ENVIRONMENTAL STATEMENT: 6.3 APPENDIX 5-3: DETAILED MODEL POLLUTANT RESULTS

DECARBONISATION

Cory Decarbonisation Project

PINS Reference: EN010128

April 2025

Revision B

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations (2009) - Regulation 5(2)(a)

QUALITY CONTROL

Document Reference		**6.3**			
Document Owner		Cory Environmental Holdings Limited			
Revision	**Date**	**Comments**	**Author**	**Check**	**Approver**
Revision A	March 2024	-	SC	BTJ/SH	JW
Revision B	April 2025	Updated to account for errata (as requested by the Examining Authority)	RB/HP	SH	JW

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2.1.4. The data shown represent the maximum impacts anywhere within the model domain, irrespective of the presence of receptors at that location.

2.1.5. The maximum ground level impacts stated in **Table 3** are presented as a percentage of Environmental Assessment Levels (EAL)/air quality standards for the protection of human health.

Table 1: Maximum Ground Level Concentrations of Pollutants Across the Receptor Grid for Each Modelled Meteorological Year in the Baseline Scenario

Pollutant	Averaging Period	Unit	Max PC 2018	Max PC 2019	Max PC 2020	Max PC 2021	Max PC 2022
Nitrogen dioxide (NO_2)	1hr	µg/m^3	50.6	50.5	50.8	49.4	50.4
	Annual	µg/m^3	2.4	2.8	3.2	2.4	2.4
PM_{10}	24hr	µg/m^3	0.6	0.7	0.7	0.6	0.6
	Annual	µg/m^3	0.2	0.2	0.2	0.2	0.2
$PM_{2.5}$	Annual	µg/m^3	0.2	0.2	0.2	0.2	0.2
Sulphur Dioxide (SO_2)	15 minutes	µg/m^3	103.4	103.7	100.9	100.4	102.0
	1hr	µg/m^3	71.3	70.3	71.0	69.4	69.9
	24hr	µg/m^3	6.5	6.2	6.7	6.9	6.4
Carbon Monoxide (CO)	8hr	µg/m^3	53.5	49.1	54.0	49.8	47.1
Hafnium (HF)	1hr	µg/m^3	0.4	0.4	0.4	0.4	0.4
Hydrogen Chloride (HCl)	1hr	µg/m^3	26.0	26.6	25.1	26.0	25.0
	Annual	µg/m^3	0.2	0.3	0.3	0.2	0.2
Ammonia (NH_3)	1hr	µg/m^3	2.6	2.7	4.2	2.9	2.6
	Annual	µg/m^3	0.4	0.4	0.5	0.4	0.4
Arsenic	Annual	µg/m^3	0.0005	0.0006	0.0007	0.0005	0.0006
Cadmium	Annual	µg/m^3	0.0007	0.0009	0.0009	0.0007	0.0007

Pollutant	Averaging Period	Unit	Max PC 2018	Max PC 2019	Max PC 2020	Max PC 2021	Max PC 2022
Lead	**Annual**	µg/m^3	0.0011	0.0013	0.0014	0.0011	0.0011
Nickel	**Annual**	µg/m^3	0.0047	0.0057	0.0061	0.0048	0.0049
Antimony	**1hr**	µg/m^3	0.0030	0.0031	0.0029	0.0030	0.0029
	Annual	µg/m^3	0.0002	0.0003	0.0003	0.0002	0.0003
Chromium III	**1hr**	µg/m^3	0.0239	0.0245	0.0231	0.0239	0.0230
	Annual	µg/m^3	0.0020	0.0024	0.0026	0.0020	0.0020
Chromium VI	**Annual**	µg/m^3	0.000003	0.000004	0.000004	0.000003	0.000003
Copper	**1hr**	µg/m^3	0.0075	0.0077	0.0073	0.0075	0.0073
	Annual	µg/m^3	0.0006	0.0007	0.0008	0.0006	0.0006
Manganese	**1hr**	µg/m^3	0.0156	0.0160	0.0150	0.0156	0.0150
	Annual	µg/m^3	0.0013	0.0015	0.0017	0.0013	0.0013
Mercury	**1hr**	µg/m^3	0.0087	0.0089	0.0084	0.0087	0.0083
	Annual	µg/m^3	0.0007	0.0009	0.0009	0.0007	0.0007
Vanadium	**24hr**	µg/m^3	0.0009	0.0009	0.0012	0.0010	0.0009
Amine 1	**1hr**	ng/m^3	-	-	-	-	-
	24hr	ng/m^3	-	-	-	-	-
Amine 2	**1hr**	ng/m^3	-	-	-	-	-

