider, aiding the process of defining the scope of assessment and informing the identification of local issues.

#### Planning Policy

- 10.3.3 At a national level, transportation policy is guided by the following Scottish Government documents:
  - National Transport Strategy (NTS2); and
  - National Planning Framework 4 (NPF4)
- 10.3.4 These document set the transport strategy for all of Scotland recognising the different needs of our cities, towns, remote and rural areas and islands.

#### **Technical Guidance**

- 10.3.5 In addition to the policies and plans described above, the following guidance documents have been considered in the production of this chapter; providing guidance for the assessment methodology
  - Institution of Highways and Transportation (IHT): 'Guidelines for Traffic Impact Assessment', October 1994, (the IHT Guidelines);
  - Scottish Government: 'Transport Assessment Guidance', 2012, (the SG Guidelines); and
  - Institute of Environmental Management and Assessment (IEMA): 'Environmental Assessment of Traffic and Movement' 2023, (the IEMA Guidelines).

#### **10.4** Consultation

10.4.1 The EIA process looks at the effects of the Proposed Development on the environment in consultation with external bodies to inform the assessment, design and decision making. Consultation with statutory consultees was undertaken through the planning application determination process. The comments made by consultees have been taken into consideration in the drafting of this chapter and a summary of the relevant responses received in relation to Traffic and Transport, and confirmation of how these have been considered within the EIA, are presented in **Table 10-1**.

Consultee	Consultation Response	Applicant Action
Mr Andy Barnes - Angus Council Roads Department	The primary focus will be ensuring that there is adequate passing places on Drumgley Road to accommodate the construction traffic. The existing bridge over the Dean Water will require to be assessed should the Proposed Development obtain planning permission.	Introduce additional passing places. Applicant accepts that a bridge assessment will be required.

Table 10-1:	Consultation	Relevant to	Traffic and	Transport
	oonsultation		in anno ana	mansport

#### **10.5** Assessment Methodology and Significance Criteria

- 10.5.1 This section details the baseline data collection process and how the impact of traffic generated by the Proposed Development has been proportionately and appropriately assessed.
- 10.5.2 This chapter should be read in conjunction with the description of the Proposed Development provided in **Chapter 3: Proposed Development Description**, and with respect to relevant parts of the following chapters where common receptors have been considered and where there is an overlap or relationship between the assessment of effects:
  - Chapter 9: Noise (due to the use of transport data to inform noise assessments); and
- 10.5.3 The methodology utilised for this assessment combines a number of approaches from the aforementioned documents and has been selected to best represent current views and policy trends. The main focus is the effect of changes to traffic flows on the local road network and associated users, and also on neighbouring land uses. In particular, the methodology comprises:
  - Review of the existing character of the road network and traffic levels;
  - Determination of baseline traffic levels for the commencement of works;
  - Estimation of the level of traffic generated during the construction and operational phases;
  - Assessment of the potential effects of construction and operational traffic;
  - Recommendation of mitigation, where appropriate; and
  - Assessment of residual effects, taking any mitigation measures into account.
- 10.5.4 Quantifying the significance of the traffic effects that result from the Proposed Development depends on several key factors. The main factors influencing the significance of an effect relate to the magnitude of change, taking into account the time frame of change and the number and sensitivity of any sensitive receptors.
- 10.5.5 For the purposes of this assessment, sensitive receptors are those that could potentially be affected by the traffic movements generated by the Proposed Development. Examples of sensitive receptors can include residential properties, settlements, schools, or areas of pedestrian and cycle movement.
- 10.5.6 The criteria used to determine the significance level of traffic associated with the proposals has been sourced from the SG Guidelines. This document states the following regarding perceived traffic impacts:

"The significance of a traffic impact depends not only on the percentage increase of traffic but the available capacity. A 10% increase on a lightly trafficked route may not be significant, whereas a 1% increase on a congested motorway will be."

- 10.5.7 The above statement also applies in reverse in terms of environmental effects, i.e. a 10% increase on a lightly trafficked route may not represent a significant capacity issue but could be considered to have a major environmental effect.
- 10.5.8 The IHT Guidelines state the following in paragraph 3.9.5:

"In general, the impact of marginal changes in traffic on the perceptible environment is less sensitive than changes in traffic flows at junctions in the surrounding network. It is recommended that the following criteria should be adopted to assess whether particular links in the network should be subject to environmental assessment:

Include traffic links where traffic flows will increase by more than 30% in the opening year as a result of development traffic;

Include any other sensitive areas affected by traffic increases of at least 10%, or similar changes in HGV movements."

