

APPENDIX 21.10

Effect	Receptor and importance	Nature of Effect	Significance	Mitigation & Enhancement Measures	Residual Significance	Cumulative Effect	Significance (and Nature) of Cumulative Effect	Explanation
Construction Phase								
General construction activities	Dwellings – High importance	Temporary effect for Project duration. Approximately 1,200 dwellings within 100 metres.	Moderate negative	Noise and Vibration Management Plan (NVMP)	Moderate Negative Significance	Disturbance to dwellings from general construction activities	High Negative (Temporary, Short Term, Direct)	Developments 128 and 130 lie within 200m of a Construction Area. If construction works from any of these three proposed developments coincided with the construction phase of the Project there could be a cumulative effect. This would arise as the same receptors could be subjected to increased noise levels from both the Project and another proposed development simultaneously. This is considered a temporary negative impact of high significance.
Noise from general construction activities including canal	Area 1 – St Helens Canal – medium importance	Temporary increase in noise, up to 6 months	Moderate negative	NVMP	Moderate Negative Significance	Noise from general construction activities including canal	Moderate Negative (Temporary, Short Term, Direct)	Development 3 lies within 200m of Area 1 and St Helens Canal. Therefore there is a potential for negative

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bridge						bridge		cumulative effects if construction works coincide. This effect is considered to be of moderate negative significance.
Noise from minor construction activities	Area 2 – SJB northern approach. Dwellings - high importance	Temporary increase in noise, up to 6 months	Low negative	NVMP	Low negative	None	-	There are no proposed developments within 200m of the Project at this location
Noise from bridge construction activities	Area 6 – Wigg Island – high importance	Temporary increase in noise, up to 27 months	High – negative	NVMP	High negative	None	-	There are no proposed developments within 200m of the Project at this location
Noise from viaduct construction activities	Area 6 – Manchester Ship Canal – medium importance	Temporary increase in noise, up to 9 months	Moderate negative	NVMP	Moderate negative	None	-	There are no proposed developments within 200m of the Project at this location
Noise from viaduct construction activities	Area 7 – Astmoor industrial estate – low importance	Temporary increase in noise, up to 25 months	Low – negative	NVMP	Low negative	None	-	There are no proposed developments within 200m of the Project at this location
Noise from general construction activities including canal	Area 8 – Bridgewater Canal – medium importance	Temporary increase in noise, up to 9 months	Moderate negative	NVMP	Moderate – negative	None	-	There are no proposed developments within 200m of the Project at this location

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bridge								
Noise from general construction activities	Area 8 – residential areas near Bridgewater Junction – high importance	Temporary increase in noise, up to 11 months	Moderate negative	NVMP	Moderate negative	None	-	There are no proposed developments within 200m of the Project at this location
Noise from construction and highway alignment modifications	Area 9 – residential areas adjacent to the Central Expressway – high importance	Temporary increase in noise, 12 months	Low to moderate negative	NVMP	Low to moderate negative	None	-	There are no proposed developments within 200m of the Project at this location
Noise from construction of distributor roads and bridge	Area 9 – residential areas adjacent to Lodge Lane Junction	Temporary increase in noise, 12 months	Moderate to high – negative	NVMP	Moderate to high negative	None	-	There are no proposed developments within 200m of the Project at this location
Noise from minor construction activities	West Bank Primary School – high importance	temporary increase in noise, up to 6 months	Low - negative	NVMP	Low negative	None	-	There are no proposed developments within 200m of the Project at this location
Noise from construction of distributor roads and bridge	Woodside Primary School – high importance	Temporary increase in noise, 12 months	Moderate to high - negative	NVMP	Moderate to high negative	None	-	There are no proposed developments within 200m of the Project at this location

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Operational Phase								
Overview Noise from operation of the road –	Residential areas – high importance	Permanent decrease in number of people affected by noise	Moderate positive	None	Moderate Positive Significance	Noise from operation of roads – residential areas	Moderate Positive (Permanent, Long-term, Direct)	The noise assessment for operational effects included other proposed developments.
Overview - Vibration from operation of the road	Residential areas – high importance	Permanent – slight increase in number bothered	Low negative	None	Low Negative Significance	Vibration from operation of roads- Residential areas	Low Negative (Permanent, Long-term, Direct)	Therefore the residual effects are in fact cumulative effects. For further details see Chapter 17: Noise and Vibration.
Road noise from traffic	Area 1 – industrial and commercial areas – low importance	Permanent – slight increase in noise	Low negative	None	Low Negative Significance	Road noise- Area 1 – industrial and commercial areas	Low Negative (Permanent, Long-term, Direct)	Proposed developments near to this area and therefore likely to have an effect are developments 4, 2 and 3, 130, 131, 132, 133. However other developments, such as developments 4, 5, 6 and 10, near to the Project may also generate traffic which would increase noise levels.
Road noise from traffic	Area 1 – St Helens Canal – medium importance	Permanent increase in noise levels	Moderate negative	None	Moderate Negative Significance	Road noise Area 1 – St Helens Canal	Moderate Negative (Permanent, Long-term, Direct)	
Road noise from traffic	Area 2 – residential areas adjacent to northern approach to SJB – high importance	Permanent decrease in noise levels	Moderate positive	None	Moderate Positive Significance	Road noise- Area 2 – residential areas adjacent to northern approach to SJB	Moderate Positive (Permanent, Long-term, Direct)	

