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Introduction

- 12.1 The application for the Proposed Development was accompanied by an Environmental Impact Assessment (EIA) Report. **Chapter 12** of that EIA Report considered the potential significant effects on traffic and the transport network that could arise from the Proposed Development. That assessment was based on estimates of the vehicle movements that could be generated during the construction of the Proposed Development; potential effects arising from the operation and decommissioning of the Proposed Development were scoped out of that assessment.
- 12.2 The estimates of vehicle movements presented in **Chapter 12** of the EIA Report were based on estimates of material volumes calculated from the application layout. As explained in **Chapter 3: Description of Development** of this Supplementary Environmental Information (SEI) Report, elements of that layout have been revised, with a consequent change in material volumes and hence vehicle movements.
- 12.3 This chapter of the SEI Report presents updated estimates of vehicle movements based on the revised layout and considers whether those updated estimates alter any of the conclusions drawn in **Chapter 12** of the EIA Report. This chapter should be read in conjunction with the following parts of the EIA Report: **Chapter 12**, **Figures 12.1** to **12.5** and **Technical Appendices 12.1** to **12.4**.

Consultee Responses to EIA Report

12.4 The Highland Council's (THC's) Transport Planning team's consultation response to the Proposed Development (dated 29 July 2024) stated:

"Based on the information provided in the EIA, the Transport Planning Team consider the impact of construction traffic on the Council's road network to be significant but accept that the impact can be managed with appropriate mitigation. Further detailed assessment of Council maintained roads comprising access routes to the site will be required before detailed measures to mitigate the impact of the development can be agreed. It is recommended that any consent granted includes appropriate planning conditions or agreements to address the following:"

- 12.5 The planning conditions suggested in the THC's Transport Planning team's consultation response required the following prior to commencement of the Proposed Development:
 - a Construction Traffic Management Plan (CTMP);
 - an assessment of affected bridges and other structures;
 - a schedule of 'Advanced Road Mitigation Works';
 - a 'Road Mitigation Schedule of Works and Transport Report';
 - an updated Route Assessment Report for abnormal loads;
 - consultation regarding decommissioning and notification; and
 - approval for any significant HGV or abnormal load movements during operation.
- 12.6 Transport Scotland (TS) is the road authority for the A87 trunk road, which would be used by some vehicles travelling to and from the Proposed Development. The TS consultation response of 28 September 2023 advised that they had no objection to the Proposed Development, subject to three conditions covering the following:



- prior approval by TS for abnormal load movements;
- prior approval of any temporary traffic control measures; and
- submission of a CTMP.
- 12.7 The Applicant is content that the conditions suggested by THC's Transport Planning team and TS can be attached to any forthcoming planning permission.

Design Amendments

Overview

- 12.8 **Chapter 3** of this SEI Report describes the revisions to the layout of the Proposed Development compared to the layout submitted with the application and upon which the vehicle movement estimates in **Chapter 12** of the EIA Report were based.
- 12.9 One of the main components of the total number of vehicle movements is the length of access track (and the consequent amount of aggregate required to form the track). **Table 3.2** in **SEI Chapter 3** shows that the longest length of track for the revised layout would be Option B at 8.4km, with a further 1.4km of track required should the proposed link require to be constructed (in the absence of the proposed Ben Sca Wind Farm infrastructure). The combination of Option B and the proposed link would therefore require the greatest amount of aggregate (and hence vehicle movements) and has been used as the basis for the calculations in this SEI Chapter.
- 12.10 Other elements of the Proposed Development that would affect the number of vehicle movements include the number of turbine components, turbine foundations, turning heads and crane hardstandings. **Table 12-1** compares the key design elements of the revised layout with those of the application layout.

Table 12-1: Comparison of Key Design Elements Between Application Layout and Revised Layout

Element	Application Layout	Revised Layout	Change
Number of turbines	10	9	-1
New Track – Option B	9.4km	8.4km	- 1.0km
Proposed link (Consented Ben Sca Access Track)	n/a	1.4km	+ 1.4km
Crane hardstandings	10	9	-1
Turning heads	9	6 ¹	-3
Substation	1	1	No change
Construction compounds	1	2 (1 temporary and 1 permanent)	+1 compound



¹ The turning head proposed to the west of T9 may also be able to be removed from the design layout but is subject to further onsite investigation to confirm during the pre-construction stage. If removed, aggregate required would therefore be further reduced to the requirement for five turning heads.