- 10.5.9 Similarly, the IEMA Guidelines make reference to the above as two broad rules that can be used as a screening process to delimit the scale and extent of the assessment. Increases in traffic which amount to less than 10% of the baseline flows are generally considered to have a negligible impact on the road network given that daily fluctuations equal to this figure can occur.
- 10.5.10 For the purposes of this assessment, the significance of effects has been assessed based on the above guidance and also on the local characteristics of the road network using professional judgement and experience of similar developments.

#### Assessment of Sensitivity

10.5.11 The sensitivity of receptors to traffic effects was evaluated on a scale of Negligible, Minor, Moderate and Major as detailed in **Table 10-2**.

Sensitivity	Examples of Receptor
Major	The receptor / resource has little ability to absorb change without fundamentally altering its present character, or is of international or national importance.
Moderate	The receptor / resource has moderate capacity to absorb change without significantly altering its present character, or is of high importance.
Minor	The receptor / resource is tolerant of change without detriment to its character, is of low or local importance.
Negligible	The receptor is unlikely to experience any change.

#### Table 10-2: Sensitivity of Receptor

#### Assessment of Magnitude

10.5.12 The criteria for assessing the magnitude of any effects are defined within **Table 10-3.** 

Magnitude of Effect	Criteria for Assessing Effects
Major	Total loss or major/substantial alteration to key elements / features of the baseline (pre-development) conditions such that the post development character / composition / attributes would be fundamentally changed.
Moderate	Loss or alteration to one or more key elements / features of the baseline conditions such that post development character / composition / attributes of the baseline would be materially changed.
Minor	A minor shift away from baseline conditions. Change arising from the loss / alteration would be discernible / detectable but not material. The underlying character / composition/attributes of the baseline condition would be similar to the pre-development circumstances / situation.
Negligible	Very little change from baseline conditions. Change barely distinguishable, approximating to a 'no change' situation.

#### Table 10-3: Magnitude of Effects

#### Assessment of Significance

10.5.13 The significance of an environmental effect is determined by the combination of sensitivity and magnitude, which can be beneficial or adverse, as set out in **Table 10-4**.

		Sensitivity					
		Major	Moderate	Minor	Negligible		
de	Major	Major	Major	Moderate	Minor		
Magnitu	Moderate	Major	Moderate	Minor	Negligible		
	Minor	Moderate	Minor	Negligible	Negligible		
	Negligible	Minor	Negligible	Negligible	Negligible		

#### Table 10-4: Effect Significance Matrix

#### **Limitations and Assumptions**

10.5.14 Assumptions have been provided on the likely construction traffic volumes by experienced contractors familiar with projects of this scale and complexity. However, it should be recognised that the traffic volumes are robust estimates given the early stage of the project.

#### Area of Study

- 10.5.15 The area of influence on the local road network was outlined in submissions to Angus Council (AC) and accepted as the following:
  - U364 from Nether Drumgley to A94; and
  - A94 to A90(T) Glamis Junction.

#### **Desk Study**

- 10.5.16 The desk study element of the assessment has included:
  - Review of existing transport infrastructure;
  - Review of relevant transport planning policy;

- Review of Road Traffic Accident data;
- Review of Ordnance Survey plans;
- Identification of relevant sensitive receptors;
- Confirmation of likely origin locations of supply locations for materials to inform extent of local area roads network to be included in the assessment;
- Consideration of the construction traffic movements and programme; and
- Review of the information provided by the Applicant setting out operations.

#### **10.6 Baseline Conditions**

#### **Pedestrian and Cycle Access**

- 10.6.1 Given the rural location of the Site, there is no dedicated or segregated pedestrian or cycle infrastructure within the vicinity of the Site.
- 10.6.2 The private road to the Site is designated as a core path by AC, known as the Drumgley to Glamis Station route linking the U364 in the east with the A928 in the west. Despite the core path designation, there is generally very limited pedestrian or cycle activity directly adjacent to the Site given the rural nature of the surroundings.
- 10.6.3 The U364 and A94 can be used by experienced cyclists but given the rural nature of the road cycle trips are limited throughout the day.

