

3 October 2023

**Your Reference**  
PA/2023/421

**Our Reference**  
296328/KC

Jennifer Ashworth, North Lincolnshire  
Council Planning  
Emma Brading, Natural England  
Hannah Gooch Natural England  
Andrew Taylor, North Lincolnshire  
Council Environment

**Humber Zero: Response to Natural England Comments on VPI Humber Zero planning application**

Dear Jennifer, Emma, Hannah and Andrew

Further to the Arup letter issued on 21<sup>st</sup> August 2023 in response to comments provided by Natural England in the letter dated 16<sup>th</sup> May 2023 and email dated 4<sup>th</sup> August 2023, please find below further responses in respect of outstanding conclusions to close out in the Habitats Regulations Assessment on noise impacts.

We have worked with the ABP team regarding the Land off Westgate, Immingham proposed development to ensure consistency in approach in terms of the in-combination noise assessment, recognising that this and the Humber Zero planning applications are proceeding in parallel.

Natural England Comment	Applicant's Response
<b>Noise Disturbance</b>	
<p>Natural England notes that likely significant effects from noise and visual disturbance during both construction and operational phases have been screened out for all locations – (i) functionally linked land at Rosper Road Pools, (ii) functionally linked land at adjacent terrestrial fields and (iii) habitats within the SPA/ Ramsar boundary.</p> <p>Natural England concurs that likely significant effects from potential noise impacts during both construction and operational phases to (iii) habitats within the SPA/ Ramsar boundary can be ruled out due to distance from the proposed development, but more information is required to determine effects regarding (i) functionally linked land at Rosper Road Pools, and (ii) functionally linked land at adjacent terrestrial fields</p>	<p>Further to the written response issued to Natural England on 21<sup>st</sup> August 2023, baseline monitoring has now been undertaken at Rosper Road Pools and the fields to the north to inform an updated assessment. Please see <b>Appendix A</b> to this letter, which sets out the baseline monitoring locations, and the results in the comparison between the ambient noise levels and predicted construction and operational noise levels.</p> <p>The Report to Inform HRA will be updated with this information to assist the Competent Authority, North Lincolnshire Council; however, the original conclusions presented in the ES and Report to Inform HRA that the qualifying bird features of the Humber Estuary SPA/ Ramsar will not be adversely affected by construction or operational noise remain valid.</p>
<p>Natural England notes reference to studies that indicate that noise levels &gt; 84 dBA typically elicit a flight response in birds and recommend that construction noise levels are kept below 70 dB to avoid excessive disturbance of birds (assumed to be the 'Bird Disturbance Toolkit'). Natural England considers this Toolkit as a relatively simplistic approach and says it is unclear how the very specific noise and distance 'triggers' for individual species of birds were derived for this toolkit.</p>	<p>It is noted that there are some inconsistencies in the acceptability of a 70 dBA threshold for indicating potential disturbance to birds, as this approach to noise assessment has been accepted for other consented projects.</p> <p>However, as requested, further modelling has been undertaken to establish the change in noise levels experienced at Rosper Road Pools and the fields to</p>

