

Appendix 10.7

Operational Noise Assumptions

Predictions of sound arising from HGV activities in service yards have been modelled within CadnaA as point sources, using the propagation methodology described in ISO 9613-2:2024. Predictions of the noise levels from HGVs travelling along the access roads within the red line boundary have been modelled in CadnaA as a moving point source.

Octave frequency band source levels for the HGV activities have been taken from Vanguardia's measurement library and are presented in **Table 9**.

Table 9: HGV Source Data

HGV Activity	Sound Power Level L_w dB in each Octave Band								dB L_{wA}
	63 Hz	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz	
HGV Reverse	101	94	94	91	94	95	84	79	99
HGV Start-up & Pull away	107	101	98	97	97	94	87	78	101
HGV Load ⁽¹⁾	90	89	90	89	86	83	79	73	91
HGV Load ⁽²⁾	92	91	92	91	88	85	81	75	93
HGV pass by	107	101	98	97	97	94	87	78	101
HGV Chiller on electrical hook up	81	86	86	83	83	87	78	76	88
HGV Chiller on diesel engine	110	106	93	93	90	88	87	78	97

Notes:

¹ source assumes HGV is unloaded/loaded via level dock

² source assumes HGV is unloaded/loaded via forklift

The relevant standard for the assessment of operational sound from the Proposed Development is BS 4142:2014:A1:2019, which indicates that the operational sound at the receptor locations should be evaluated over reference interval of 1 hour during the day (07:00 – 23:00 hours) and 15 minutes during the night (23:00 – 07:00 hours). Therefore, the model considers the likely number of manoeuvres (i.e. an HGV reversing into the loading or parking bay and pulling away) and loading/unloading activities taking place over these periods. The number of manoeuvres has been based on the hourly HGV profile for the warehousing provided by the project transport consultant, which is based on the proposed maximum floor area of the development.

Where the activity takes place for less than the duration of the assessment period, the levels have been corrected to take account of their duration or on time. For the 1-hour daytime assessment period, it has been assumed that manoeuvres (reversing and pull away) take 1 minute to complete and loading/unloading takes 30 minutes. For the 15-minute night-time assessment period, the same assumptions apply to manoeuvres, but no on-time correction is applied to loading/unloading as this may be continuous over the period. These assumptions are based on Vanguardia's experience of undertaking these assessments for a range of occupiers and the duration of the measurements in our library measurement data. The number of activities that have been assumed for each assessment period and the corresponding source level are summarised in **Table 10**.

Table 10: Details of HGV service yard activities during peak hour of the day and peak 15 minutes at night

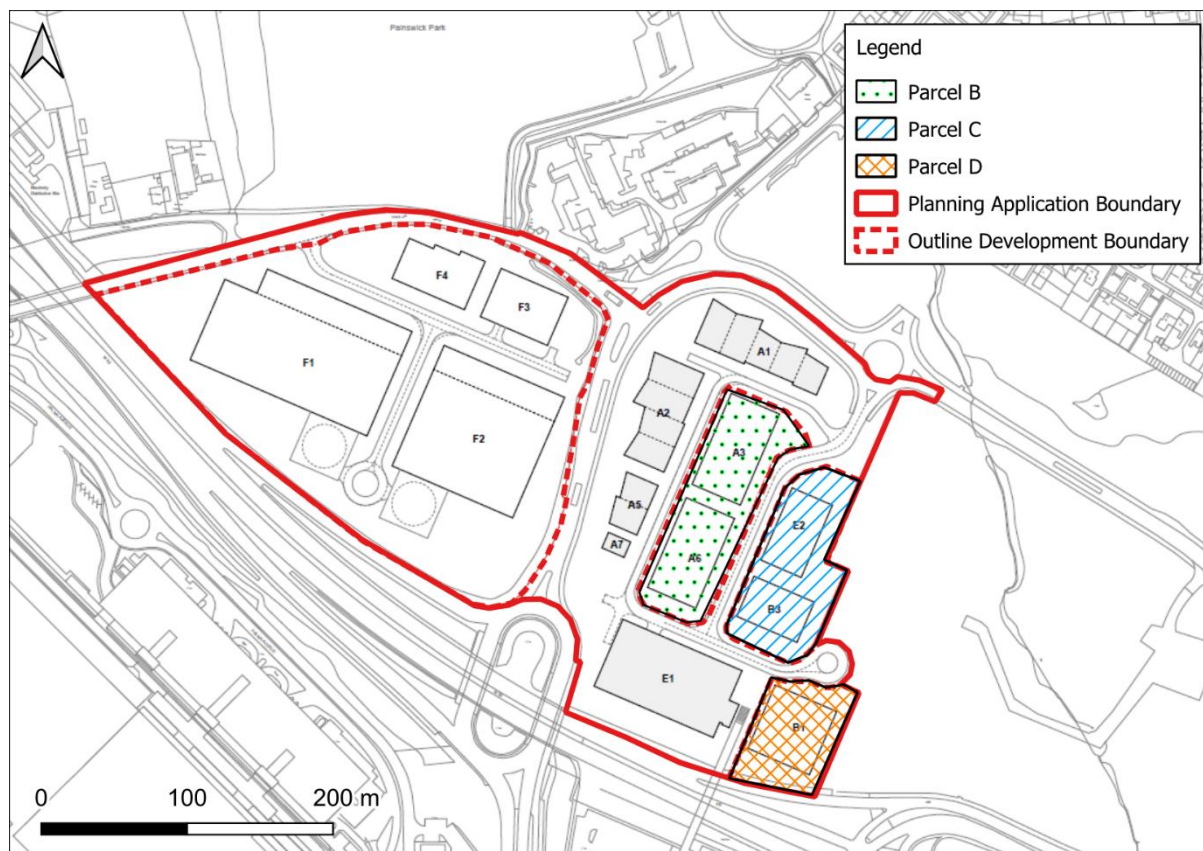
HGV Activity	Daytime 1-hour Assessment Period			Night-time 15-minute Assessment Period		
	Assumed on time (mm:ss)	On-time correction (dB)	Corrected Sound power level dB(A)	Assumed on time (mm:ss)	On-time correction (dB)	Corrected Sound power level dB(A)
HGV Reverse with alarm sounding	01:00	-18	81	01:00	-15	84
HGV Start-up & Pull away	01:00	-18	83	01:00	-15	86
HGV Load	30:00	-3	88	15:00	0	91
HGV Load	30:00	-3	90	15:00	0	93
HGV Chiller on electrical hook up	30:00	-3	85	15:00	0	88
HGV Chiller on diesel engine	01:00	-18	79	01:00	-15	85