#### **Public Transport**

10.6.4 There are no scheduled bus services operating on the A809 in the vicinity of the proposed Site.

#### Surrounding Road Network

- 10.6.5 The Site is bounded to the north by a private road which provides access to the Haughs of Cossans in the west and connects to Drumgley Road, at Nether Drumgley, in the east. The Site benefits from various field accesses with the private road which is a lightly trafficked single track road with passing places mainly serving agricultural holdings.
- 10.6.6 The private road connects to Drumgley Road via a simple priority junction which has been designed to accommodate large agricultural vehicles. Drumgley Road is also a single track road with passing places and provides the shortest route to the strategic road network, namely, to the south via the A94 and onwards to the Forfar Junction of the A90(T).
- 10.6.7 The Drumgley Road / A94 junction is of a good standard which can accommodate large vehicles. The A94 is a high standard single carriageway subject to national speed limit restrictions at the junction but the speed limit does reduce to 40mph some 80m to the east which influences speeds. The route is appropriate to accommodate construction vehicles with no recognised issues with geometry for HGV's.



10.6.8 The nearest access to the strategic road network is Glamis Junction of the A90(T), to the east of the proposed Site. The Glamis Junction is a full diamond grade separated interchange which provides access to both north and south carriageways on the A90(T).

#### Accident Data

- 10.6.9 A review of accident data for the previous 5 years has highlighted that there has been no recorded road traffic accident on the U364 adjacent to the Site boundary or at the junction with the A94 to the southeast. There have been 5 accidents on the Glamis Junction of the A90(T), 3 slight and 2 serious severity accidents, four of which are on the connector road between the two roundabouts which provide access to the A90(T) slips with the other on the northbound merge.
- 10.6.10 The accident data confirms that there has been no road traffic collisions at or near that access junction to the site in the past 5 years.

#### **Committed Developments and Road Schemes**

10.6.11 Following discussions with AC Roads Department, there are no committed developments of a scale which would result in a material change to the traffic flows within the study network.

#### **Assessment Years**

10.6.12 A development opening year of 20231 has been assumed for the project which is considered realistic.

#### **10.7 Standard Mitigation**

10.7.1 A Construction Traffic Management Plan (CTMP) will be developed and implemented prior to any work starting on site. A Framework CTMP is included as **Technical Appendix 10.2**.

#### **10.8 Potential Effects**

#### **Key Sensitive Receptors**

10.8.1 Key sensitive receptors are generally densely populated residential areas, local schools, etc. The following section details the primary considerations with respect to impact on the local community during both the construction and operational phases within the study area (set out above).

#### **10.9 Standard Mitigation**

#### Future Baseline

10.9.1 No significant changes to traffic generation is likely to occur under the current site management. The farmland would continue to operate as at present without the Proposed Development.

#### **10.10** Construction

#### Public Road Network

- 10.10.1 The construction period represents a change in vehicular composition on the local road network and these would be temporary for this duration. It has been assumed for the purpose of this assessment that all construction traffic will enter and exit the site via the existing dedicated site access from the A90(T), A94 and Drumgley Road.
- 10.10.2 The nearest access to the strategic road network is Glamis Junction of the A90(T), to the east of the Site. The Glamis Junction is a full diamond grade separated interchange which provides access to both north and south carriageways on the A90(T).
- 10.10.3 Traffic would exit the A90(T) and follow the A94 west for approximately 260m where the route connects to the U364 via a simple priority junction. The A94 is a high standard single carriageway subject to national speed limit restrictions at the junction but the speed limit does reduce to 40mph some 80m to the east which influences speeds. The route is appropriate to accommodate construction vehicles with no recognised issues with geometry for HGV's.
- 10.10.4 The first 100m of the U364 is single carriageway and then it reduces to single lane with passing places. The passing places are generally informal in nature and larger than a standard passing place to accommodate the movement of agricultural traffic.
- 10.10.5 Traffic does require to cross the Dean Water and a single carriageway bridge is available. Angus Council Road Department (ACRD) has advised that a structural assessment of the bridge is not available therefore, should the Proposed Development secure planning approval, a structural assessment of the bridge will be required.
- 10.10.6 The private access road which currently provides access to the site connects to the U364 via a simple priority junction. The private access road provides access to a limited number of residential properties as well as the farm adjacent to the Site. The private access road has limited formal passing places as the fields are at a similar level to the road and do not have boundary treatment.
- 10.10.7 Traffic generation has been estimated using information from contractors with experience of solar and Battery Energy Storage System (BESS) installation.

#### Site Mobilisation and Demobilisation

- 10.10.8 At the commencement of the project, plant, equipment and welfare facilities will be brought to the Site and the Temporary Construction Compound (TCC) will be formed. This is expected to require up to 20 HGV deliveries or 40 two-way HGV movements at the commencement of the project.
- 10.10.9 During Site demobilisation, the majority of this equipment will be removed from Site. Vehicle movements for demobilisation will result from empty HGVs and low loaders travelling to Site and then departing loaded.