Pollutant	Averaging Period	Unit	Max PC 2018	Max PC 2019	Max PC 2020	Max PC 2021	Max PC 2022
	24hr	ng/m^3	-	-	-	-	-
Total Amine	**1hr**	ng/m^3	-	-	-	-	-
	24hr	ng/m^3	-	-	-	-	-
Nitrosamine	**Annual**	ng/m^3	-	-	-	-	-
Nitramine	**Annual**	ng/m^3	-	-	-	-	-
Total Nitrosamine and Nitramine	**Annual**	ng/m^3	-	-	-	-	-
Aldehyde	**1hr**	$\mu g/m^3$	-	-	-	-	-
	Annual	$\mu g/m^3$	-	-	-	-	-

Table 2: Maximum Ground Level Concentrations of Pollutants Across the Receptor Grid for Each Modelled Meteorological Year in the Proposed Scheme Scenario

Pollutant	Averaging Period	Unit	Max PC 2018	Max PC 2019	Max PC 2020	Max PC 2021	Max PC 2022
NO_2	1hr	$\mu g/m^3$	98.6	100.7	99.2	101.2	103.0
	Annual	$\mu g/m^3$	1.9	2.2	2.4	2.0	1.9
PM_{10}	24hr	$\mu g/m^3$	0.4	0.4	0.4	0.4	0.4
	Annual	$\mu g/m^3$	0.1	0.1	0.1	0.1	0.1
$PM_{2.5}$	Annual	$\mu g/m^3$	0.1	0.1	0.1	0.1	0.1
SO_2	15 minutes	$\mu g/m^3$	198.8	198.7	215.0	201.9	209.1
	1hr	$\mu g/m^3$	138.1	140.5	139.0	143.3	144.7
	24hr	$\mu g/m^3$	5.7	7.8	10.6	6.8	6.4
CO	8hr	$\mu g/m^3$	83.8	80.9	82.1	78.7	90.8
HF	1hr	$\mu g/m^3$	0.9	0.9	0.9	0.9	1.1
HCl	1hr	$\mu g/m^3$	53.1	54.8	51.8	57.0	66.4
	Annual	$\mu g/m^3$	0.2	0.2	0.2	0.2	0.2
NH3	1hr	$\mu g/m^3$	2.7	3.4	4.4	2.9	2.9
	Annual	$\mu g/m^3$	0.3	0.3	0.3	0.3	0.3
Arsenic	Annual	$\mu g/m^3$	0.0003	0.0004	0.0004	0.0003	0.0003
Cadmium	Annual	$\mu g/m^3$	0.0004	0.0005	0.0006	0.0005	0.0004
Lead	Annual	$\mu g/m^3$	0.0007	0.0008	0.0008	0.0007	0.0007