Aggregate

12.11 The changes to the key elements of the Proposed Development shown in **Table 12-1** have consequent changes to the amount of aggregate that was estimated and presented in **Table 12-10** of the EIA Report. The information from that table is reproduced in **Table 12-2** and compared to updated estimates based on the revised layout.

Table 12-2: Comparison of Amount of Aggregate Between Application Layout and Revised Layout

Flowert	Amount of Aggregate (t)					
Element	Application Layout	Revised Layout	Change			
Site Tracks (excluding proposed link)	56,424	50,364	-6,060			
Proposed link (required only in the absence of Ben Sca Wind Farm infrastructure)	0	8,424	8,424			
Turning Heads	24,750	16,500	-8,250			
Turbine bases (formation only)	5,290	4,761	-529			
Aggregate for Turbine Foundations Concrete	5,200	4,680	-520			
Fill above turbine bases (Backfill)	26,620	23,958	-2,662			
Hardstandings	51,680	46,512	-5,168			
Aggregate for Met Mast Foundation Concrete	128	128	0			
Substation	2,100	2,100	0			
Construction Compounds	8,000	13,000	5,000			
Total	180,192	170,427	-9,765			

12.12 **Table 12-2** shows that the revised layout would require around 5% less aggregate than the application layout.

Non-Aggregate Materials

12.13 **Table 12-11** of the EIA Report provided estimated quantities for materials other than aggregate for the application layout. Those estimates are reproduced in **Table 12-3** and compared to updated estimates based on the revised layout.



		Quantity		
Element Material		Application Layout	Revised Layout	Change
	Installation 6N Structural Fill	3,946t	3,551t	-395t
	Blinding	566t	509t	-57t
	Installation of Can/Bolts	10	9	-1
	Reinforcement	639t	577t	-62t
Turbine & Met Mast	Plinth Shutter	37t	33t	-4t
Foundations	Base Slab Perimeter Shutter	87t	79t	-9t
	Ducts (200mm diameter)	60	54	-6
	Ducts (75mm diameter)	60	54	-6
	Transformer Plinths	10	9	-1
	Step Plinth	10	9	-1
Floatrical Connection	Sand Layer – 6m x 3m x 3,400m	1,360t	1,224t	-136t
Cable – Drums hold 500m		8 drums	7 drums	-1 drum
Cement	Turbines and met mast concrete	1,865t	1,683t	-182t
Sand	For mixing concrete	5,328t	4,808t	-520t
Control Building	Reinforcement	43t	43t	Ot
	Imported type 1 running surface	1,142t	1,142t	Ot
Substation Compound	Imported 6F2 Capping	2,286t	2,286t	Ot
	Class 1C1 Roadbox bulk fill	5,714t	5,714t	Ot
	Class 1 general fill	15,298t	15,298t	Ot

Table 12-3: Comparison of Non-Aggregate Material Quantities Between Application Layout and Revised Layout

12.14 **Table 12-3** shows that the revised layout would require fewer non-aggregate materials than the application layout.

Vehicle Movements

Heavy Goods Vehicles

12.15 Heavy Goods Vehicles (HGVs) would be required to deliver the materials listed in **Table 12-2** and **12-3** to the Proposed Development site. **Tables 12-12** and **12-13** in the EIA Report estimated HGV loads for aggregate and non-aggregate materials respectively based on the application layout. **Table 12-12** in the EIA Report presented estimates based on all aggregate needing to be imported to the Proposed Development based on the application layout and an alternative whereby only 40% would need to be imported, with the balance from onsite borrow pits.



12.16 The number of HGV movements for the delivery of aggregate based on the revised layout of the Proposed Development have been estimated based on the quantities in **Table 12-2** in this SEI Report. Those estimates are compared to the estimates in **Table 12-12** of the EIA Report in **Table 12-4** of this SEI Report. Both estimates are based on all aggregates needing to be imported, as that results in higher estimates of HGV movements on the road network than assuming some aggregate is won from on-site borrow pits.