Natural England Comment	Applicant's Response
	<p>the north, informed by baseline noise monitoring at various locations (see <b>Appendix A</b>).</p> <p>As stated above, the Report to Inform HRA will be updated with this information; however, the original conclusions presented in the ES and Report to Inform HRA that the qualifying bird features of the Humber Estuary SPA/ Ramsar will not be adversely affected by construction or operational noise remain valid.</p>
<p>Natural England notes that because the Humber Estuary is an SPA, no construction works have been carried out that would cause significant disturbance to SPA birds. As such the evidence that informed the toolkit would be limited involving; monitoring of construction disturbance undertaken outside the sensitive season; when there are low numbers of birds present; or when the competent authority has already determined that the proposed works will not adversely affect the integrity of the Humber Estuary designated sites.</p>	<p>This position is noted.</p>
<p>Natural England advises that caution should be exercised when attempting to define a threshold based on noise levels alone. Other factors such as noise 'peakiness', including rise time of a noise signal and the frequency content of the noise source, should also be expected affect bird behaviour. Natural England advise that generic noise threshold levels are unlikely to offer a suitable approach for assessing the potential effects of noise on birds, and the assessment should determine the predicted construction/ operation noise levels are greater than the current background levels, using a 3 dB(A) rule-of-thumb to determine significance.</p>	<p>This position is noted. No specific guidance on the 3 dBA 'rule-of-thumb' approach suggested here has been published by Natural England (or others), and it is noted that a 70 dBA threshold for establishing a <i>likely</i> threshold for bird disturbance has been accepted on other consented projects. It is assumed that a 3 dBA change value has been identified because this is the level at which there is a perceived change in noise levels (to human ears). There is no published literature to indicate that a change in noise levels &gt;3 dBA above the baseline would result in disturbance to birds.</p> <p>However, regardless of this, the additional modelling undertaken has provided further evidence to underpin the conclusions previously presented in respect of construction and operational noise impacts (see <b>Appendix A</b>).</p>
<p>Natural England advise that the baseline noise levels should be established at the locations of sensitive ecological receptors and compared to the predicted noise levels. The assessment should set the sensitive receptors in the context of the existing noise environment – i.e. how noise levels will change, including the type of noise, such as consistent or sudden loud bangs etc. Natural England note that as part of the VPI Immingham OCGT DCO the ambient range of noise levels across these fields were assessed as being 61 dB LAeq and 51 dB LAF90 along Rosper Road at the closes point of the field nearest to the proposed VPI Development, to 48 dB LAeq and 43/ 46 dB LAF90 along the easter edge.</p>	<p>Additional baseline noise monitoring has been undertaken – see <b>Appendix A</b>.</p>

Natural England Comment	Applicant's Response
<p>Natural England is unclear if the noise modelling has been undertaken in an ecological context and if mitigation is required to mitigate adverse effects on integrity to the Humber Estuary qualifying species.</p>	<p>Additional baseline noise monitoring has been undertaken – see <b>Appendix A</b>.</p> <p>The mitigation referred to that has been incorporated into the noise modelling is referring to mitigation required for human receptors. There is no requirement for ecological noise mitigation, as no significant effects on ecology receptors as a result of construction or operational noise have been identified.</p>
<p>Natural England will assess the in-combination assessment once the HRA has been updated with further detail on how the predicted noise levels will change compared to the ambient noise levels.</p>	<p>Comparisons of the predicted changes in noise levels for the construction and operation of the Proposed VPI Development in combination with construction and operation of the Proposed Phillips 66 Development, Land at Westgate and Viking CCS are presented in <b>Appendix A</b>.</p> <p>The additional modelling undertaken has provided further evidence to underpin the conclusions previously presented in respect of in-combination construction and operational noise impacts.</p> <p>N.B. In-combination noise contour plans for the 'Proposed VPI Construction In Combination with Operation of Proposed Phillips 66 Development and Land off Westgate, Immingham Construction and Viking CCS'; and 'Proposed VPI Operation In Combination with Operation of Proposed Phillips 66 Development and Land off Westgate, Immingham Construction and Viking CCS' have not been prepared – this is due to the complexities in combining the output of three models, which would result in an unrealistic implied level of accuracy. Therefore, predicted in-combination noise levels for all four developments are provided at the four receptor locations only.</p>

We trust the above provides sufficient information to enable Natural England's comments on the Report to Inform HRA for the Proposed VPI Development, and look forward to meeting with Natural England in two weeks' time to ensure all matters are resolved.

Yours sincerely,

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## Appendix A – Further Information on Construction and Operational Noise

Baseline noise monitoring was undertaken at the locations shown below to gather more information on the current baseline noise conditions at Rosper Road Pools and fields to the north, which are used by Humber Estuary SSSI/ SPA/ SAC/ Ramsar site birds. These locations were chosen by the noise and ecology teams to be representative of key areas within Rosper Road Pools and nearby fields where waterbirds would be likely to present, to enable a comparison of the changes in noise levels during construction and operation of the proposed Humber Zero developments. Location Eco 4 was purposefully located towards the central part of Rosper Road Pools as this is where the avocet nesting islands are.