To distribute the sources across the site within the model, operational activity for each unit/parcel was calculated on a pro-rata basis by proposed floor area to provide an indicative distribution of HGVs per unit/parcel, as shown in **Table 11** and Plate 8. Unit E1 has not been included in the HGV distribution due to the unit being a proposed Multi Storey Car Parks (MSCP).

Table 11: Distribution of HGV activity per Unit/Parcel

Site Access	Unit/parcel	Percentage
Eastern	Unit A1	4
	Unit A2	4
	Unit A5	1
	Unit A7	0
	Parcel B	36
	Parcel C	28
	Parcel D	25
	Total	100
Western	Unit F1	50
	Unit F2	30
	Unit F3	10
	Unit F4	10
	Total	100

Plate 8: Unit /Parcel numbers



Daytime traffic flows to each unit or parcel were calculated as shown in Error! Reference source not found. for the eastern site access, off Enterprise Way and **Table 13** for the western site access, off Thorley Lane.

Table 12: Nominal Allocation of Daytime Activity Occurrences – Eastern Access

Nominal Location	Activity Occurrences			Number used in Model for All Activities
	Reverse	Load/Unload	Pull Away	
Unit A1	1	1	1	3
Unit A2	1	1	1	3
Unit A5	0	0	0	0
Unit A7	0	0	0	0
Parcel B	2	2	2	6
Parcel C	1	1	1	3
Parcel D	2	2	1	6
Total	7	7	6	21

Worst case was assumed in the model by using the rounded maximum for any individual activity for all activities.

Table 13: Nominal Allocation of Daytime Activity Occurrences - Western Access

Nominal Location	Activity Occurrences			Number used in Model for All Activities
	Reverse	Load/Unload	Pull Away	
Unit F1	5	5	4	14
Unit F2	3	3	3	9
Unit F3	1	1	1	3
Unit F4	1	1	1	3
Total	9	9	8	29

Worst case was assumed in the model by using the rounded maximum for any individual activity for all activities.

Night-time traffic flows to each unit or parcel were calculated as shown in **Table 14** for the eastern site access, off Enterprise Way and **Table 15** for the western site access, off Thorley Lane.

Table 14: Nominal Allocation of Night-time Activity Occurrences – Eastern Access

Nominal Location	Activity Occurrences			Number used in Model for All Activities
	Reverse	Load/Unload	Pull Away	
Unit A1	0	0	0	3
Unit A2	0	0	0	3
Unit A5	0	0	0	0
Unit A7	0	0	0	0
Parcel B	0	1	1	6
Parcel C	0	0	0	3
Parcel D	1	1	1	6
Total	1	2	2	21

Worst case was assumed in the model by using the rounded maximum for any individual activity for all activities.

Table 15: Nominal Allocation of Night-time Activity Occurrences - Western Access

Nominal Location	Activity Occurrences			Number used in Model for All Activities
	Reverse	Load/Unload	Pull Away	
Unit F1	1	1	1	3
Unit F2	1	1	1	3
Unit F3	0	0	0	0
Unit F4	1	1	1	3
Total	3	3	3	9

Worst case was assumed in the model by using the rounded maximum for any individual activity for all activities.

Flows on site access roads were allocated according to the number of two-way vehicle journeys (Reverse + Pull-Away) going to the units/parcels served by each site access points.