Pollutant	Averaging Period	Unit	Max PC 2018	Max PC 2019	Max PC 2020	Max PC 2021	Max PC 2022
Nickel	**Annual**	µg/m^3	0.0029	0.0034	0.0037	0.0030	0.0029
Antimony	**1hr**	µg/m^3	0.0061	0.0063	0.0060	0.0066	0.0076
	Annual	µg/m^3	0.0002	0.0002	0.0002	0.0002	0.0002
Chromium III	**1hr**	µg/m^3	0.0489	0.0504	0.0477	0.0524	0.0611
	Annual	µg/m^3	0.0012	0.0014	0.0015	0.0012	0.0012
Chromium VI	**Annual**	µg/m^3	0.000002	0.000002	0.000002	0.000002	0.000002
Copper	**1hr**	µg/m^3	0.0154	0.0159	0.0150	0.0165	0.0193
	Annual	µg/m^3	0.0004	0.0004	0.0005	0.0004	0.0004
Manganese	**1hr**	µg/m^3	0.0319	0.0329	0.0311	0.0342	0.0398
	Annual	µg/m^3	0.0008	0.0009	0.0010	0.0008	0.0008
Mercury	**1hr**	µg/m^3	0.0177	0.0183	0.0173	0.0190	0.0221
	Annual	µg/m^3	0.0004	0.0005	0.0006	0.0005	0.0004
Vanadium	**24hr**	µg/m^3	0.0008	0.0009	0.0012	0.0008	0.0008
Amine 1	**1hr**	µg/m^3	1.64	1.73	1.67	1.68	2.11
	24hr	µg/m^3	0.43	0.51	0.69	0.45	0.44
Amine 2	**1hr**	µg/m^3	1.67	1.75	1.68	1.73	2.14
	24hr	µg/m^3	0.43	0.51	0.69	0.45	0.45

Pollutant	Averaging Period	Unit	Max PC 2018	Max PC 2019	Max PC 2020	Max PC 2021	Max PC 2022
Total Amine	**1hr**	$\mu g/m^3$	3.30	3.48	3.35	3.41	4.25
	24hr	$\mu g/m^3$	0.86	1.02	1.39	0.89	0.89
Nitrosamine	**Annual**	ng/m^3	0.011	0.013	0.013	0.012	0.012
Nitramine	**Annual**	ng/m^3	0.012	0.013	0.015	0.012	0.009
Total Nitrosamine and Nitramine	**Annual**	ng/m^3	0.021	0.022	0.025	0.021	0.020
Aldehyde	**1hr**	$\mu g/m^3$	8.86	9.13	8.64	9.50	11.07
	Annual	$\mu g/m^3$	0.11	0.13	0.14	0.11	0.11

Table 3: Maximum Ground Level Pollutant Impacts Across the Receptor Grid for Each Modelled Meteorological Year with the Proposed Scheme Scenario

Pollutant	Averaging Period	Unit	Max Impact 2018	Max Impact 2019	Max Impact 2020	Max Impact 2021	Max Impact 2022	Air Quality Standard	Impact as % of Standard
NO_2	1hr	µg/m^3	74.6	75.9	78.5	76.6	81.8	200	40.9%
	Annual	µg/m^3	1.0	1.2	1.3	1.1	1.1	40	3.3%
PM_{10}	24hr	µg/m^3	0.2	0.2	0.2	0.3	0.2	50	0.5%
	Annual	µg/m^3	0.0	0.1	0.1	0.1	0.0	40	0.1%
$PM_{2.5}$	Annual	µg/m^3	0.0	0.1	0.1	0.1	0.0	20	0.3%
SO_2	15 minutes	µg/m^3	150.1	148.1	167.7	151.1	164.4	266	63.1%
	1hr	µg/m^3	105.1	107.5	109.3	109.4	114.8	350	32.8%
	24hr	µg/m^3	3.6	5.8	8.2	5.5	5.0	125	6.6%
CO	8hr	µg/m^3	48.0	61.4	59.6	63.8	76.5	10,000	0.8%
HF	1hr	µg/m^3	0.7	0.7	0.6	0.7	1.0	160	0.6%
HCl	1hr	µg/m^3	41.8	42.0	37.8	41.6	58.4	750	7.8%
	Annual	µg/m^3	0.1	0.1	0.1	0.1	0.1	16	0.6%
NH3	1hr	µg/m^3	1.5	2.7	3.6	2.4	2.3	2,500	0.1%
	Annual	µg/m^3	0.1	0.1	0.2	0.1	0.1	180	0.1%
Arsenic	Annual	µg/m^3	0.0001	0.0002	0.0002	0.0002	0.0001	0.006	3.0%
Cadmium	Annual	µg/m^3	0.0002	0.0002	0.0002	0.0002	0.0002	0.005	4.8%

