



Dalfad Wind Farm

Technical Appendix 10.2: Assessment Method Details

Brockwell Energy

The Eagle Building
19 Rose Street
Edinburgh
EH2 2PR

Prepared by:

SLR Consulting Limited

The Tun, 4 Jackson's Entry, Edinburgh, EH8 8PJ

SLR Project No.: 413.057968.00001

6 August 2026

Revision: 01

Revision Record

Revision	Date	Prepared By	Checked By	Authorised By
	6 August 2026	IL	GS	DB

Basis of Report

This document has been prepared by SLR Consulting Limited (SLR) with reasonable skill, care and diligence, and taking account of the timescales and resources devoted to it by agreement with Brockwell Energy (the Client) as part or all of the services it has been appointed by the Client to carry out. It is subject to the terms and conditions of that appointment.

SLR shall not be liable for the use of or reliance on any information, advice, recommendations and opinions in this document for any purpose by any person other than the Client. Reliance may be granted to a third party only in the event that SLR and the third party have executed a reliance agreement or collateral warranty.

Information reported herein may be based on the interpretation of public domain data collected by SLR, and/or information supplied by the Client and/or its other advisors and associates. These data have been accepted in good faith as being accurate and valid. SLR may have used artificial intelligence (AI) in the preparation of this document. Should SLR use AI, any information and analysis resulting therefrom will be reviewed for accuracy.

The copyright and intellectual property in all drawings, reports, specifications, bills of quantities, calculations and other information set out in this report remain vested in SLR unless the terms of appointment state otherwise.

This document may contain information of a specialised and/or highly technical nature and the Client is advised to seek clarification on any elements which may be unclear to it.

Information, advice, recommendations and opinions in this document should only be relied upon in the context of the whole document and any documents referenced explicitly herein and should then only be used within the context of the appointment.



Table of Contents

Revision Record.....	i
Basis of Report	i
1.0 Introduction	2
2.0 Assessment Method Details	3
Topics to be Assessed	3
Receptor Sensitivity Definitions.....	5
Magnitude of Change.....	8
Effect Significance	8

Tables in Text

Table 2-1: Degree of Hazard Score.....	4
Table 2-2: Level of Fear and Intimidation Thresholds.....	4
Table 2-3: Fear and Intimidation Magnitude of Change.....	5
Table 2-4: Receptor Sensitivity Definitions	6
Table 2-5: Thresholds for Magnitude of Change by Potential Impact	8
Table 2-6: Effect Significance Matrix based on Magnitude of Change and Receptor Sensitivity	8



1.0 Introduction

- 1.1 **Chapter 10: Access, Traffic and Transport** of the Environmental Impact Assessment (EIA) Report for the proposed Dalfad Wind Farm (the 'Proposed Development') presents an assessment of the potential effects on users of the transport network of the additional vehicle movements that would be generated during the construction, operation and decommissioning of the Proposed Development.
- 1.2 The main guidance document used in the assessment has been the Institute of Environmental Management and Assessment (IEMA¹) 'Guidelines: Environmental Assessment of Traffic and Movement' of July 2023. That document provides *"practitioners with good practice advice on how to carry out the assessment of traffic and movement of people as part of a statutory EIA or non-statutory environmental assessment"*.
- 1.3 This document forms Technical Appendix 10.2 to the EIA Report and provides further details on the following aspects of the assessment method used:
 - A description of the topics to be assessed where warranted by the increase in vehicle movements arising from the Proposed Development;
 - Definitions of the levels of sensitivity applied to receptors;
 - Thresholds for differing levels of the magnitude of change; and
 - A matrix of effect significance.
- 1.4 The above are described in the following chapter.

¹ The IEMA was renamed as The Institute of Sustainability and Environmental Professionals (ISEP) in July 2025.



2.0 Assessment Method Details

Topics to be Assessed

2.1 Where the predicted increase in vehicle movements arising from the proposed development warrants further assessment, the following topics will be assessed:

- Severance;
- Road Vehicle Driver and Passenger Delay;
- Non-Motorised User Delay;
- Non-Motorised User Amenity;
- Fear and Intimidation of and by Road Users; and
- Hazardous / Large Loads.

2.2 These are described in more detail below.

Severance

2.3 Severance is the perceived division that can occur within a community when it becomes separated by major transport infrastructure and the separation of people from places and other people. The IEMA Guidelines say “*Changes in traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively*” and “*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.*”

Road Vehicle Driver and Passenger Delay

2.4 The IEMA Guidelines say “*Traffic delays to non-development traffic can occur at several points on the network surrounding a development site*”. Regarding the significance of effects, the Guidelines say “*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*”.

Non-Motorised User Delay

2.5 The IEMA Guidelines say:

“The assessment of pedestrian delay serves as a proxy for the delay that other modes of non-motorised users may experience when crossing roads.

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.”

