NORTH FALLS

Offshore Wind Farm

ENVIRONMENTAL STATEMENT

Appendix 20.3 Ecological Receptor Assessment Tables

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NORTH FALLS
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Glossary of Acronyms

AADT	Annual Average Daily Traffic
AW	Ancient Woodland
DMT	Decision-making Threshold
ES	Environmental Statement
JNCC	Joint Nature Conservation Committee
N-dep	Nitrogen deposition
NOx	Nitrogen oxides
NH_3	Ammonia
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest

Glossary of Terminology

The Applicant	North Falls Offshore Wind Farm Limited (NFOW)
The Project or 'North Falls'	North Falls Offshore Wind Farm, including all onshore and offshore infrastructure
Onshore project area	The boundary in which all onshore infrastructure required for the Project will be located (i.e. landfall; onshore cable route, accesses, construction compounds; onshore substation and national grid substation extension), as considered within the PEIR.

1 Introduction

1. As detailed in Section 20.4.3.3 of Environmental Statement (ES) Chapter 20 Air Quality (Document Reference: 3.1.22), reports published by the Joint Nature Conservation Committee (JNCC) (Chapman & Kite, 2021a and 2021b) have been used to quantify the likely significant effects of traffic emissions on ecological receptors in the air quality study area.

2 Stage 1: Screen roads for a 0.15% increase in base (2022) Annual Average Daily Traffic (AADT)

2. The first stage of the ecological assessment was to screen road links affected by North Falls Project-generated traffic for increases in Annual Average Daily Traffic (AADT) (inclusive of (a) Project-generated traffic, (b) in-combination 2022 to 2026 traffic growth, and (c) cumulative traffic) greater than the Decision-Making Threshold (DMT) of 0.15% of existing 2022 AADT flows. This resulted in the screening in of all road links considered in the assessment. Subsequently, a search of ecological receptors within 200m of these road links was then undertaken. Traffic data used in the assessment is provided in ES Appendix 20.2 Air Quality Assessment Traffic Data (Document Reference: 3.3.24).

3 Stage 2: Screen for AADT flows in exceedance of 1% change in Critical Level or Load at distance from road edge

3. The next stage of the ecological assessment was to apply a road-relevant approach based on the distance between the affected road and the nearest boundary of a designated site. The thresholds required to trigger an exceedance of 1% of the Critical Level for nitrogen oxides (NOx) and ammonia (NH_3) and Critical Load for nitrogen deposition (N-dep) at different distances from a road edge are presented in Table 20.17 and Table 20.18 of ES Chapter 20 Air Quality (Document Reference: 3.1.22) and have been taken from the JNCC reports (Chapman & Kite, 2021b). This table does not allow for changes to the make-up of the vehicle fleet beyond 2019 for NOx and beyond 2015 for NH_3.

4. An increase in Critical Load of less than 1% is typically considered to be insignificant, as a change of this magnitude is likely to be within the natural range of fluctuations in deposition and is unlikely to be perceptible. The 1% threshold of insignificance is referenced in Natural England (2018), IAQM (2020) and Chapman & Kite (2021a, 2021b). The exceedance of a threshold is not decisive in and of itself, nor does it suggest that damage is likely to occur (in the case of Sites of Special Scientific Interest (SSSIs)) or that it will not be possible to avoid adverse effects to site integrity (in the case of European sites) (Chapman & Kite, 2021a).

5. The distance between ecological receptor boundaries and the affected road network was therefore taken into consideration in the next stage of ecological receptor screening. AADT flows (inclusive of (a) Project-generated traffic, (b) in-combination of 2022 to 2026 traffic growth, and (c) cumulative traffic) were compared to those in Table 20.17 and Table 20.18 of ES Chapter 20 Air Quality

(Document Reference: 3.1.22), and ecological receptors were brought forward into the next stage of the ecological assessment if they exceeded the AADT representative of a 1% increase in the Critical Level or Load for the relevant habitat present in designated site. If AADT were lower than those in Table 20.17 and Table 20.18 of ES Chapter 20 Air Quality (Document Reference: 3.1.22), it was considered reasonable to assert that there is no credible evidence that the effects would ever be such to lead to a 1% increase in Critical Load or Level, despite the fact that the DMT (i.e. 0.15% of base (2019) AADT) is exceeded.