Pollutant	Averaging Period	Unit	Max Impact 2018	Max Impact 2019	Max Impact 2020	Max Impact 2021	Max Impact 2022	Air Quality Standard	Impact as % of Standard
Lead	**Annual**	µg/m^3	0.0002	0.0003	0.0004	0.0003	0.0003	0.25	0.1%
Nickel	**Annual**	µg/m^3	0.0011	0.0014	0.0016	0.0014	0.0013	0.02	7.9%
Antimony	**1hr**	µg/m^3	0.0048	0.0048	0.0043	0.0048	0.0067	150	0.004%
	Annual	µg/m^3	0.0001	0.0001	0.0001	0.0001	0.0001	5	0.002%
Chromium III	**1hr**	µg/m^3	0.0384	0.0386	0.0348	0.0383	0.0537	150	0.036%
	Annual	µg/m^3	0.0004	0.0006	0.0007	0.0006	0.0005	5	0.013%
Chromium VI	**Annual**	µg/m^3	0.000001	0.000001	0.000001	0.000001	0.000001	0.00025	0.4%
Copper	**Annual**	µg/m^3	0.0121	0.0122	0.0110	0.0121	0.0169	200	0.008%
	1hr	µg/m^3	0.0001	0.0002	0.0002	0.0002	0.0002	10	0.002%
Manganese	**1hr**	µg/m^3	0.0251	0.0252	0.0227	0.0250	0.0350	1500	0.002%
	Annual	µg/m^3	0.0003	0.0004	0.0004	0.0004	0.0003	0.15	0.3%
Mercury	**1hr**	µg/m^3	0.0139	0.0140	0.0126	0.0139	0.0195	7.5	0.3%
	Annual	µg/m^3	0.0002	0.0002	0.0002	0.0002	0.0002	0.06	0.4%
Vanadium	**24hr**	µg/m^3	0.0004	0.0007	0.0010	0.0006	0.0007	1	0.1%
Amine 1	**1hr**	µg/m^3	1.64	1.73	1.67	1.68	2.11	400	0.5%
	24hr	µg/m^3	0.43	0.51	0.69	0.45	0.44	100	0.7%
Amine 2	**1hr**	µg/m^3	1.67	1.75	1.68	1.73	2.14	400	0.5%
	24hr	µg/m^3	0.43	0.51	0.69	0.45	0.45	100	0.7%

Pollutant	Averaging Period	Unit	Max Impact 2018	Max Impact 2019	Max Impact 2020	Max Impact 2021	Max Impact 2022	Air Quality Standard	Impact as % of Standard
Total Amine	**1hr**	µg/m^3	3.30	3.48	3.35	3.41	4.25	400	1.1%
	24hr	µg/m^3	0.86	1.02	1.39	0.89	0.89	100	1.4%
Nitrosamine	**Annual**	ng/m^3	0.011	0.013	0.013	0.012	0.012	0.2	6.5%
Nitramine	**Annual**	ng/m^3	0.012	0.013	0.015	0.012	0.009	0.2	7.7%
Total Nitrosamine and Nitramine	**Annual**	ng/m^3	0.021	0.022	0.025	0.021	0.020	0.2	12.5%
Aldehyde	**1hr**	µg/m^3	8.86	9.13	8.64	9.50	11.07	100	11.1%
	Annual	µg/m^3	0.11	0.13	0.14	0.11	0.11	5	2.8%

2.2. ECOLOGICAL RECEPTORS

2.2.1. The maximum PC for annual mean NO_x in the Baseline and Proposed Scheme scenarios for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 4**.

2.2.2. The maximum PC for daily NO_X in the Baseline and Proposed Scheme scenarios for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 5**.

2.2.3. The maximum PC for annual mean NH_3 in the Baseline and Proposed Scheme scenarios for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 6**.

2.2.4. The maximum PC for annual mean SO_2 in the Baseline and Proposed Scheme scenarios for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 7**.

2.2.5. The maximum PC for nitrogen deposition in the Baseline and Proposed Scheme scenarios for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 8**.