Table 12-4: Comparison of Aggregate HGV Loads Between Application Layout and Revised Layout

Element	Number of HGV Loads (Assuming 20t per HGV)						
Liement	Application Layout	Revised Layout	Change				
Site Tracks (excluding proposed link)	2,821	2,518	-303				
Proposed link (required only in the absence of Ben Sca Wind Farm infrastructure)	0	421	421				
Turning Heads	1,238	825	-413				
Turbine bases (formation only)	265	238	-27				
Aggregate for Turbine Foundations Concrete	260	234	-26				
Fill above turbine bases (Backfill)	1,331	1,198	-133				
Hardstandings	2,584	2,326	-258				
Aggregate for Met Mast Concrete	6	6	0				
Substation	105	105	0				
Construction Compounds	400	650	250				
Total	9,010	8,521	-489				

- 12.17 The data in **Table 12-4** shows that the revised layout would result in around 489 fewer HGV loads to deliver aggregate than envisaged in the application layout, a reduction of around 5%.
- 12.18 The number of HGV loads for the delivery of non-aggregate materials based on the revised layout of the Proposed Development have been estimated based on the quantities in **Table 12-3** in this SEI Report. Those estimates are compared to the estimates in **Table 12-13** of the EIA Report in **Table 12-5** of this SEI Report.

Table 12-5: Comparison of Non-Aggregate HGV Loads Between Application Layout and Revised Layout

			Number of		
Element	Material	Load Size per HGV	Application Layout	Revised Layout	Change
Turbine &	Installation 6N Structural Fill	20t	197	178	-20
Met Mast	Blinding	20t	28	25	-3
Foundations	Installation of Can/Bolts	-	1	1	0



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			Number of		
Element	Material	Load Size per HGV	Application Layout	Revised Layout	Change
	Reinforcement	20t	32	29	-3
	Plinth Shutter	-	1	1	0
	Base Slab Perimeter Shutter	-	1	1	0
	Ducts (200mm diameter)	-	1	1	0
	Ducts (75mm diameter)	-	1	1	0
	Transformer Plinths	-	10	9	-1
	Step Plinth	-	10	9	-1
Electrical	Sand Layer – 6m x 3m x 3,400m	20t	68	61	-7
Connection	Cable – Drums hold 500m	-	8	8	0
Temporary Welfare Facilities		-	4	4	0
Cement	Turbines and met mast concrete	20	93	84	-9
Sand	For mixing concrete	20t	266	240	-26
Control Building	Reinforcement	20t	3	2	-1
	Imported type 1 running surface	20t	57	57	0
Substation	Imported 6F2 Capping	20t	114	114	0
Compound	Class 1C1 Roadbox bulk fill	20t	286	286	0
	Class 1 general fill	20t	765	765	0
	Total		1,946	1,877	-69

12.19 The data in **Table 12-5** shows that the revised layout would result in around 69 fewer HGV loads to deliver non-aggregate materials than envisaged in the application layout, a reduction of around 3.5%.



12.20 The change in total HGV loads between the revised layout and the application layout is shown in **Table 12-6**.

|--|

Flowers	Number o			
Liement	Application Layout	Change		
Aggregate	9,010	8,521	-489	
Non-aggregate	1,946	1,877	-69	
Total	10,956	10,398	-558	

- 12.21 The data in **Table 12-6** shows that the revised layout would result in around 558 fewer HGV loads than envisaged in the application layout, a reduction of around 5%.
- 12.22 As noted in **paragraph 12.89** of **EIA Chapter 12**, the majority of Balance of Plant construction activities (excluding Turbine Works, comprising delivery, installation and commissioning activities) would be expected to generate HGV loads spread over the first 12 months of the construction phase, as indicated in the construction programme, with the final six months predominantly comprising Turbine Works and light vehicle trips for snagging and restoration activities, followed by operational takeover.
- 12.23 The data in **Tables 12-5** and **12-6** refer to HGV loads, and each HGV load would result in two movements on the road network one as the HGV arrived at the Proposed Development and one as it departed. **Table 12-14** in the EIA Report submitted with the application layout presented daily HGV movements for each month of the 12-month Balance of Plant construction programme of the Proposed Development, based on an estimate of there being 26 working days per month.
- 12.24 **Table 12-7** compares the total number of HGV movements per day during each month of the Balance of Plant construction programme for the Proposed Development based on the application layout with the number based on the revised layout.