6. Table 1 details the road distance screening for North Falls, and also identifies which sites were brought forward for further consideration in the ecological assessment. Table 2 includes the sites and pollutants brought forward for the cumulative assessment of North Falls and Five Estuaries Offshore Wind Farm.

Table 1 Critical Level and Critical Load 1% screening of ecological receptors – red filled cells indicate an exceedance of the AADT flows presented in Table 20.17 and Table 20.18 of ES Chapter 20 Onshore Air Quality (Document Reference: 3.1.22), and required further assessment of feature/site (Option 2)

Link	Designated Ecological Site		Distance from affected road link (m)	Feature Name[2]	Woodland Present	Total AADT Change[3]	AADT required for 1% Critical Level or Load increase (See Table 20.17 and Table 20.18 of Chapter 20)							Further assessment required?
	Site Type[1]	Name					NOx	NH_3		N-dep				
							$\mu g.m^{-3}$			$kgN.ha^{-1}.yr^{-1}$				
							30	1	3	5	10	15	20	
1	AW	Kiln Wood	96	Deciduous woodland	Yes	3,208	1,564	1,739	5,217	-	865	1,296	-	Yes
	AW	Walls Wood	6	Deciduous woodland	Yes		192	288	864	-	187	281	-	Yes
	AW	Unnamed woodland	164	Deciduous woodland	Yes		2,694	2,460	7,397	-	1,161	1,741	-	Yes
21b	AW LWS	High Barn Wood	1	Deciduous woodland	Yes	2,620	120	91	274	-	71	106	-	Yes
22	AW LWS	Guttridgehall Wood	31	Deciduous woodland	Yes	2,036	636	830	2,492	-	461	691	-	Yes
	AW LWS	Unnamed (Oakhurst Wood)	27	Deciduous woodland	Yes		577	764	2,293	-	430	645	-	Yes
	LWS	Weeley Bypass	1	*	*		120	91	274	N/A**	N/A**	N/A**	N/A**	Yes, for NOx and NH_3 only
26	SSSI	Holland On Sea Cliff	131	Site is not sensitive to air quality impacts										No
	SSSI	Holland Haven	1	Lowland ditch systems; Vascular plant assemblage	No	400	120	91	274	N/S	N/S	N/S	N/S	Yes, for NOx and NH_3 only
31	LWS	Beaumont Bridge Verge	1	*	*	100	120	91	274	N/A**	N/A**	N/A**	N/A**	Yes, for NH_3 only
32	LWS	St Michaels Churchyard	7	*	*	459	214	317	951	N/A**	N/A**	N/A**	N/A**	Yes, for NOx and NH_3 only
	LWS	Thorpe Green	13	*	*		332	470	1,410	N/A**	N/A**	N/A**	N/A**	Yes, for NOx only
34	LWS	Thorpe Green	1	*	*	3,687	120	91	274	N/A**	N/A**	N/A**	N/A**	Yes, for NOx and NH_3 only
	LWS	Far Thorpe Green	1	*	*		120	91	274	N/A**	N/A**	N/A**	N/A**	Yes, for NOx and NH_3 only
35	LWS	Thorpe Green	1	*	*	282	120	91	274	N/A**	N/A**	N/A**	N/A**	Yes, for NOx and NH_3 only
38	LWS	Goose Green Verge	1	*	*	293	120	91	274	N/A**	N/A**	N/A**	N/A**	Yes, for NOx and NH_3 only
39	AW LWS	Simons Wood	14	Deciduous woodland	Yes	167	350	492	1,475	-	295	442	-	No
	AW LWS	Tendring Grove	93	Deciduous woodland	Yes		1,522	1,701	5,101	-	848	1,271	-	No
43	LWS	Alder Car	177	*	*	956	2,958	2,584	7,750	N/A**	N/A**	N/A**	N/A**	No
	AW	Captains Wood	8	*	*		235	347	1,039	-	219	328	-	Yes
	LWS	Fratinghall Wood	7	*	*		214	317	951	N/A**	N/A**	N/A**	N/A**	Yes, for NOx and NH_3 only
44	LWS	Burcarts Meadow	80	*	*	209	1,339	1,533	4,597	N/A**	N/A**	N/A**	N/A**	No
45	LWS	Upper Holland Brook	1	*	*	190	120	91	274	N/A**	N/A**	N/A**	N/A**	Yes, for NOx and NH_3 only
	LWS	St Michaels Churchyard	60	*	*		1,058	1,274	3,822	N/A**	N/A**	N/A**	N/A**	No
47	Ramsar	Stour and Orwell Estuaries	8	Site assessed as Stour and Orwell Estuaries SPA below[4]										No