2.2.6. The maximum PC for acid deposition in the Baseline and Proposed Scheme scenarios for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 9**.

2.2.7. For NO_x, NH_3, SO_2, nitrogen and acid deposition at each designated ecological site, the maximum impact (Proposed Scheme PC – Baseline PC) with the Proposed Scheme each of the modelled meteorological years (2018-2022) is shown within **Table 4** to **Table 9** respectively.

2.2.8. The maximum impact at each site has also been presented as a percentage of the pollutant and site-specific critical level/load (CL).

2.2.9. The assessment standards for the designated ecological sites can be found in **Table 5-5** within the **Chapter 5: Air Quality (Volume 1)**. Local Nature Reserves within 2km of the Proposed Scheme are included in **Table 4** to **Table 9**.

Table 4: Modelled Maximum Baseline and Proposed Scheme PC and Impacts at Ecological Receptors for Annual Mean NO_x

Ecological Site	Scenario (PC)	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
Epping Forest - Special Area of Conservation (SAC), Site of Special Scientific Interest (SSSI)	Baseline	0.06	0.05	0.04	0.04	0.07
	Proposed Scheme	0.07	0.05	0.05	0.05	0.08
	Impact	0.01	0.01	0.01	0.01	0.02
	Impact as % of CL	0.03%	0.02%	0.03%	0.03%	0.05%
Ingrebourne Marshes - SSSI	Baseline	0.93	1.14	1.10	1.09	1.02
	Proposed Scheme	1.00	1.21	1.16	1.20	1.09
	Impact	0.07	0.08	0.06	0.11	0.08
	Impact as % of CL	0.24%	0.25%	0.21%	0.37%	0.26%
Inner Thames Marshes - SSSI	Baseline	1.46	1.69	2.02	1.36	1.47
	Proposed Scheme	1.63	1.91	2.19	1.59	1.67
	Impact	0.24	0.28	0.32	0.24	0.24
	Impact as % of CL	0.80%	0.93%	1.07%	0.80%	0.79%
Oxleas Woodlands - SSSI	Baseline	0.21	0.15	0.20	0.25	0.22
	Proposed Scheme	0.25	0.17	0.24	0.30	0.26
	Impact	0.04	0.03	0.04	0.05	0.05
	Impact as % of CL	0.14%	0.10%	0.13%	0.17%	0.15%
West Thurrock Lagoon and Marshes - SSSI	Baseline	0.17	0.22	0.19	0.19	0.20
	Proposed Scheme	0.17	0.23	0.20	0.20	0.21

Ecological Site	Scenario (PC)	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
	Impact	0.01	0.01	0.01	0.01	0.02
	Impact as % of CL	0.02%	0.02%	0.03%	0.04%	0.05%
Crossness - Local Nature Reserve (LNR)	**Baseline**	1.15	0.58	1.08	1.03	0.90
	Proposed Scheme	0.95	0.62	0.94	1.18	0.95
	Impact	0.23	0.21	0.19	0.39	0.34
	Impact as % of CL	0.77%	0.72%	0.62%	1.31%	1.13%
Lesnes Abbey Woods - LNR	**Baseline**	0.30	0.18	0.26	0.38	0.32
	Proposed Scheme	0.42	0.26	0.37	0.54	0.44
	Impact	0.12	0.09	0.11	0.18	0.14
	Impact as % of CL	0.40%	0.29%	0.36%	0.59%	0.47%
Rainham Marshes - LNR	**Baseline**	1.46	1.69	2.02	1.36	1.47
	Proposed Scheme	1.63	1.91	2.19	1.59	1.67
	Impact	0.24	0.28	0.32	0.24	0.24
	Impact as % of CL	0.80%	0.93%	1.07%	0.80%	0.79%

Table 5: Modelled Maximum Baseline and Proposed PC and Impacts at Ecological Receptors for Daily Mean NO_X ($\mu g/m^3$)