#### Junctions and Access Tracks and Hardstanding

- 10.10.10 The internal access tracks within the site will be 4m and extend to 2,958m. Therefore, the total surface area of hardstanding's, including tracks, is estimated to be 11,932m<sup>2</sup>.
- 10.10.11 For the purposes of this assessment, it has been assumed that all access tracks will be formed to a depth of 0.40 m using (Type 1 aggregate plus 6F5 aggregate). This results in roughly 4,733m<sup>3</sup> of material required to construct the access tracks.
- 10.10.12 Aggregate will be imported via tipper lorry with an assumed volumetric capacity of 12 m<sup>3</sup> which will result in approximately 394 vehicle loads or 788 two-way HGV movements for this element of works.

#### **Component Delivery**

- 10.10.13 The site will require delivery of 24 battery packs which require 1 HGV delivery per 6 packs resulting in 4 deliveries and 8 movements.
- 10.10.14 A further 15 HGV deliveries will be required for the sub-station components, water tanks etc resulting in 30 movements.
- 10.10.15 Therefore, the total number of HGV deliveries required for this element of works is 19, resulting in 38 movements.

#### **Frames and Inverters and Storage Containers**

10.10.16 The solar arrays will be ground mounted, and each string of panels will be supported on a frame. Electrical inverters/transformers and other electrical equipment will be imported and installed with the panels. Three inverters, 100 loads of frames and 3 storage containers will be required, and these will be transported to Site via standard HGV resulting in 106 deliveries or 212 two-way vehicle movements.

Battery Packs, Control Building, STS and DNO Building (Substation)

- 10.10.17 Construction of the substation and battery storage area will commence once the access tracks are largely complete. A hardstanding area of roughly 5,000m<sup>2</sup> will be constructed. Allowing for a depth of 0.40 m, this will require approximately 2,000m<sup>3</sup> of aggregate, resulting in 167 HGV deliveries or 333 vehicle movements with an assumed volumetric capacity of 12 m<sup>3</sup>.
- 10.10.18 A further 30 HGV deliveries has been assumed for materials, namely concrete, to be imported to form the foundations of the structure and internal electrical cabling, resulting in an additional 30 vehicle movements.
- 10.10.19 Therefore, the total number of HGV deliveries required for this element of works is 197, resulting in 394 movements.

#### Panels

10.10.20 Solar panels will be imported to the Site by HGV, and this is assumed to be the maximum size 16.5 m length HGV. Panels will be delivered and stockpiled on-site prior to installation. It has been assumed that 94,128 individual panels are required and that 600 panels can be delivered per HGV load. Therefore, 157 deliveries will be required for panels resulting in 314 HGV movements.

#### **Miscellaneous Deliveries**

10.10.21 Several miscellaneous HGV deliveries have been allowed for throughout the construction phase, this has been estimated at 5 per month resulting in 10 HGV movements per month or 120 movements over the 12 month duration of construction.

Staff

10.10.22 Staff levels are likely to vary through construction depending on the operations being undertaken. It is anticipated that during the peak period of construction, 40 staff will be required onsite per day, during the other phases of work this is anticipated to be an average of 20 staff. For the purposes of this assessment, the most recent available National Travel Survey private vehicle occupancy rate of 1.5 people per vehicle was used, equating to 27 vehicles during the peak period and 13 vehicles during the non-peak period. This equates to 54 movements per day during the peak period.

Fuel

- 10.10.23 Fuel for plant will be required on the Site regularly through construction this is estimated to result in one HGV fuel tanker delivery every two weeks (2 per month) or four vehicle movements per month.
- 10.10.24 Assuming 26 workdays per month, this will result in 1,404 movements per month during the peak period and 624 movements per month during the non-peak. Staff will be encouraged to car share, so it is anticipated that the figure for car or van movements is likely to be considerably lower than the above estimates in practice.
- 10.10.25 All subcontractors will stipulate to the site manager their vehicle size, times for deliveries, access route and site access arrangement prior to delivery.
- 10.10.26 The project is likely to take approximately 12 months to complete with weekday operating hours of 08:00 19:00 Monday Friday and 08:00 13:00pm on Saturdays. The reduced construction period concentrates vehicles movements over a shorter build period thereby increasing vehicle movements per day. **Table 10-5** indicates the total number of two-way trips over the twelve month construction period, categorised by purpose of trip.

