Table 11 Construction Traffic Profile (Two-Way Trips)

Activity	Class	Month																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Site mobilisation	HGV	40	40	40	20	20	20	20	40	40	40	40	40	40	40	40	40	40	40
General Site Deliveries	HGV	40	40	40	40	40	40	40	3,504	3,504	3,504	3,504	3,504	3,504					
Aggregate Deliveries	HGV		3,504	3,504	3,504	3,504	3,504	3,504	536	536	536	536							
Concrete Deliveries	HGV							536	39	39	39	39							
Reinforcement Deliveries	HGV							39		78	78	78	78						
Substation and BESS	HGV										4	4	4	4					
Cabling & Ducting Deliveries	HGV										41	41	41	41					
Cabling Sand	HGV										6								
Geotextile Deliveries	HGV		6				6					20						20	
AIL Cranage	HGV												99	99	99	99	99	99	
AIL Deliveries	HGV												78	78	78	78	78	78	
AIL Escorts	Car/LGV													30	30	30	30	30	30
Reinstatement	Car/LGV																30	30	30
Testing and Commissioning	Car/LGV																		
BEMP Implementation Works	Car/LGV	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
Staff	Car/LGV	924	1,408	1,848	1,848	1,848	1,848	1,848	1,848	1,848	1,848	1,848	1,848	1,848	1,848	1,848	1,848	1,408	924
Total HGV		80	3,590	3,584	3,564	3,564	3,570	4,138	4,196	4,196	4,246	4,260	3,765	3,687	139	139	139	139	60
Total Cars / LGV		964	1,448	1,888	1,888	1,888	1,888	1,888	1,888	1,888	1,888	1,888	1,966	1,996	1,996	1,996	2,026	1,586	1,024
Total Movements		1,044	5,038	5,472	5,452	5,452	5,458	6,026	6,084	6,084	6,134	6,148	5,731	5,683	2,135	2,135	2,165	1,725	1,084
Total HGV per Day		**4**	**164**	**164**	**162**	**162**	**164**	**190**	**192**	**192**	**194**	**194**	**172**	**168**	**8**	**8**	**8**	**8**	**4**
Total Cars / LGV per Day		**44**	**66**	**86**	**86**	**86**	**86**	**86**	**86**	**86**	**86**	**86**	**90**	**92**	**92**	**92**	**94**	**74**	**48**
Total per Day		**48**	**230**	**250**	**248**	**248**	**250**	**276**	**278**	**278**	**280**	**280**	**262**	**260**	**100**	**100**	**102**	**82**	**52**

Please note minor variances due to rounding may occur.
Calculations assume that there are 22 working days per month.

The peak of construction activity is expected to occur in month 11 when there would be a total of 6,148 vehicle movements which would result on average of 280 vehicle movements per day, comprising 194 two-way HGV movements and 86 two-way car / LGV movements.

This would equate to approximately 23 two-way total vehicles movements including 16 two-way HGV movements per hour, across a typical 12-hour day, assuming a flat traffic profile, where traffic arrived and departed the Site equally throughout the working day.

It should however be noted that the Proposed Development's trip generation assumes that 100% of all aggregate materials would be imported to the Site from nearby quarries and should therefore be considered a significant over-estimate of the number of HGV movements that would travel to and from the Site during the peak month of activity. It is expected that up to 100% of these aggregate requirements would be sourced from on-site extraction of materials related to construction of site infrastructure (e.g. BESS and substation compounds) and from the four on-site borrow pits.

In a scenario whereby 100% of aggregate material would be won on-site, with the exception of sand and aggregates required for on-site concrete batching, the peak of construction activity is still expected to occur in month 11 where there would be a total of 122 vehicle movements per day, comprising 36 two-way HGV movements and 86 two-way car / LGV movements.

This would equate to approximately 10 two-way total vehicles movements including three two-way HGV movements per hour, across a typical 12-hour day, assuming a flat traffic profile, where traffic arrived and departed the Site equally throughout the working day.