**Figure A1 – Baseline Noise Monitoring Locations**



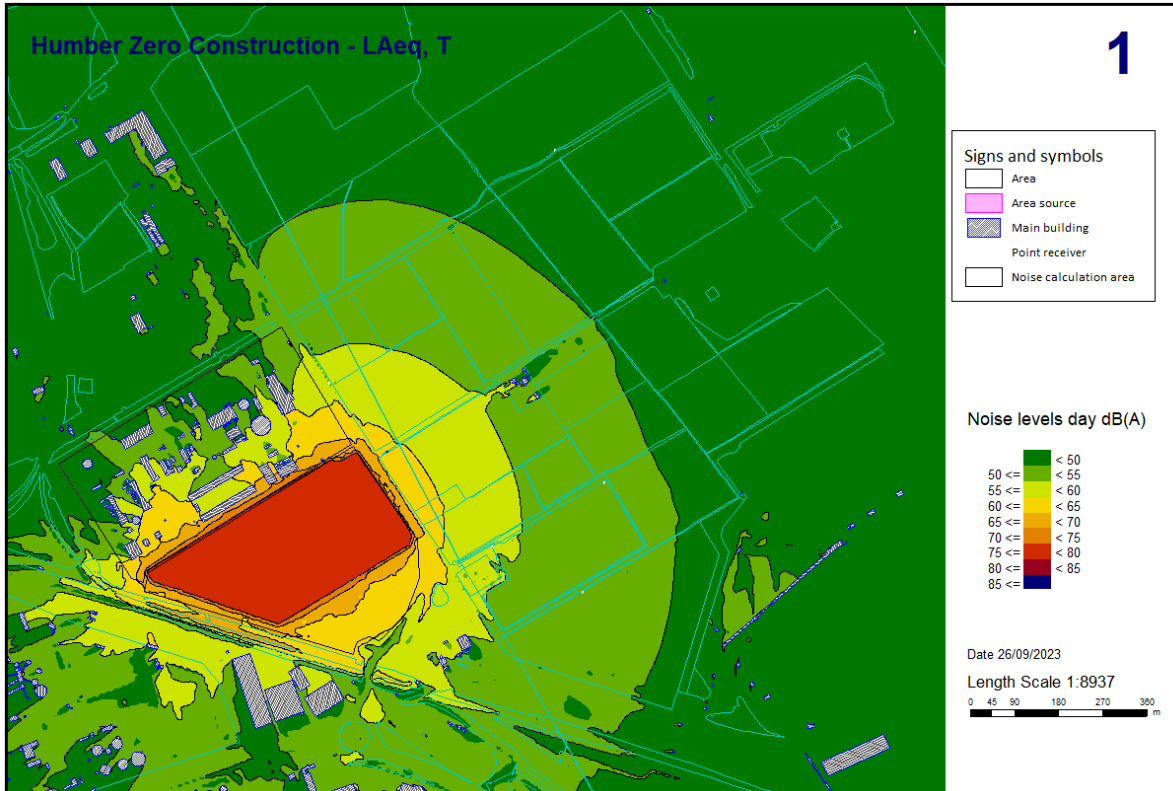
## Proposed VPI Development Construction

Noise contours have been prepared for the construction phase to show the predicted LAeq and LAm<sub>ax</sub> at the ecology receptors. A summary of the predicted changes in LAeq and LAm<sub>ax</sub> as a result of construction are presented in Table A1 below. The modelling demonstrates that there are no predicted exceedances of the suggested 3 dBA 'rule-of-thumb' change in noise level threshold at the ecology receptors. At Eco 1 there is a predicted change of + 3 dBA; however, both the ambient noise levels and construction noise levels at this receptor are below 50 dB LAeq, which is equivalent to the sound of moderate rainfall and below even noise levels arising from normal conversation (60 dBA). It is therefore reasonable to conclude that the effects of construction noise at this location would not result in likely significant effects on SPA/ Ramsar waterbirds using functionally linked land.