Ecological Site	Scenario (PC)	Max PC 2018 ($\mu g/m^3$)	Max PC 2019 ($\mu g/m^3$)	Max PC 2020 ($\mu g/m^3$)	Max PC 2021 ($\mu g/m^3$)	Max PC 2022 ($\mu g/m^3$)
Epping Forest - SAC, SSSI	Baseline	1.10	0.67	0.83	0.90	1.25
	Proposed Scheme	1.48	0.77	0.92	1.36	1.45
	Impact	0.38	0.18	0.30	0.48	0.25
	Impact as % of CL	0.19%	0.09%	0.15%	0.24%	0.13%
Ingrebourne Marshes - SSSI	Baseline	5.92	5.86	5.04	5.72	6.32
	Proposed Scheme	6.82	6.34	5.51	7.01	7.01
	Impact	1.01	0.56	0.52	1.30	0.69
	Impact as % of CL	0.50%	0.28%	0.26%	0.65%	0.35%
Inner Thames Marshes - SSSI	Baseline	10.03	10.20	11.38	9.77	10.55
	Proposed Scheme	10.33	10.08	11.08	9.91	10.43
	Impact	1.59	1.34	1.94	2.03	1.52
	Impact as % of CL	0.79%	0.67%	0.97%	1.02%	0.76%
Oxleas Woodlands - SSSI	Baseline	2.13	2.86	2.32	3.42	2.73
	Proposed Scheme	2.47	3.28	2.60	3.81	3.26
	Impact	0.34	0.44	0.42	0.39	0.54
	Impact as % of CL	0.17%	0.22%	0.21%	0.20%	0.27%
West Thurrock Lagoon and Marshes - SSSI	Baseline	2.48	2.42	2.30	2.22	2.26
	Proposed Scheme	2.43	2.54	2.21	2.02	2.42

Ecological Site	Scenario (PC)	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
	Impact	0.06	0.13	0.09	-0.11	0.24
	Impact as % of CL	0.03%	0.06%	0.04%	-0.05%	0.12%
Crossness - LNR	**Baseline**	27.24	15.80	26.20	19.20	17.10
	Proposed Scheme	15.83	18.73	19.03	26.99	19.19
	Impact	5.39	8.40	5.66	12.89	8.95
	Impact as % of CL	2.70%	4.20%	2.83%	6.45%	4.47%
Lesnes Abbey Woods - LNR	**Baseline**	5.58	4.21	3.61	6.68	4.23
	Proposed Scheme	8.50	5.85	6.11	9.61	5.96
	Impact	3.24	1.88	2.64	2.99	2.14
	Impact as % of CL	1.62%	0.94%	1.32%	1.49%	1.07%
Rainham Marshes - LNR	**Baseline**	10.03	10.20	11.03	9.77	10.55
	Proposed Scheme	10.33	9.97	10.99	9.91	10.20
	Impact	1.59	1.33	1.94	2.03	1.52
	Impact as % of CL	0.79%	0.66%	0.97%	1.02%	0.76%

Table 6: Modelled Maximum Baseline and Proposed Scheme PC and Impacts at Ecological Receptors for Annual Mean NH_3 ($\mu g/m^3$)

Ecological Site	Scenario (PC)	Max PC 2018 ($\mu g/m^3$)	Max PC 2019 ($\mu g/m^3$)	Max PC 2020 ($\mu g/m^3$)	Max PC 2021 ($\mu g/m^3$)	Max PC 2022 ($\mu g/m^3$)
Epping Forest - SAC, SSSI	Baseline	0.01	0.00	0.00	0.00	0.01
	Proposed Scheme	0.01	0.01	0.01	0.00	0.01
	Impact	0.00	0.00	0.00	0.00	0.00
	Impact as % of CL	0.10%	0.07%	0.08%	0.09%	0.14%
Ingrebourne Marshes - SSSI	Baseline	0.09	0.11	0.11	0.11	0.10
	Proposed Scheme	0.10	0.12	0.11	0.12	0.11
	Impact	0.01	0.01	0.01	0.01	0.01
	Impact as % of CL	0.60%	0.65%	0.56%	0.91%	0.64%
Inner Thames Marshes - SSSI	Baseline	0.14	0.16	0.19	0.13	0.14
	Proposed Scheme	0.16	0.18	0.21	0.15	0.16
	Impact	0.03	0.03	0.03	0.03	0.02
	Impact as % of CL	0.84%	0.99%	1.13%	0.85%	0.83%
Oxleas Woodlands - SSSI	Baseline	0.02	0.01	0.02	0.02	0.02
	Proposed Scheme	0.02	0.02	0.02	0.03	0.03
	Impact	0.00	0.00	0.00	0.00	0.00
	Impact as % of CL	0.39%	0.29%	0.39%	0.49%	0.45%
West Thurrock Lagoon and Marshes - SSSI	Baseline	0.02	0.02	0.02	0.02	0.02
	Proposed Scheme	0.02	0.02	0.02	0.02	0.02