2.6 Regarding the significance of effects, the IEMA Guidelines say “*Given the range of local factors and conditions that can influence pedestrian delay (e.g. a discrete delay may have a lesser impact in an urban environment than a rural setting), 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.*”

Non-Motorised User Amenity

2.7 The IEMA Guidelines define this as “*the relative pleasantness of a journey, and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic.*”



They also say “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” and “Thresholds are expressed as a starting point for any assessment and typically have been derived from studies of major changes in traffic flow and therefore should be used cautiously in any assessment. The assessment of amenity should pay full regard to specific local conditions.”

Fear and Intimidation of and by Road Users

- 2.8 This considers the effects that moving vehicles have on people. It considers matters such as the volume of traffic, the proportion of heavy vehicles, the speed of vehicles and the proximity of traffic to people. The IEMA Guidelines set out a means to calculate a ‘degree of hazard score’ based on the amount, composition and speed of traffic. That score is then used to identify which one of four levels of fear and intimidation is applicable. The magnitude of change is based on the degree of change in that level compared to the baseline.
- 2.9 The ‘degree of hazard’ score is calculated from the average hourly traffic flow over 18 hours, the total number of heavy vehicles over 18 hours and the average vehicle speeds over 18 hours. A score is awarded for each element based on the thresholds shown in **Table 2-1** and the three scores are then added to calculate a degree of hazard score. For example, a section of road with an average 18-hour traffic flow of 700 vehicles per hour, 1,500 HGVs over an 18-hour period and an average vehicle speed of 35mph would have a degree of hazard score of 40, comprising an ‘a’ value of 10, a ‘b’ value of 10 and a ‘c’ value of 20.

Table 2-1: Degree of Hazard Score

Average Traffic Flow Over 18-Hour Day – All Vehicles/Hour 2-Way (a)	Total 18-Hour Heavy Vehicle Flow (b)	Average Vehicle Speed (c)	Degree Of Hazard Score (a+b+c)
>1,800	>3,000	>40	30
1,200–1,800	2,000–3,000	30–40	20
600–1,200	1,000–2,000	20–30	10
<600	<1,000	<20	0

- 2.10 The degree of hazard score is equated to a level of fear and intimidation using the thresholds shown in **Table 2-2**.

Table 2-2: Level of Fear and Intimidation Thresholds

Level of Fear and Intimidation	Degree of Hazard Score (a) + (b) + (c)
Extreme	71+
Great	41–70
Moderate	21–40
Small	0–20

- 2.11 The degree of hazard score (and hence the level of fear and intimidation) is calculated for the future baseline and for the future baseline including the number of vehicle movements estimated to be generated during construction. The change in the level of fear and intimidation



between the two calculations is used to inform the magnitude of change based on the thresholds shown in **Table 2-3**.

Table 2-3: Fear and Intimidation Magnitude of Change

Magnitude of change	Change in Step/Traffic Flows (Annual Average Daily Traffic (AADT)) from Baseline Conditions
High	Two step changes in level [for example a change from a 'small' level of fear and intimidation to 'Great' would equate to two step changes].
Medium	One step change in level, but with: >400 vehicle increase in average 18 hour average two-way all vehicle flow; and/or >500 Heavy Vehicle (HV) increase in total 18hr HV flow.
Low	One step change in level, with: <400 vehicle increase in average 18 hour average two-way all vehicle flow; and/or <500 HV increase in total 18hr HV flow.
Negligible	No change in step changes.

Hazardous / Large Loads

- 2.12 The Proposed Development would require AILV movements to deliver some wind turbine components and a report on the feasibility of delivering those components is included as **Technical Appendix 10.1: Turbine Component Delivery Route Feasibility Assessment**.
- 2.13 The number of such movements has been determined, and their potential significance considered based on the extent of works, if any, required to accommodate the vehicles, their number and the sections of road that they would use. There are, however, established procedures in place to manage such movements as described in The Road Vehicles (Authorisation of Special Types) (General) Order 2003.
- 2.14 A risk or catastrophe analysis as described in paragraph 3.50 of the IEMA Guidelines is not considered to be required.

Receptor Sensitivity Definitions

- 2.15 Definitions for levels of receptor sensitivity were provided in Table 10.2 of the Scoping Report. Those definitions have been applied to the topics listed above and are shown in **Table 2-4**.
- 2.16 Receptor sensitivity can in part depend on the level of use of a receptor and the extent to which infrastructure is provided to support users. This is reflected in paragraph 1.31 of the IEMA Guidelines, which states that "*For example, pedestrians are less sensitive to changes in traffic if there are adequate footways and crossing facilities*". The definitions of sensitivity shown in **Table 2-4** therefore take account, where appropriate, of the likely level of non-motorised user activity, the presence and quality of infrastructure (such as footways and crossing facilities) and the degree of separation from traffic.