Link	Designated Ecological Site		Distance from affected road link (m)	Feature Name[2]	Woodland Present	Total AADT Change[3]	AADT required for 1% Critical Level or Load increase (See Table 20.17 and Table 20.18 of Chapter 20)							Further assessment required?
	Site Type[1]	Name					NOx	NH_3		N-dep				
							$\mu g.m^{-3}$			$kgN.ha^{-1}.yr^{-1}$				
							30	1	3	5	10	15	20	
	SPA	Stour and Orwell Estuaries	8[5]	Low and medium altitude hay meadows[5]	No	1,269	235	-	1,039	-	374	561	748	Yes
	SPA	Stour and Orwell Estuaries	27[5]	Atlantic upper-mid & mid-low salt marshes[5]	No		577	-	2,293	-	744	1,117	1,489	Yes, for NOx and N-Dep/ Acid-dep only
	SSSI	Stour Estuary	8[5]	Low and medium altitude hay meadows[5]	No		235	-	1,039	-	374	561	748	Yes
	SSSI	Stour Estuary	27[5]	Atlantic upper-mid & mid-low salt marshes[5]	No		577	-	2,293	-	744	1,117	1,489	Yes, for NOx and N-Dep/ Acid-dep only
48	AW	Coppins Hall Wood	3	Deciduous woodland	Yes	395	146	175	525	-	121	182	-	Yes

[1] Where: AW = Ancient Woodland, SAC = Special Area of Conservation, SPA = Special Protection Area, SSSI = Site of Special Scientific Interest

[2] The most sensitive feature within each designated site has been included in the table, unless stated otherwise.

[3] AADT change shown are inclusive of Project-generated traffic, in-combination traffic growth (from 2022 to 2026) and cumulative traffic.

[4] Ramsar sites are designated wetlands sites and are not included in the APIS database for being sensitive to air quality impacts. Impacts on Ramsar sites have therefore been considered under the associated SAC or SPA designations for the same area.

[5] The Stour and Orwell Estuaries SPA and Stour Estuary SSSI are designations which cover a large area (2,337 and 2,248 hectares, respectively), the majority of which is not affected by Project-generated traffic. The Priority Habitats Inventory (England) (Natural England, 2023) was reviewed and the only sensitive habitat designated under both sites present within 200 m of Link 47 was salt marsh, which is 27 m from the road edge at it closest location. To provide a conservative assessment, the most sensitive feature (low and medium altitude hay meadows) has also been assessed at the closest point of the designation to the road; however, it is likely this habitat is not present in this area and is located in other areas of the large SPA/SSSI designations.

* Not determined (or could not be determined using the Priority Habitats Inventory (Natural England, 2023)). LWSs were assessed against Critical Levels only, and Critical Levels are not habitat specific.

** N/A = not assessed. LWS were assessed against Critical Levels only, as Critical Loads are not provided for LWSs on the APIS website.

N/S = not sensitive

Table 2 Critical Level and Critical Load 1% screening of ecological receptors – red filled cells indicate an exceedance of the AADT flows presented in Table 20.17 and Table 20.18 of ES Chapter 20 Onshore Air Quality (Document Reference: 3.1.22), and required further assessment of feature/site (Scenario 1)

Link	Designated Ecological Site		Distance from affected road link (m)	Feature Name[2]	Woodland Present	Total AADT Change[3]	AADT required for 1% Critical Level or Load increase (See Table 20.17 and Table 20.18 of Chapter 20)							Further assessment required?
	Site Type[1]	Name					NOx	NH_3		N-dep				
							$\mu g.m^{-3}$			$kgN.ha^{-1}.yr^{-1}$				
							30	1	3	5	10	15	20	
1	AW	Kiln Wood	96	Deciduous woodland	Yes	3,291	1,564	1,739	5,217	-	865	1,296	-	Yes
	AW	Walls Wood	6	Deciduous woodland	Yes		192	288	864	-	187	281	-	Yes
	AW	Unnamed woodland	164	Deciduous woodland	Yes		2,694	2,460	7,397	-	1,161	1,741	-	Yes
21b	AW LWS	High Barn Wood	1	Deciduous woodland	Yes	2,638	120	91	274	-	71	106	-	Yes
22	AW LWS	Guttridgehall Wood	31	Deciduous woodland	Yes	2,051	636	830	2,492	-	461	691	-	Yes
	AW LWS	Unnamed (Oakhurst Wood)	27	Deciduous woodland	Yes		577	764	2,293	-	430	645	-	Yes
	LWS	Weeley Bypass	1	*	*		120	91	274	N/A**	N/A**	N/A**	N/A**	Yes, for NOx and NH_3 only
26	SSSI	Holland On Sea Cliff	131	Site is not sensitive to air quality impacts										No