Activity	Month											
	1	2	3	4	5	6	7	8	9	10	11	12
Site Mobilisation / Demobilisation	40											40
Access Track and TCC		197	197	197	197							
Solar Frames / Inverters				70	70	70						
Substation				66	66	66	66	66	66			
Component Delivery							10	10	10	10		
Panels						52	52	52	52	52	52	
Miscellaneous Delivery	10	10	10	10	10	10	10	10	10	10	10	10
Staff	624	624	624	624	1,404	1,404	1,404	1,404	1,404	1,404	624	624
Fuel	4	4	4	4	4	4	4	4	4	4	4	4
Total (All Vehicles)	678	835	835	971	1751	1606	1546	1546	1546	1480	690	678
Average Total Traffic per Day)	26	32	32	37	67	62	59	59	59	57	27	26
Total (HGV only	54	211	211	347	347	202	142	142	142	76	66	54
Average HGV Traffic per Day	2	8	8	13	13	8	5	5	5	3	3	2

	Table 10-5:	Estimated	Vehicle	<b>Movements</b>	During	Construction	Period
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- 10.10.27 As indicated in **Table 10-5**, the peak months for construction is expected to occur in Month 5. During this period there are 1,751 two-way vehicle movements per month, made up of 1,404 car movements and 347 HGV movements. Assuming a 26-day working month, this would equate to a maximum of 67 two-way vehicle movements per day which would consist of 54 car movements and 13 HGV movements on average. In other months, the daily average HGV movements are between 2 and 13.
- 10.10.28 Staff will be encouraged to car share, so it is anticipated that the figure for car or van movements is likely to be considerably reduced. Furthermore, it should be noted that deliveries associated with HGV movements will be distributed throughout the working day.
- 10.10.29 The worst-case HGV impact would result in an average of less than 2 HGV's per hour which the standard of the adjacent road network is more than capable of accommodating.
- 10.10.30 Two additional passing places will be provided on Drumgley Road which would supplement the existing informal passing places (refer to **Figure 10.1**). It is proposed to introduce widening on both sides of the road to provide a 5.5m wide carriageway which will enable vehicles to pass. The proposed passing place would be formed using grasscrete within the limits of the adopted verge. The grasscrete passing place will be informal, but generally 12m in length with 12m tapers.
- 10.10.31 It is not considered that the minor increase in traffic associated with the construction phase of the Proposed Development would result in any capacity issues at junctions or links on the road network. The construction effects of the Proposed Development on the Public Road Network are **negligible** and **not significant**.

#### Accidents and Safety

- 10.10.32 A review of accident data for the previous 5 years has highlighted that there has been no recorded road traffic accident on the U364 adjacent to the site boundary or at the junction with the A94 to the southeast. There has been 5 accidents on the Glamis Junction of the A90(T), 3 slight and 2 serious severity accidents, four of which are on the connector road between the two roundabouts which provide access to the A90(T) slips with the other on the northbound merge.
- 10.10.33 Given the level of traffic which passes through the trunk road junction, the number of accidents is considered to be relatively standard. Furthermore, the last accident was in 2021 which demonstrates that they do not represent a recurring cluster which would warrant further investigation and, as such, will therefore result in a **negligible** and **not significant** impact.
- 10.10.34 As previously detailed, the accident data confirms that there has been no road traffic collisions at or near that access junction to the site in the past 5 years.
- 10.10.35 It is not considered that the minor increase in traffic associated with the construction phase of the development will result in a material impact on accidents at this location. The construction effects of the Proposed Development on Accidents and Safety are **negligible** and **not significant**.

#### **Disruption and Driver Delay**

10.10.36 Construction vehicles would increase HGV traffic levels on the proposed haulage route, and, in the absence of mitigation measures, dirt and debris from these vehicles could cause disruption or delay for existing road users. Vehicle breakdowns on single carriageway sections of the haulage route could have a potential impact on existing journey times. It is considered that in the absence of any mitigation measures, the addition of construction traffic on the local road network would represent a temporary, local effect of minor adverse significance due to the possibility of disruption and delay caused by vehicle breakdowns or dirt and debris on the roads, considered to be **minor** and **not significant** in EIA terms.

#### Fear, Intimidation and Pedestrian / Cyclist Amenity

10.10.37 The increase in HGV traffic associated with construction will on the private road which is designated as a core path by Angus Council. It is considered that in the absence of any mitigation measures, the addition of construction traffic on core path network would represent a temporary, local effect of minor adverse significance due to increased traffic, considered to be **minor** and **not significant** in EIA terms.