6.1.6 Distribution of Construction Trips

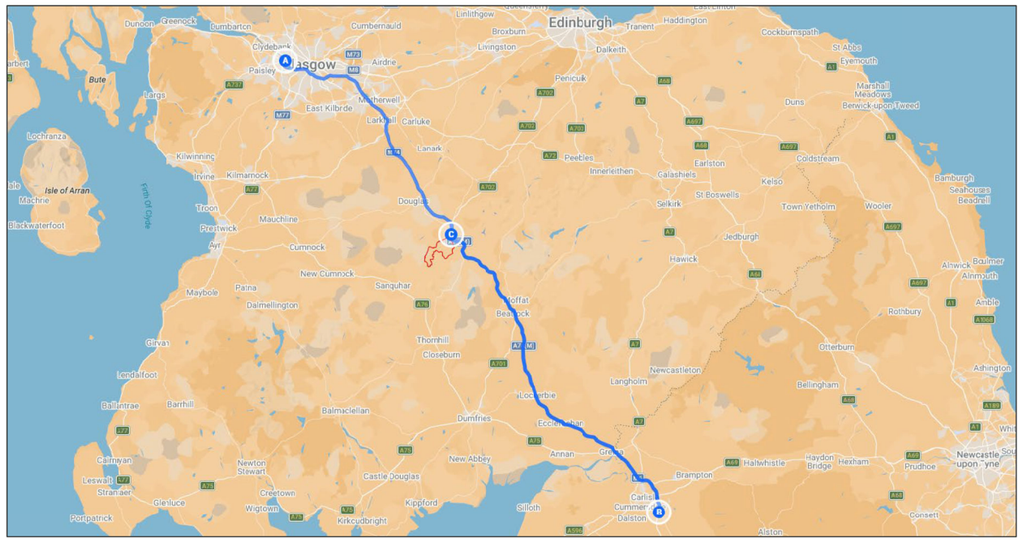
The distribution of Proposed Development construction traffic on the network would vary depending on the types of loads being transported. The assumptions for the distribution of construction traffic during the construction phase are as follows:

- All general construction traffic enters the Site via the B797;
- Deliveries associated with concrete materials, such as sand, aggregate, cement powder and water, would be sourced from concrete suppliers, which for the purpose of this assessment would originate from the A74(M) or M74 and would be delivered to Site via Junction 14 of the A74(M), the A702 and B797. As a worst-case assessment, it is assumed that 100% of materials would come from both the north and south;
- For the purpose of this assessment it is proposed that 100% of access track and hardstand aggregate requirements would be sourced from local quarries to the north, which are assumed to originate from the M74, travelling through to the Site via Junction 14 of the A74(M), the A702 and B797;
- HGV deliveries associated with batteries, cabling and associated materials, etc. would arrive via the M74 from the north and would travel through to the Site via the A702 and B797;
- Staff working at the Site are likely to be based locally. It is assumed that 15% would come from the direction of Leadhills, 15% would come from Biggar, and the remaining 70% would be split equally between the north and south via the M74 / A74(M); and
- General site deliveries would be from the north via the M74 and would travel to the Site from Junction 14 via the A702 and B797. No HGVs are proposed to travel through Leadhills or Abington villages.

For the purposes of preparing **Chapter 9**: **Traffic and Transport (EIAR Volume 2)** and this TA, it has been assumed that all AIL traffic would access the Site from KGV Docks by travelling southbound along the M74 (A74(M)) and M6, where it would then turn at the Golden Fleece Interchange and travel northbound until it reaches at a newly provided dedicated off-slip access junction on the A74(M) to the south of Junction 13 near Abington, which would provide direct access to the Site.

The above route is shown in **Figure 9**.

Figure 9 AIL Component Delivery Route



The above route has been considered in detail, within the AIL RSR, provided in **Annex B**.

6.1.7 Peak Construction Traffic

Following the distribution and assignment of traffic flows to the Study Area network, the resultant daily traffic during the peak of construction (month 11) are summarised in **Table 12**.

Table 12 Peak Daily Construction Traffic

No.	Survey Location	Cars & Lights	HGV	Total
1	B797, at Site Accesses	86	194	279
2	B797, north of Leadhills	14	0	14
3	A702, north of Abington Village	73	0	73
4	A702, north of A702/Carlisle Rd/A74(M) Rbt	0	194	194
5	M74, south of Junction 12	31	194	225
6	A74(M), north of Junction 14	31	194	225

Please note that variances may occur due to rounding.

Note, where road links show no construction traffic, this is due to those road links not being used during the peak month of construction activity.

6.2 Operational Phase

In the operational phase, it is envisaged that the level of traffic associated with the Proposed Development would equate to on average two vehicle trips per week which is considered negligible and therefore no detailed assessment of the operational phase of the Proposed Development is proposed.

6.3 Decommissioning Phase

Prior to decommissioning of the Site, a traffic assessment would be undertaken, and appropriate traffic management procedures followed.