Table 12-7: Comparison of Daily HGV	Movements Between	Application Layout and Revised
Layout		

		Number of Daily HGV Movements per Month										
Layout	1	2	3	4	5	6	7	8	9	10	11	12
Application	18	18	88	70	70	70	108	141	141	73	35	35
Revised	17	17	84	67	67	67	103	133	133	68	32	32
Change	-1	-1	-4	-3	-3	-3	-5	-8	-8	-5	-3	-3

^{12.25} The data in **Table 12-7** shows that the revised layout is expected to result in fewer HGV movements per day over the 12-month Balance of Plant construction programme than envisaged in the application layout. The busiest months for vehicle movements would be months eight and nine of the construction programme, but the number of vehicle movements in those months would still be fewer than the number in the peak months envisaged in the EIA Report submitted with the application layout.



Abnormal Indivisible Load Vehicles

- 12.26 The delivery of the turbine components during construction would require Abnormal Indivisible Load Vehicle (AILV) movements as some of the vehicles carrying the components would have at least one dimension that does not comply with the maxima in The Road Vehicles (Construction and Use) Regulations 1986.
- 12.27 **Chapter 12** of the EIA Report stated that there would be eight AILV deliveries per turbine making a total for 80 AILV movements. The reduction in the number of turbines in the revised layout would mean that there would be only 72 AILV movements.
- 12.28 As noted in **paragraph 12.95** of **EIA Chapter 12**, to ensure a robust assessment, it has been assumed that up to three abnormal load transport vehicles would deliver components on a day during the 'worst case' month, with an additional two HGV deliveries included for the crane and drilling rig; this gives a 'worst case' total of five HGV deliveries per day.

Cars and Vans

12.29 **Chapter 12** of the EIA Report estimated that there would be 32 vehicle arrivals per day. These would be associated with staff and deliveries of small items. The revised layout is not expected to alter that earlier estimate.

All Vehicles

12.30 **Table 12-16** in the EIA Report presented estimated daily vehicle movements for the busiest month during the Balance of Plant construction programme, which is expected to be months eight and nine (as shown in **Table 12-7**). Those estimates are shown in **Table 12-8** along with updated estimates based on the revised layout.

Table 12-8: Comparison of Daily Vehicle Movements during Busiest Month Between Application and Revised Design

Layout	Number of Vehicle Movements During Busiest Month		
	HGVs and AILVs	Cars and Vans	All
Application	146	64	210
Revised	138	64	202
Change	-8	0	-8

12.31 **Table 12-8** shows that the revised layout is expected to reduce vehicle movements on the road network during the busiest month of construction when compared to the application layout.

Revised Figures

- 12.32 The following figures have been updated to accompany this SEI Chapter to show the two options for accessing the site from the Ben Aketil Wind Farm access track via the proposed link (same as consented Ben Sca track) or proposed Ben Sca Redesign track:
 - SEI Figure 12.2.1 Site Access Location (supersedes EIA Figure 12.2.1)
 - SEI Figure 12.2.2 Proposed Abnormal Load Route (supersedes EIA Figure 12.2.2)



12.33 No amendments are proposed to the abnormal load route, just how the site is accessed across the Ben Sca Wind Farm site, in the eventuality that the Ben Sca Wind Farm is built or not. **SEI Figure 12.2.2** shows both track options through the Ben Sca Wind Farm site.

Amendment Effects

- 12.34 The assessment in **Chapter 12** of the EIA Report was based on the peak number of daily movements of 146 as shown in **Table 12-8**. Neither roads authority has objected to the transport aspects of the Proposed Development based on that assessment.
- 12.35 As explained in **paragraph 12.31**, the revised layout is expected to result in fewer vehicle movements on the road network when compared to the application layout. The reduction in vehicle movements would not materially affect the assessments in the EIA Report. There is no need therefore for an update to the assessment presented in **Chapter 12** of the EIA Report. **Chapter 12** of the EIA Report concluded that the Proposed Development would lead to a not significant adverse effect in terms of site access, traffic and transportation. The revised layout does not alter that conclusion.