#### Severance

10.10.38 The Site is currently agricultural land which does not allow for general access to the public. There would be temporary control of movement on the Site while construction works are ongoing. There would, therefore, be a temporary **negligible** and **not significant** effect in terms of severance of pedestrian accessibility.

#### Public Transport

- 10.10.39 As no scheduled bus services pass the site on Drumgley Road there will be no impact directly adjacent to the site.
- 10.10.40 With the exception of staff movements arriving and exiting at the start and end of the working day, there will likely only be 13 two-way HGV movements, worst case, throughout an 8 hour working day during the busiest period of construction. It is considered that construction activities are unlikely to result in any significant delays to nearby public transport services to the east of the site.
- 10.10.41 It is therefore considered that there would be **negligible** and **not significant** effects to public transport during construction.

#### 10.11 Operation

#### Public Road Network

- 10.11.1 Traffic generated during the operation of the scheme will be very low and associated with management staff, circa one trip per week. The trip will be undertaken in a company van and will follow the same route as the construction haulage route, namely, Drumgley Road, A94 and A90(T).
- 10.11.2 It is therefore considered that the predicted traffic generation can be accommodated on the local road network with no detriment to existing road users or requirement for any additional physical mitigation. It is therefore considered that the level of predicted traffic flow change associated with the operation of the proposed Development would be **negligeable** and **not significant**.

#### Accidents and Safety

- 10.11.3 As detailed within the construction section of this Chapter, there have been no accidents recorded on the road adjacent to the site. There have been accidents at the A90(T) Glamis Junction which will experience a minor increase in traffic associated with the proposed development.
- 10.11.4 The predicted changes in traffic levels would have no significant effects on the operation of nearby junctions and would therefore have little effect on the safety or efficiency of the road network. As such, there would be no material change to the operation of the existing road network once the Proposed Development is operational as confirmed within the TS.
- 10.11.5 It is considered that the small changes to travel patterns on the local road network as a result of the Proposed Development would be of **negligible** significance in terms of accidents and safety and **not significant** in EIA terms.

#### **Disruption and Driver Delay**

10.11.6 As the operational development will only result in one vehicle trip per week road users are unlikely to experience any material disruption or delay once the Proposed Development is operational adjacent to the Site.



10.11.7 It is considered, therefore, that there would be a **negligible** and **not significant** beneficial effect to disruption or driver delay.

#### Fear, Intimidation and Pedestrian / Cyclist Amenity

- 10.11.8 Although the private road which will provide access to the site is designated as a core path, one additional vehicle per week will not would not result in fear or intimidation to pedestrians or cyclists.
- 10.11.9 It is therefore considered that the addition of operational traffic on the local road network would result in a **negligible** and **not significant** adverse effect in terms of fear, intimidation and pedestrian / cyclist amenity.

#### Severance

10.11.10 The Site is currently farmland which does not allow for general access to the public. It is therefore considered that there would be a **negligible** and **not significant** effect in terms of severance for all modes of travel.

#### Public Transport

- 10.11.11 As no scheduled bus services pass the site on Drumgley Road there will be no impact directly adjacent to the Site.
- 10.11.12 One additional vehicle movement per week will not impact on public transport services within the established settlement boundary to the east.
- 10.11.13 It is therefore considered that there would be **negligible** and **not significant** effects to public transport during operation.

#### **10.12** Additional Mitigation & Enhancement Measures

#### Construction

- 10.12.1 To enhance the operation and safety of the construction phase, a CTMP as part of a wider Construction Environmental Management Plan (CEMP) would be developed and implemented. The CTMP would detail any mitigation measures deemed necessary to remove, reduce or offset any temporary adverse effects of construction vehicles and operations and would detail information on operational times and haulage routes.
- 10.12.2 The construction Site would be registered with the Considerate Constructors Scheme which requires constructors to comply with a Code of Considerate Practice, and seeks to:
  - Minimise any disturbance or negative impact (in terms of noise, dirt and inconvenience) sometimes caused by construction Sites to the immediate neighbourhood;
  - Eradicate offensive behaviour and language from construction sites; and
  - Recognise and reward the constructor's commitment to raise standards of Site management, safety and environmental awareness beyond statutory duties.