The decommissioning phase would result in fewer trips on the road network than the construction or operational phase as it is considered likely that elements of infrastructure such as access tracks would be left in place and structures may be broken up on Site to allow transport by a reduced number of HGVs.

7 Traffic Impact Assessment

7.1 Construction Impact

The peak month (month 11) traffic data was combined with the future baseline year (2035) traffic data to allow a comparison between the baseline results to be made. The increase in traffic volumes is illustrated in percentage increases for each class of vehicle. This is illustrated in **Table 13**.

Table 13 2035 Baseline + Construction Development – Flows and Impact

Ref No.	Survey Location	Cars & LGV	HGV	Total Traffic	Cars & LGV % Increase	HGV % Increase	Total Traffic % Increase
1	B797, at Site Accesses	462	269	732	22.78%	255.48%	61.77%
2	B797, north of Leadhills	529	18	548	2.80%	0.00%	2.70%
3	A702, north of Abington Village	1,922	115	2,038	3.96%	0.00%	3.73%
4	A702, north of A702/Carlisle Rd/A74(M) Rbt	867	321	1,188	0.00%	152.62%	19.48%
5	M74, south of Junction 12	23,734	12,524	36,257	0.13%	1.57%	0.62%
6	A74(M), north of Junction 14	26,017	13,520	39,537	0.12%	1.45%	0.57%

Please note minor variances due to rounding may occur.

The total traffic movements are predicted to increase by a maximum of 61.77% on the B797 and 19.48% on the A702, north of A702 / Carlisle Rd / A74(M) roundabout. At all other locations, the total increase is less than 10% which are within generally acceptable traffic flow variations..

Table 13 shows that highest HGV traffic movements increase would occur on the B797, where it is estimated to increase by 255.48%, and whilst this increase could be considered statistically high, it is generally caused by the low HGV flows on the road at this location. The second highest HGV traffic movements increase would occur on the A702, north of A702 / Carlisle Rd / A74(M) Rbt, where it is estimated to increase by 152.62%.

To put the increase into perspective, the B797 and A702, north of A702 / Carlisle Rd / A74(M) Rbt, would see an additional 194 HGV movements per day or 16 HGV movements per hour over the course of a typical 12-hour shift. This is not considered significant in terms of overall traffic flows.

A review of existing theoretical road capacity has been undertaken using The NESA Manual[20], formerly part of the Design Manual for Roads and Bridges, Volume 15, Part 5. The theoretical road capacity has been estimated for each of the road links for a 12-hour period that makes up the Study Area. The results are summarised in **Table 14**.

Table 14 2035 Peak Traffic Flow Capacity Review

Ref. No.	Survey Location	2035 Baseline Flow	2035 Base + Development Flows	Theoretical Road Capacity (12hr)	Spare Road Capacity %
1	B797, at Site Accesses	452	732	21,600	97%
2	B797, north of Leadhills	533	547	21,600	97%
3	A702, north of Abington Village	1,965	2,038	21,600	91%
4	A702, north of A702/Carlisle Rd/A74(M) Rbt	994	1,188	21,600	95%
5	M74, south of Junction 12	36,032	36,258	136,800	73%

[20] Department for Transport (2013), Design Manual for Roads and Bridges, Volume 15, Part 5 "The NESA Manual". Available at: http://www.sias.com/2013/TS/201303NesaManual.pdf

Ref. No.	Survey Location	2035 Baseline Flow	2035 Base + Development Flows	Theoretical Road Capacity (12hr)	Spare Road Capacity %
6	A74(M), north of Junction 14	39,312	39,538	136,800	71%

The results indicate there are no road capacity issues with the addition of construction traffic associated with the Proposed Development.

8 Proposed Traffic Mitigation Measures

8.1 Construction Traffic

8.1.1 Construction Traffic Management Plan (CTMP)

During the construction period, a project website, blog or social media feed would be regularly updated to provide the latest information relating to traffic movements associated with vehicles accessing the Site. This would be agreed with SLC.