**Table A1: Predicted Construction Noise Changes at Ecology Receptors**

Receptor Location	LAeq (Figure A2)			LAm <sub>ax</sub> (Figure A3)		
	Ambient	Construction	Increase above ambient	Ambient	Construction	Increase above ambient
<b>Daytime</b>						
Eco 1	44	47	+3	60	20	No change
Eco 2	73	53	No change	93	29	No change
Eco 3	51	52	+1	69	28	No change
Eco 4	53	52	No change	70	28	No change
<b>Nighttime</b>						
Eco 1	48	47	No change	46	20	No change
Eco 2	64	53	No change	59	29	No change
Eco 3	50	52	+2	49	28	No change
Eco 4	52	52	No change	50	28	No change

**Figure A2 – Proposed VPI Development Construction (alone) LAeq**



**Figure A3 – Proposed VPI Development Construction (alone) LMax**



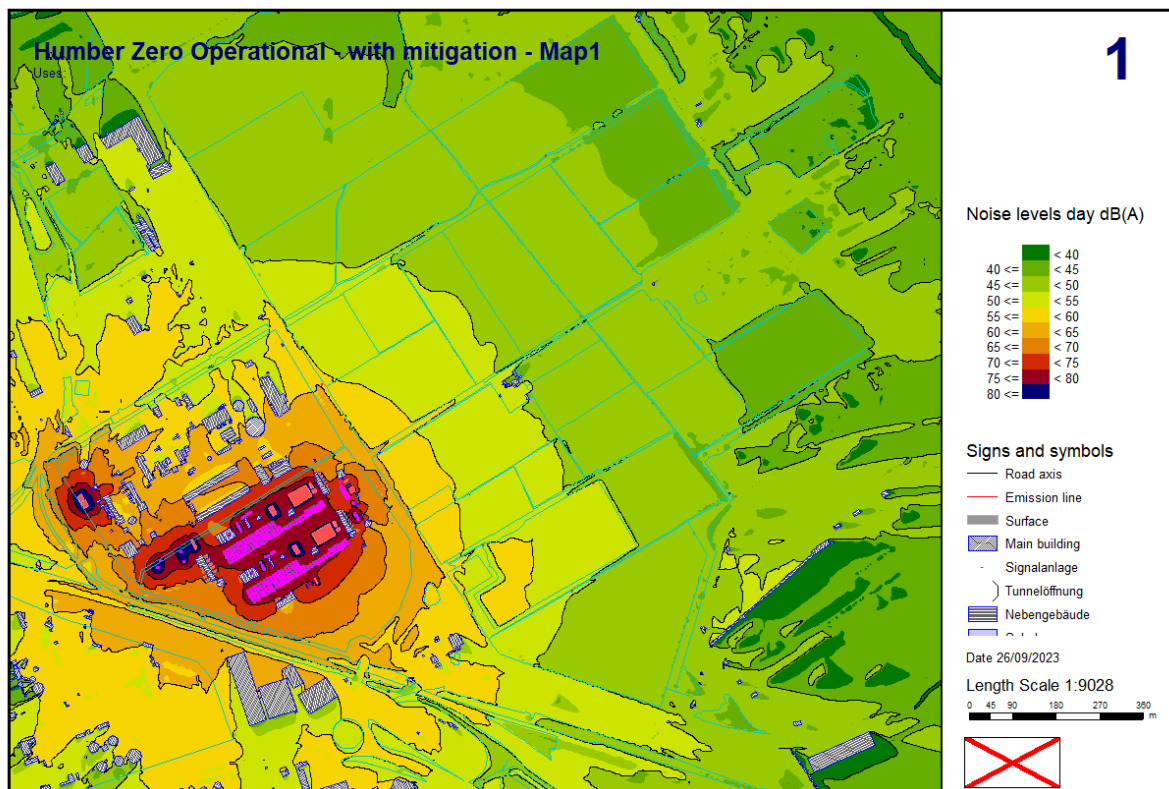
## Proposed VPI Development Operation

A noise contour has been prepared for the operational phase to show the predicted LAeq at the ecology receptors. A summary of the predicted changes in LAeq as a result of operation are presented in Table A2 below. The modelling demonstrates that there are no predicted exceedances of the suggested 3 dBA 'rule-of-thumb' threshold at the ecology receptors. A 'with mitigation' scenario has been modelled for the operational phase as this includes noise mitigation measures required for environmental compliance and is not related to ecological mitigation (as no ecological mitigation is required).