Cumulative Development Update

Cumulative Baseline

- 12.36 **Table 5-1** of **SEI Chapter 5** provides an updated list of other developments that could cause cumulative effects with the Proposed Development. The status of some wind developments has changed since **EIA Chapter 12** was written so where information on construction traffic movements is available those developments are assessed here. Those developments which are at the scoping stage do not yet have information in the public domain on the number of vehicle movements that could be created during the construction and the routes those vehicles could take. Those developments have therefore not been considered further.
- 12.37 The following wind developments are listed in **Table 5-1** of **SEI Chapter 5** as currently being at the application stage:
 - Ben Aketil Repowering and Extension.
 - Ben Sca Redesign (revised layout).
 - Glen Ullinish II (Redesign).
 - Beinn Mheadhonach Redesign.
- 12.38 The original proposals for Beinn Mheadhonach and Glen Ullinish were considered in **Chapter 12** of the EIA Report and no additional vehicle movements on roads within the study area were envisaged. This remains the case for the redesign proposals due to their access being taken from the south rather than from the A850 to the north of the Balmeanach site. The Ben Aketil Repowering and Extension project would have the potential to add vehicle movements to roads within the study area, being accessed from the A850 to the north or from the south.

Cumulative Effects

12.39 The combined effects which would result should the Proposed Development be constructed alongside the proposed Ben Sca Redesign Wind Farm are discussed in full in **Volume 5** of this SEI Report.



- 12.40 Potential cumulative effects that could arise from the Proposed Development in combination with other proposed wind developments (such as those listed in **paragraph** 12.36, 12.37) would be assessed in the Road Mitigation Schedule of Works and Transport Report, which was requested in one of THC Transport's suggested conditions.
- 12.41 Construction of the Ben Aketil Repowering and Extension Wind Farm would be expected to add a maximum of 318 daily vehicle movements, of which 232 would be HGVs (this assumes that all aggregated required for that development is sourced from off-site locations). **Table 12-18** of **Chapter 12** of the EIA Report showed that the A850 had a baseline daily traffic flow of 799 vehicles and a capacity of 14,891 vehicles. The addition of vehicle movements from the Proposed Development (202 from **Table 12-8** of this SEI Report) and 318 from Ben Aketil would increase the traffic flow on the A850 to 1,319 vehicles, leaving it with around 91% spare capacity.
- 12.42 **Paragraph 12.159** of **Chapter 12** of the EIA Report stated that with "*the addition of the cumulative assessment movements stated in Table 12-18, the A850 would still operate significantly below capacity.*" That conclusion remains valid and therefore no significant effects are identified on the A850, with the measures outlined in the CTMP ensuring that traffic movements are managed.
- 12.43 As noted in **paragraph 12.159** of **EIA Chapter 12**, it is reiterated that in the event that construction of the Proposed Development and any of the identified cumulative wind farm schemes occur concurrently, this would not lead to any additional environmental effect in transportation terms, beyond that already assessed, provided that:
 - abnormal load movements are programmed in conjunction with Police Scotland and the Roads Authorities (THC and TS) so as not to occur on the same day; and
 - days of specific high density vehicle movement (e.g. concrete pour days) are
 programmed so as not to occur on the same day (to be enforced through inclusion
 as a factor within the CTMP, and to be agreed with Police Scotland and the Roads
 Authority accordingly).

Summary of Changes to the Significance of Effects

12.44 **EIA Chapter 12** concluded that the Proposed Development would lead to a not significant adverse effect on traffic and transport. The revised layout would result in fewer vehicle movements throughout the overall balance of plant construction and turbine works programme than were estimated in **EIA Chapter 12**. The revised layout does not change the significance of effects stated in **EIA Chapter 12** and it remains the case that the Proposed Development would lead to an adverse but not significant effect in terms of site access, traffic and transportation.

Conclusions

12.45 The revised layout would result in fewer vehicle movements than were estimated in **EIA Chapter 12** and do not alter the conclusions in that report. The consultation responses provided by both roads authorities to that EIA Report remain valid and suitable traffic management and control measures would be implemented through planning conditions.