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	Site Type[1]	Name					$\mu g.m^{-3}$			$kgN.ha^{-1}.yr^{-1}$				
							30	1	3	5	10	15	20	
	SSSI	Holland Haven	1	Lowland ditch systems; Vascular plant assemblage	No	406	120	91	274	N/S	N/S	N/S	N/S	Yes, for NOx and NH_3 only
31	LWS	Beaumont Bridge Verge	1	*	*	106	120	91	274	N/A**	N/A**	N/A**	N/A**	Yes, for NH_3 only
32	LWS	St Michaels Churchyard	7	*	*	471	214	317	951	N/A**	N/A**	N/A**	N/A**	Yes, for NOx and NH_3 only
	LWS	Thorpe Green	13	*	*		332	470	1,410	N/A**	N/A**	N/A**	N/A**	Yes, for NOx only
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	LWS	Far Thorpe Green	1	*	*		120	91	274	N/A**	N/A**	N/A**	N/A**	Yes, for NOx and NH_3 only
35	LWS	Thorpe Green	1	*	*	299	120	91	274	N/A**	N/A**	N/A**	N/A**	Yes, for NOx and NH_3 only
38	LWS	Goose Green Verge	1	*	*	306	120	91	274	N/A**	N/A**	N/A**	N/A**	Yes, for NOx and NH_3 only
39	AW LWS	Simons Wood	14	Deciduous woodland	Yes	180	350	492	1,475	-	295	442	-	No
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[2] The most sensitive feature within each designated site has been included in the table, unless stated otherwise.

[3] AADT change shown are inclusive of Project-generated traffic, in-combination traffic growth (from 2022 to 2026) and cumulative traffic.

[4] Ramsar sites are designated wetlands sites and are not included in the APIS database for being sensitive to air quality impacts. Impacts on Ramsar sites have therefore been considered under the associated SAC or SPA designations for the same area.

Link	Designated Ecological Site		Distance from affected road link (m)	Feature Name[2]	Woodland Present	Total AADT Change[3]	AADT required for 1% Critical Level or Load increase (See Table 20.17 and Table 20.18 of Chapter 20)							Further assessment required?
	Site Type[1]	Name					NOx	NH_3		N-dep				
							$\mu g.m^{-3}$			$kgN.ha^{-1}.yr^{-1}$				
							30	1	3	5	10	15	20	

[5] The Stour and Orwell Estuaries SPA and Stour Estuary SSSI are designations which cover a large area (2,337 and 2,248 hectares, respectively), the majority of which is not affected by Project-generated traffic. The Priority Habitats Inventory (England) (Natural England, 2023) was reviewed and the only sensitive habitat designated under both sites present within 200 m of Link 47 was salt marsh, which is 27 m from the road edge at it closest location. To provide a conservative assessment, the most sensitive feature (low and medium altitude hay meadows) has also been assessed at the closest point of the designation to the road; however, it is likely this habitat is not present in this area and is located in other areas of the large SPA/SSSI designations.

* Not determined (or could not be determined using the Priority Habitats Inventory (Natural England, 2023)). LWSs were assessed against Critical Levels only, and Critical Levels are not habitat specific.

** N/A = not assessed. LWS were assessed against Critical Levels only, as Critical Loads are not provided for LWSs on the APIS website.

N/S = not sensitive

7. As can be seen from Table 1 and Table 2, the AADT threshold representative of a 1% increase in Critical Level or Load differ (even at the same distance from the roads edge) for NOx, NH_3 and N-dep. Therefore, not every pollutant has been brought forward for further assessment for each feature, as detailed in the final column.

4 References

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Natural England (2023). Priority Habitats Inventory (England).

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HARNESSING THE POWER OF NORTH SEA WIND

North Falls Offshore Wind Farm Limited

A joint venture company owned equally by SSE Renewables and RWE.

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