**Table A2: Predicted Operational Noise Changes at Ecology Receptors**

Receptor Location	LAeq (Figure A4)		
	Ambient	Operation	Increase above ambient
<b>Daytime</b>			
Eco 1	44	46	+2
Eco 2	73	55	No change
Eco 3	51	50	No change
Eco 4	53	50	No change
<b>Nighttime</b>			
Eco 1	48	46	No change
Eco 2	64	55	No change
Eco 3	50	50	No change
Eco 4	52	50	No change

**Figure A4 – Proposed VPI Development Operation (alone) LAeq**



## In Combination Assessment

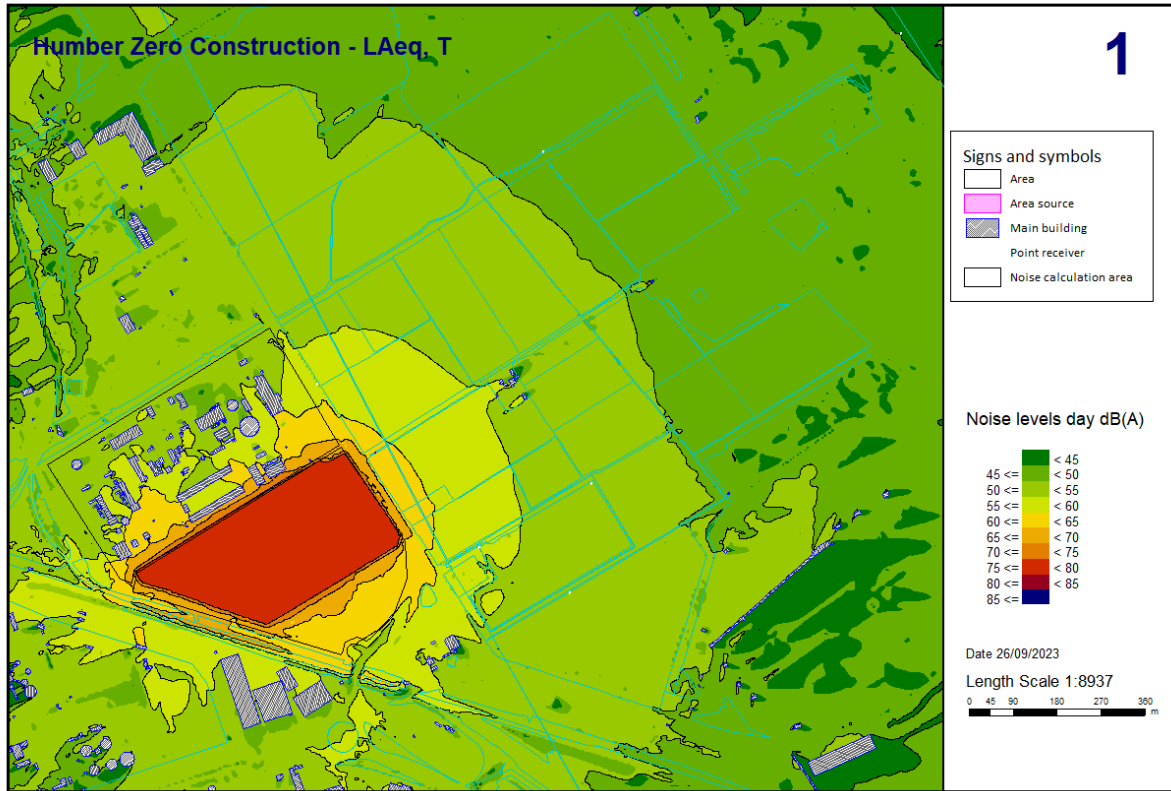
### **Proposed VPI Development Construction with Proposed Phillips 66 Development Construction**

A noise contour map has been prepared to show the predicted LAeq and LAm<sub>ax</sub> at the ecology receptors for the construction of VPI in combination with P66 (assuming overlap of the construction phases) (see Figure A5). For all scenarios and all receptors except for the predicted cumulative change in LAeq at receptor Eco 1, there are no changes exceeding 3 dBA (see Table A3). At receptor Eco 1 there is a predicted 5 dBA increase in LAeq assuming construction activities proceed at the same time. Although this is higher than the 3 dBA indicated by Natural England as a change in magnitude potentially resulting in disturbance, both the ambient noise levels and cumulative construction noise levels at this receptor are below 50 dB LAeq, which is equivalent to the sound of moderate rainfall and below even noise levels arising from normal conversation (60 dBA). It is therefore reasonable to conclude that the cumulative effects of construction noise at this location would not result in disturbance to waterbirds, and therefore there would be no likely significant effects on SPA/ Ramsar waterbirds using functionally linked land resulting from the construction of VPI in combination with P66.