Ecological Site	Scenario (PC)	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
	Impact	0.00	0.00	0.00	0.00	0.00
	Impact as % of CL	0.01%	0.01%	0.02%	0.03%	0.04%
Crossness - LNR	**Baseline**	0.11	0.05	0.10	0.10	0.09
	Proposed Scheme	0.10	0.06	0.10	0.12	0.10
	Impact	0.03	0.02	0.03	0.05	0.04
	Impact as % of CL	2.80%	2.33%	2.68%	4.79%	3.98%
Lesnes Abbey Woods - LNR	**Baseline**	0.03	0.02	0.03	0.04	0.03
	Proposed Scheme	0.04	0.03	0.04	0.05	0.04
	Impact	0.01	0.01	0.01	0.02	0.01
	Impact as % of CL	1.17%	0.88%	1.11%	1.76%	1.40%
Rainham Marshes - LNR	**Baseline**	0.14	0.16	0.19	0.13	0.14
	Proposed Scheme	0.16	0.18	0.21	0.15	0.16
	Impact	0.03	0.03	0.03	0.02	0.02
	Impact as % of CL	0.84%	0.99%	1.13%	0.83%	0.83%

Table 7: Modelled Maximum Baseline and Proposed Scheme PC and Impacts at Ecological Receptors for Annual Mean SO_2 ($\mu g/m^3$)

Ecological Site	Scenario (PC)	Max PC 2018 ($\mu g/m^3$)	Max PC 2019 ($\mu g/m^3$)	Max PC 2020 ($\mu g/m^3$)	Max PC 2021 ($\mu g/m^3$)	Max PC 2022 ($\mu g/m^3$)
Epping Forest - SAC, SSSI	Baseline	0.02	0.01	0.01	0.01	0.02
	Proposed Scheme	0.02	0.01	0.01	0.01	0.02
	Impact	0.00	0.00	0.00	0.00	0.00
	Impact as % of CL	0.03%	0.02%	0.02%	0.03%	0.04%
Ingrebourne Marshes - SSSI	Baseline	0.26	0.32	0.31	0.31	0.28
	Proposed Scheme	0.28	0.33	0.32	0.33	0.30
	Impact	0.02	0.02	0.02	0.02	0.02
	Impact as % of CL	0.16%	0.18%	0.15%	0.24%	0.18%
Inner Thames Marshes - SSSI	Baseline	0.38	0.44	0.53	0.36	0.38
	Proposed Scheme	0.44	0.51	0.59	0.43	0.45
	Impact	0.07	0.09	0.10	0.07	0.07
	Impact as % of CL	0.36%	0.43%	0.49%	0.36%	0.35%
Oxleas Woodlands - SSSI	Baseline	0.06	0.04	0.05	0.07	0.06
	Proposed Scheme	0.07	0.05	0.06	0.08	0.07
	Impact	0.01	0.01	0.01	0.01	0.01
	Impact as % of CL	0.11%	0.08%	0.11%	0.14%	0.12%