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Road noise	Area 3 – SPA – high importance	Permanent decrease in noise levels	High positive	None	High Positive Significance	Road noise- Area 3 – SPA	High Positive (Permanent, Long-term, Direct)	
Road noise	Area 4 – residential areas adjacent to the southern approach to SJB – high importance	Permanent – decrease in noise levels	Moderate positive	None	Moderate Positive Significance	Road noise- Area 4 – residential areas adjacent to the southern approach to SJB	Moderate Positive (Permanent, Long-term, Direct)	
Road noise	Area 5 – residential areas adjacent to the Weston Point Expressway – high importance	Permanent – decrease in noise levels	Moderate positive	None	Moderate Positive Significance	Road noise- Area 5 – residential areas adjacent to the Weston Point Expressway	Moderate Positive (Permanent, Long-term, Direct)	
Road noise	Area 6 – Wigg Island – very high importance	Permanent – increase in noise levels	High negative	None	High Negative Significance	Road noise- Area 6 – Wigg Island	High Negative (Permanent, Long-term, Direct)	
Road noise	Area 6 – Manchester Ship Canal – medium importance	Permanent – increase in noise levels	Moderate negative	None	Moderate Negative Significance	Road noise- Area 6 – Manchester Ship Canal	Moderate Negative (Permanent, Long-term, Direct)	

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Road noise	Area 7 – Astmoor industrial estate – low importance	Permanent – increase in noise levels	Low negative	None	Low Negative Significance	Road noise- Area 7 – Astmoor industrial estate	Low Negative (Permanent, Long-term, Direct)	
Road noise	Area 8 – residential areas adjacent to Bridgewater junction	Permanent – increase in noise levels	Moderate negative	Roadside noise barriers	Low Negative Significance	Road noise- Area 8 – residential areas adjacent to Bridgewater junction	Low Negative (Permanent, Long-term, Direct)	
Road noise	Area 8 – Bridgewater Canal – medium importance	Permanent – increase in noise levels	Moderate negative	None	Moderate Negative	Road noise- Area 8 – Bridgewater Canal	Moderate Negative (Permanent, Long-term, Direct)	
Road noise	Area 9 – residential areas adjacent to the Central Expressway	Permanent – increase in noise levels	Moderate negative	Roadside noise barriers	Low Negative Significance	Road noise- Area 9 – residential areas adjacent to the Central Expressway	Low Negative (Permanent, Long-term, Direct)	
Road noise	Area 10 – residential areas adjacent to the Weston link to M56	Permanent – slight increase in noise levels	Low- negative	None	Low Negative Significance	Road noise- Area 10 – residential areas adjacent to the Weston link to M56	Low Negative (Permanent, Long-term, Direct)	
Road noise	Cavendish School – high importance	Permanent – slight decrease in	Low positive	None	Low Positive Significance	Road noise	Low Positive (Permanent, Long-term,	

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Road noise	Hallwood Park Primary School – high importance	noise levels Permanent – slight decrease in noise levels	Low positive	None	Low Positive Significance	Road noise- Cavendish School – high importance	Low Positive (Permanent, Long-term, Direct)	
Road noise	West Bank Primary School – high importance	Permanent – decrease in noise levels of about 6 dB	High positive	None	High Positive Significance	Road noise- Bank Primary School	High Positive (Permanent, Long-term, Direct)	
Road noise	Weston Point Community School – high importance	Permanent – decrease in noise levels of about 6 dB	High positive	None	High Positive Significance	Road noise- Point Community School	High Positive (Permanent, Long-term, Direct)	
Road noise	Woodside Primary School – high importance	Permanent – increase in noise levels of about 9 dB	High negative	Roadside barriers	Low Negative Significance	Road noise- Woodside Primary School	Low Negative (Permanent, Long-term, Direct)	

Table 21.10. Cumulative effects relating to Noise and Vibration arising from the Project