The following measures would be implemented during the construction phase through the CTMP:

- Agree AIL route modifications and improvements with SLC, TS and other relevant stakeholders. Works which would be required to facilitate turbine deliveries are outlined in the RSR, which is presented in **Annex B**;
- Where possible, the detailed design process would minimise the volume of material to be imported to Site to help reduce HGV numbers;
- A Staff Travel Plan, including transport modes to and from the worksite (including pick up and drop off times);
- A Transport Management Plan for AIL deliveries;
- All material delivery lorries (dry materials) should be sheeted to reduce dust and stop spillage on public roads;
- Specific training and disciplinary measures should be established to ensure the highest standards are maintained to prevent construction vehicles from carrying mud and debris onto the carriageway;
- Wheel cleaning facilities may be established at the Site entrance, depending on the views of SLC;
- Normal Site working hours will be limited to between 0700 and 1900 Monday to Friday and 0700 and 1300 on Saturdays though component delivery and turbine erection may take place outside these hours i.e. depending on when police escort is available;
- Appropriate traffic management measures would be put in place on the B797 leading through to the Site, to avoid conflict with general traffic, subject to the agreement of SLC. Typical measures would include HGV turning and crossing signs and / or banksmen at the Site access and warning signs;
- Provide construction updates on the project website, social media feeds and a newsletter to be distributed to residents within an agreed distance of the Site;
- Adoption of a voluntary reduced speed limits, for example on the B797 in the vicinity of the Site access junction and at other locations to be agreed with SLC;
- All drivers would be required to attend an induction to include:
    - A toolbox 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.

SLC may request that an agreement to cover the cost of abnormal wear and tear on its road network is made. Video footage of the pre-construction phase condition of the abnormal loads access route and the construction vehicles route would be recorded to provide a baseline of the condition of the road prior to any construction work commencing. This baseline would provide evidence of any change in the road condition during the construction phase. Any necessary repairs would be coordinated with SLC's roads team. Any damage caused by traffic associated with the Proposed Development during the construction period, which would be hazardous to public traffic, would be repaired immediately.

Damage to road infrastructure caused directly by construction traffic would be remediated, and street furniture that is removed on a temporary basis would be fully reinstated.

There would be a regular road condition review, and any debris and mud would be removed from the carriageway using an on-site road sweeper to ensure road safety for all road users.

Before the AILs traverse the proposed delivery route, the following tasks would be undertaken to ensure load and road user safety:

- Ensure any vegetation which may foul the loads is trimmed back to allow passage;
- Confirm there are no roadworks or closures that could affect the passage of the loads;
- Check no new or diverted underground services on the proposed route are at risk from the abnormal loads; and
- Confirm the police are satisfied with the proposed movement strategy.

8.2 Abnormal Load Traffic

8.2.1 Abnormal Load Transport Management Plan

There are a number of traffic management measures that could help reduce the effect of AIL convoys.

All AIL deliveries would be undertaken at appropriate times (to be discussed and agreed with the local authority, TS and the police) with the aim to minimise the effect on the local road network. It is likely that the abnormal load convoys would travel in the early morning periods before peak times while general construction traffic would generally avoid the morning and evening peak periods.

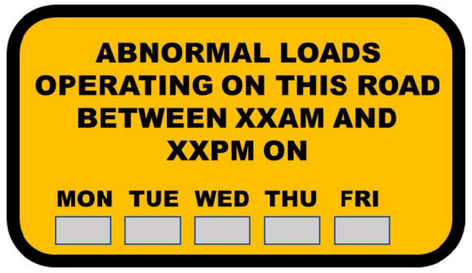
The majority of potential conflicts between construction traffic and other road users would occur with AIL traffic. General construction traffic is not likely to come into conflict with other road users as the vehicles are smaller and road users are generally more accustomed to them.

Potential conflicts between the AILs and other road users can occur at a variety of locations and circumstances. The main potential conflicts are likely to occur:

- On sections of single carriageway road or narrow road sections, for example on the B797;
- At locations where there are significant changes in the horizontal alignment of the carriageway, requiring the loads to use the full carriageway width;
- Where traffic turns at a road junctions, requiring other traffic to be restrained on other approach arms; and
- In locations where high speeds of general traffic are predicted.

Advance warning signs would be installed on the approaches to the affected road network. Information signage could be installed to help assist drivers and an example is illustrated in **Figure 10**. Flip up panels (shown in grey) would be used to mask over days where convoys would not be operating. When no convoys are moving, the sign would be covered by the Traffic Management contractor.

Figure 10 Example Information Sign



This signage would assist improving driver information and allow other road users to consider alternative routes or times for their journey (where such options exist). The location and numbers of signs would be agreed post consent and would form part of the Traffic Management Propcsal for the project.

The Abnormal Load Transport Management Plan would also include:

- Procedures for liaising with the emergency services to ensure that police, fire and ambulance vehicles are not impeded by the loads. This is normally undertaken by informing the emergency services of delivery times and dates, and agreeing communication protocols and lay over areas to allow overtaking;