Table 2-4: Receptor Sensitivity Definitions

Impact	Definition of Receptor Sensitivity				
	Very high	High	Moderate	Low	Negligible
Severance	Locations with frequent pedestrian movement and demand to cross the road and where existing crossing facilities are limited, absent or require indirect routes.	Locations with regular crossing demand and where existing crossing facilities are limited or inconvenient.	Locations with some crossing demand and where crossing facilities are available and reasonably well located.	Locations with limited crossing demand or where good crossing facilities are provided.	Locations with minimal frontage or pedestrian activity, and little need for crossing.
Road Vehicle Driver and Passenger Delay	Locations where the road network is operating at or close to capacity (not just at peak periods), with little or no scope to accommodate additional traffic and no alternative routes available.	Locations where the network is approaching capacity at peak periods and with limited alternative routes available.	Locations where the network operates within capacity but with some noticeable but manageable delays at peak periods or where alternative routes are available.	Locations where the network is operating well within capacity or with alternative routes available.	Locations where traffic flows are low relative to capacity and with little or no existing delay or with alternative routes available.
Non-Motorised User Delay	Locations with high levels of non-motorised user activity, where users are frequently exposed to vehicle movements with little or no physical separation, limited or no formal crossing facilities, and moderate to high vehicle speeds.	Locations with regular non-motorised user activity, where infrastructure is present but constrained or inconsistent (e.g. narrow or intermittent footways, limited crossing opportunities, or limited separation from vehicles).	Locations with some non-motorised user activity, where footways and crossing facilities are generally available, providing a reasonable level of separation from vehicles. Vehicle speeds are typically lower.	Locations with limited non-motorised user activity or where there is good quality infrastructure so that users are well separated from traffic.	Locations with very low or negligible non-motorised user presence, such that interaction with vehicles is minimal.
Non-Motorised User Amenity					
Fear and Intimidation of and by Road Users					
Road User and Pedestrian Safety	Locations with frequent interaction between vehicles and vulnerable road users and identified cluster sites.	Locations with regular interaction between vehicles and vulnerable users and where the accident history may indicate elevated risk.	Locations with some interaction between vehicles and vulnerable users but no evidence of a cluster of accidents.	Locations with limited interaction between vehicles and vulnerable users and no evidence of a cluster of accidents.	Locations with minimal or no interaction between vehicles and vulnerable users and no evidence of a



Impact	Definition of Receptor Sensitivity				
	Very high	High	Moderate	Low	Negligible
					cluster of accidents.
Hazardous / Large Loads	Locations where AILV movements would require substantial modifications or restrictions.	Locations where AILV movements would require extensive traffic management measures or road modifications.	Locations where AILV movements can be accommodated with standard management measures or with localised modifications.	Locations where the road network is generally suitable for AILV movements and where movements can be accommodated using standard management measures.	Locations not expected to be used by AILVs.



Magnitude of Change

- 2.17 Thresholds for the magnitude of change and assessment of effect significance for each of the potential topics to be assessed listed above have been identified by reference to the IEMA Guidelines and professional judgement. For some impact types, magnitude of change has been defined using professional judgement, informed by local road characteristics and IEMA guidance. These thresholds are presented in Table 2-5.

Table 2-5: Thresholds for Magnitude of Change by Potential Impact

Impact	Magnitude of Change			
	Large	Medium	Small	Negligible
Severance	Change in road link traffic flow of over 90%.	Change in road link traffic flow of 60% to less than 90%.	Change in road link traffic flow of 30% to less than 60%.	Change in road link traffic flow of less than 30%.
Road Vehicle Driver and Passenger Delay	Judgement based on the individual characteristics of sections of road.			Change in road link traffic flow of less than 10%.
Non-Motorised User Delay	Judgement based on the individual characteristics of sections of road.			Change in road link traffic flow of less than 10%.
Non-Motorised User Amenity	Judgement based on the individual characteristics of sections of road. Medium or high likely if change in total traffic flows or HGV flows of more than 100%.			Change in total traffic flows or HGV flows of less than 10%.
Fear and Intimidation of and by Road Users	As per Table 2-2 .			
Road User and Pedestrian Safety	Judgement based on accident data. Small or negligible impact likely if section of road under consideration has not been identified by the relevant roads authority as having an atypically high accident rate.			
Hazardous / Large Loads	Judgement based on number of such movements and nature of affected road network.			

Effect Significance

- 2.17.1 An effect significance matrix based on the magnitude of change and receptor sensitivity is set out in **Table 2-6**.

Table 2-6: Effect Significance Matrix based on Magnitude of Change and Receptor Sensitivity

Impact Magnitude	Sensitivity of Receptor				
	Very High	High	Moderate	Low	Negligible
Large	Major	Major	Major	Moderate	Negligible
Medium	Major	Major	Moderate	Minor	Negligible
Small	Moderate	Moderate	Minor	Minor	Negligible
Negligible	Negligible	Negligible	Negligible	Negligible	Negligible





Making Sustainability Happen