- 10.12.3 Construction traffic and personal would be managed within the existing site with appropriate procedures including signage and dedicated laydown area. A banksman would be responsible for ensuring the safe manoeuvring of HGVs into, out of and within the Site.
- 10.12.4 In order to ensure any potential adverse effects on the road network are minimised, a monitoring scheme could be implemented and reviewed on a three-month postcommencement basis, with any findings reported to AC. Such a scheme would be extended to the haulage route and would incorporate assessment of Site operations and related traffic impacts, to identify any issues and implement further measures where necessary to mitigate traffic delay and / or disturbance to local receptors.
- 10.12.5 Measures would be included within the CEMP to mitigate potential dust nuisance by covering HGVs on departure from the Site, which would minimise dust dispersion and material falling from vehicles during transportation. In addition, during prolonged dry periods, dust suppression measures would be implemented on site appropriate to the hazard, such as, spraying or hosing of material prior to excavation and loading.
- 10.12.6 To reduce the deposition of mud on the surrounding road network, a wheel washing facility would be installed at the exit / entry to each work zone, which would be used as required. There are certain circumstances when a wheel wash can exacerbate mud nuisance rather than reduce it, which is generally in dry weather with silts and clay being transported. It is, therefore, proposed that the operation and effectiveness of the wheel wash is reviewed on a periodic basis. Water supply for the wheel wash would be taken from a suitable nearby source, with runoff water being drained via the local surface water drainage system at each work zone.

#### Operation

10.12.7 Given the operational phase will only result in one vehicle trip per week it is not considered necessary to promote mitigation.

#### **10.13 Residual Effects**

#### Construction

#### Public Road Network

- 10.13.1 Following the implementation of mitigation proposed (CTMP & passing places) it is predicted that the environmental effects of the Proposed Development from traffic and transport would be not significant.
- 10.13.2 Although the percentage of HGVs on the proposed haulage route would increase, the hierarchy of the route is considered sufficient to accommodate the additional demand and the overall background traffic flows. In addition, the construction works would be temporary, therefore, effects associated with HGV traffic on the local road network would only occur over the duration of works. There is predicted to be a maximum of 68 two-way vehicle trips per day in the busiest month of construction and less thereafter.



- 10.13.3 A CTMP would be implemented prior to any construction commencing on site to ensure that the proposed approach to managing construction traffic, including potential effects of dust and debris, is addressed and considers key receptors appropriately.
- 10.13.4 It is therefore considered that residual effects to the public road network during construction would be temporary, **negligible** and **not significant**.

#### Accidents and Safety

- 10.13.5 The existing traffic levels on minor roads are low and the volumes of vehicles expected to / from the site would be insignificant in comparison to the volumes of traffic currently utilising the surrounding major road network. Scheduling the operating time outwith the commuter peak periods would assist with minimising any potential travel disruption. Dirt and debris would be controlled with netting, covers and wheel washes. Management would be in place to assist with vehicle break-downs to minimise network disruption. There would therefore be a residual negligible and not significant effect to disruption and driver delay from vehicle breakdowns or dirt and debris on the roads.
- 10.13.6 The haulage route would predominately consist of strategic standard roads regularly utilised for similar purposes. It is considered that there would be a **negligible** and **not significant** effect as a result of construction operations.

#### Fear, Intimidation and Pedestrian / Cyclist Amenity

- 10.13.7 The applicant will ensure that the core path is accessible during construction. Walkers and other users could utilise the core path while construction traffic was either temporarily halted (by personnel positioned at the ends of the core path or controlled so that there would be no need for temporary closures, or they could put in place a barriered and segregated walkway or any other form of alternate provision. This system would be in place during working hours and supervised by a Banksman or another site operative. This will be put in place via the Construction Traffic Management Plan and agreed with ACRD.
- 10.13.8 The access road will be signposted as a 5mph speed limit and warning signs advising that pedestrian could be on the road will be erected on approach to the substation from both directions.
- 10.13.9 No element of the development area will be open to the public, as such, there will be no interaction
- 10.13.10 Overall, therefore, it is considered that the addition of construction traffic on the local road network would result in a **negligible** and **not significant** effect in terms of fear, intimidation and pedestrian / cyclist amenity.

#### Severance

10.13.11 The site currently has limited access given it is farmland, therefore, there would be **negligible** and **not significant** effects in terms of severance of pedestrian, cycle or vehicular routes during the construction phase.

#### **Public Transport**

10.13.12 The construction phase would not cause any disruption to surrounding bus routes. The predicted increase in hourly HGV movements would not result in an increase to bus journey times. It is therefore considered that there would be **negligible** and **not significant** effects to public transport during construction.