**Table A3 – Predicted Construction Noise Changes – Proposed VPI Development in combination with Proposed Phillips 66 Development**

Receptor Location	LAeq (Figure A5)			LAm <sub>ax</sub> (Figure A6)		
	Ambient	Construction	Increase above ambient	Ambient	Construction	Increase above ambient
<b>Daytime</b>						
Eco 1	44	49	+5	60	21	No change
Eco 2	73	53	No change	93	29	No change
Eco 3	51	52	+1	69	28	No change
Eco 4	53	53	No change	70	28	No change
<b>Nighttime</b>						
Eco 1	48	49	+1	46	21	No change
Eco 2	64	53	No change	59	29	No change
Eco 3	50	52	+2	49	28	No change
Eco 4	52	53	+1	50	28	No change

**Figure A5 – Proposed VPI Development Construction in combination with Proposed Phillip 66 Development Construction (LAeq)**



**Figure A6 – Proposed VPI Development Construction in combination with Proposed Phillip 66 Development Construction (LMax)**



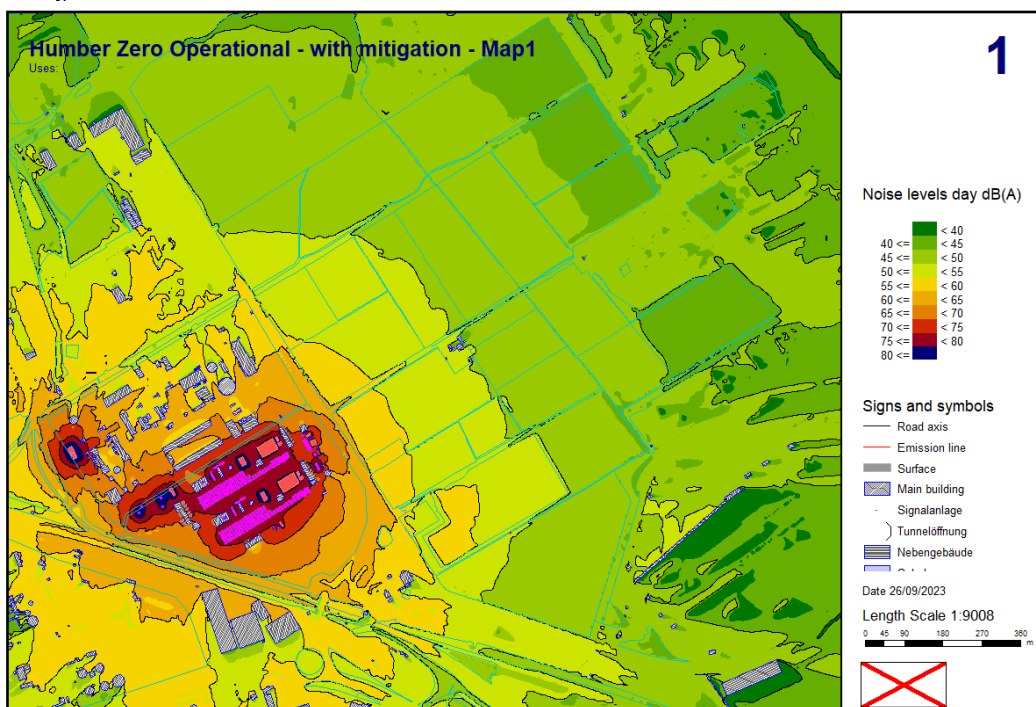
**Proposed VPI Development Operation in combination with Proposed Phillips 66 Development Operation**

A noise contour map has been prepared to show the predicted LAeq at the ecology receptors for the operation of VPI in combination with P66 (see Figure A7). For both the daytime and nighttime scenarios at all receptors there are no changes exceeding 3 dBA (see Table A4). It is therefore reasonable to conclude that the cumulative effects of operational noise would not result in disturbance to waterbirds, and therefore there would be no likely significant effects on SPA/ Ramsar waterbirds using functionally linked land resulting from the operation of VPI in combination with P66.

**Table A4 – Predicted Operational Noise Changes – Proposed VPI Development in combination with Proposed Phillips 66 Development**

Receptor Location	LAeq (Figure A7)		
	Ambient	Cumulative Operation	Cumulative Increase above ambient
<b>Daytime</b>			
Eco 1	44	46	No change
Eco 2	73	60	No change
Eco 3	51	50	No change
Eco 4	53	51	No change
<b>Nighttime</b>			
Eco 1	48	46	No change
Eco 2	64	60	No change
Eco 3	50	50	No change
Eco 4	52	51	No change

**Figure A7 – Proposed VPI Development Operation with Proposed Phillips 66 Development Operation (LAeq)**



**Proposed VPI Development Construction In Combination with Construction of Proposed Phillips 66 Development, Land off Westgate, Immingham and Viking CCS**

Additional modelling has been undertaken to show the predicted LAeq at the ecology receptors for the construction of VPI in combination with P66, the Land off Westgate, Immingham proposed development, which is located immediately south of and adjacent to Rosper Road Pools and receptor Eco 4, and the Viking CCS project, which is located immediately south of the proposed VPI development. For the Land off Westgate, Immingham development, two scenarios are considered (open storage and building option), and the modelling has been undertaken with mitigation (9m noise barrier).

For both the daytime and nighttime scenarios at receptors Eco 1, Eco 3 and Eco 4 there are predicted in-combination construction noise level changes exceeding 3 dBA (see Table A5). This is due to the proximity of construction at the Land off Westgate, Immingham site to Rosper Road Pools.

**Table A5 – Predicted Construction Noise Changes – Proposed VPI Development in combination with Proposed Phillips 66 Development, Land off Westgate, Immingham and Viking CCS**

Receptor Location	LAeq: VPI in combination with P66, Land off Westgate, Immingham (Open Storage Option) and Viking CCS			LAeq: VPI in combination with P66, Land off Westgate, Immingham (Building Option) and Viking CCS		
	Ambient	Construction	Increase above ambient	Ambient	Construction	Increase above ambient
<b>Daytime</b>						
Eco 1	44	52	+8	44	52	+8
Eco 2	73	58	No change	73	58	No change
Eco 3	51	56	+5	51	56	+5
Eco 4	53	58	+5	53	58	+5
<b>Nighttime</b>						
Eco 1	48	52	+4	48	52	+4
Eco 2	64	58	No change	64	58	No change
Eco 3	50	56	+6	50	56	+6
Eco 4	52	58	+6	52	58	+6

*Proposed VPI Development Operation in combination with Operation of Proposed Phillips 66 Development, Land off Westgate, Immingham and Viking CCS*

Additional modelling has been undertaken to show the predicted LAeq at the ecology receptors for the operation of P66 in combination the Land off Westgate, Immingham proposed development, which is located immediately south of and adjacent to Rosper Road Pools and receptor Eco 4.

For both the daytime and nighttime scenarios at all ecology receptors there are no predicted operational noise level changes exceeding 3 dBA with either development scenario (see Table A6). It is therefore reasonable to conclude that the cumulative effects of operational noise would not result in disturbance to waterbirds, and therefore there would be no likely significant effects on SPA/ Ramsar waterbirds using functionally linked land resulting from the operation of VPI in combination with P66, Land off Westgate, Immingham and Viking CCS.

**Table A6 – Predicted Operational Noise Changes – Proposed VPI Development in combination with Proposed Phillips 66 Development, Land off Westgate, Immingham and Viking CCS**

Receptor Location	LAeq: P66 in combination with VPI, Land off Westgate, Immingham (Open Storage Option) and Viking CCS			LAeq: P66 in combination with VPI, Land off Westgate, Immingham (Building Option) and Viking CCS		
	Ambient	Operation	Increase above ambient	Ambient	Operation	Increase above ambient
<b>Daytime</b>						
Eco 1	44	46	+2	44	46	+2
Eco 2	73	60	No change	73	60	No change
Eco 3	51	50	No change	51	50	No change
Eco 4	53	52	No change	53	52	No change
<b>Nighttime</b>						
Eco 1	48	46	No change	48	46	No change
Eco 2	64	60	No change	64	60	No change
Eco 3	50	50	No change	50	50	No change
Eco 4	52	52	No change	52	52	No change