#### Operation

#### Public Road Network

10.13.13 The assessment of the surrounding road network has demonstrated that there is sufficient capacity to accommodate the Proposed Development. It is therefore considered that the level of predicted traffic flow change associated with the operation of the Proposed Development would be of **negligible** and **not significant**.

#### Accidents and Safety

10.13.14 The predicted changes to travel patterns on the local road network as a result of the Proposed Development would be of **negligible** and **not significant** in terms of accidents and safety.

#### **Disruption and Driver Delay**

10.13.15 The predicted changes to traffic flows on local roads, following the introduction of mitigation measures, would be unlikely to result in a material disruption or delay once the Proposed Development is operational. It is considered, therefore, that there would be **negligible** but **not significant** effects to disruption or driver delay.

#### Fear, Intimidation and Pedestrian / Cyclist Amenity

- 10.13.16 The predicted changes to traffic flows on local roads, following the introduction of mitigation measures, would be unlikely to result in a material impact on pedestrian / cycle fear, intimidation and pedestrian / cyclist amenity. The change in traffic flow per day, on average, is unlikely to be appreciable by pedestrians or cyclists on the road network given the minor percentage change in traffic. The adopted infrastructure provides safe and continuous access to the amenities within the settlement which ensures that there will be limited interaction between development traffic and pedestrians and cyclists.
- 10.13.17 The Proposed Development will have a **negligeable** and **not significant** beneficial effect on fear, intimidation and pedestrian / cycle amenity once operational.

#### Severance

10.13.18 The site currently has limited access given it is farmland, therefore, there would be **negligible** and **not significant** effects in terms of severance of pedestrian, cycle or vehicular routes during the operational phase.

#### Public Transport

10.13.19 The operational phase would not cause any disruption to surrounding bus routes. The predicted increase in hourly traffic movements would not result in an increase to bus journey times. It is therefore considered that there would be **negligible** and **not significant** effects to public transport during operation.

#### **10.14 Cumulative Assessment**

10.14.1 No committed developments have been highlighted by AC Planning or Roads which would have a material impact on the agreed study network.

#### 10.15 Summary

- 10.15.1 **Table 10-6** summarises the potential effects to transport and access of the construction and operation of the Proposed Development. It also outlines the recommended mitigation measures and summarises the resultant residual effects.
- 10.15.2 The assessment has confirmed that there are no significant environmental effects predicated during either the construction or operational phases of the Proposed Development.

Table 10.0. Summary of Enects							
	Significanc	ce of Potential Effect	Mitigation and/or Enhancement	Significance of Residual Effect			
Description of Effect	Significance	Beneficial/ Adverse	Mitigation and/or Enhancement Measures	Significance	Beneficial/ Adverse		
Construction							
Construction - Traffic flows on public road network	Negligeable	Adverse	Traffic Management Plan as part of a wider CEMP	Minor	Adverse		
Construction - Accidents and safety	Negligible	Adverse	Traffic Management Plan as part of a wider CEMP	Negligible	Adverse		
Construction - Disruption and Driver Delay due to vehicle breakdowns or dirt and debris on road	Minor	Adverse	Traffic Management Plan as part of a wider CEMP	Negligible	Adverse		
Construction - Disruption and Driver Delay due to change in traffic flows	Negligible	Adverse	Traffic Management Plan as part of a wider CEMP	Negligible	Adverse		
Construction - Fear, Intimidation and Pedestrian / Cyclist Amenity	Negligible	Adverse	Considerate Constructors Scheme	Negligible	Adverse		
Construction - Severance	Negligible	Adverse	No change to current situation.	Negligible	Adverse		
Construction - Public Transport	Negligible	Adverse	Traffic Management Plan as part of a wider CEMP	Negligible	Adverse		
Operation							
Operational - Traffic flows on public road network	Negligible	Adverse	Operational Traffic Management Plan	Negligible	Adverse		
Operational - Accidents and safety	Negligible	Adverse	Operational Traffic Management Plan	Negligible	Adverse		
Operational - Disruption and Driver Delay	Negligible	Adverse	Operational Traffic Management Plan	Negligible	Beneficial		

#### Table 10.6: Summary of Effects

Operational - Fear, Intimidation and Pedestrian / Cyclist Amenity	Negligeable	Adverse	Operational Traffic Management Plan	Moderate	Beneficial
Operational - Severance	Negligeable	Adverse	No change to current situation.	Moderate	Beneficial
Operational - Public Transport	Negligeable	Adverse	Operational Traffic Management Plan	Minor	Beneficial