Ecological Site	Scenario (PC)	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
Crossness - LNR	**Baseline**	0.29	0.15	0.28	0.28	0.24
	Proposed Scheme	0.28	0.17	0.28	0.34	0.27
	Impact	0.08	0.07	0.08	0.14	0.12
	Impact as % of CL	0.83%	0.68%	0.81%	1.41%	1.17%
Lesnes Abbey Woods - LNR	**Baseline**	0.08	0.05	0.07	0.10	0.09
	Proposed Scheme	0.11	0.07	0.10	0.15	0.12
	Impact	0.03	0.02	0.03	0.05	0.04
	Impact as % of CL	0.33%	0.25%	0.31%	0.50%	0.40%
Rainham Marshes - LNR	**Baseline**	0.38	0.44	0.53	0.36	0.38
	Proposed Scheme	0.44	0.51	0.59	0.43	0.45
	Impact	0.07	0.09	0.10	0.07	0.07
	Impact as % of CL	0.36%	0.43%	0.49%	0.35%	0.35%

Table 8: Modelled Maximum Baseline and Proposed Scheme PC and Impacts at Ecological Receptors for Annual Mean Nitrogen Deposition (kg/N/ha/yr)

Ecological Site	Scenario (PC)	Max PC 2018 (kg/N/ha/yr)	Max PC 2019 (kg/N/ha/yr)	Max PC 2020 (kg/N/ha/yr)	Max PC 2021 (kg/N/ha/yr)	Max PC 2022 (kg/N/ha/yr)
Epping Forest - SAC, SSSI	Baseline	0.06	0.05	0.04	0.04	0.06
	Proposed Scheme	0.07	0.05	0.05	0.05	0.07
	Impact	0.01	0.01	0.01	0.01	0.02
	Impact as % of CL	0.24%	0.17%	0.19%	0.23%	0.34%
Ingrebourne Marshes - SSSI	Baseline	0.58	0.71	0.68	0.68	0.63
	Proposed Scheme	0.65	0.78	0.74	0.78	0.70
	Impact	0.07	0.08	0.07	0.10	0.08
	Impact as % of CL	0.47%	0.52%	0.45%	0.65%	0.50%
Inner Thames Marshes - SSSI	Baseline	0.86	1.00	1.19	0.81	0.87
	Proposed Scheme	1.04	1.21	1.39	1.01	1.06
	Impact	0.20	0.24	0.26	0.21	0.20
	Impact as % of CL	2.00%	2.37%	2.64%	2.07%	2.04%
Oxleas Woodlands - SSSI	Baseline	0.21	0.15	0.19	0.25	0.21
	Proposed Scheme	0.26	0.17	0.24	0.30	0.26
	Impact	0.05	0.04	0.05	0.06	0.06
	Impact as % of CL	0.33%	0.24%	0.32%	0.42%	0.37%
	Baseline	0.10	0.14	0.11	0.11	0.12

Ecological Site	Scenario (PC)	Max PC 2018 (kg/N/ha/yr)	Max PC 2019 (kg/N/ha/yr)	Max PC 2020 (kg/N/ha/yr)	Max PC 2021 (kg/N/ha/yr)	Max PC 2022 (kg/N/ha/yr)
West Thurrock Lagoon and Marshes - SSSI	**Proposed Scheme**	0.11	0.14	0.13	0.12	0.13
	Impact	0.01	0.01	0.01	0.01	0.01
	Impact as % of CL	0.08%	0.09%	0.10%	0.12%	0.14%
Crossness - LNR	**Baseline**	0.67	0.33	0.63	0.63	0.53
	Proposed Scheme	0.65	0.41	0.64	0.79	0.63
	Impact	0.20	0.16	0.19	0.33	0.28
	Impact as % of CL	2.03%	1.61%	1.91%	3.34%	2.77%
Lesnes Abbey Woods - LNR	**Baseline**	0.29	0.17	0.25	0.37	0.31
	Proposed Scheme	0.42	0.27	0.38	0.56	0.46
	Impact	0.14	0.10	0.13	0.19	0.15
	Impact as % of CL	1.38%	1.01%	1.30%	1.89%	1.51%
Rainham Marshes - LNR	**Baseline**	0.86	1.00	1.19	0.81	0.87
	Proposed Scheme	1.04	1.21	1.39	1.01	1.06
	Impact	0.20	0.23	0.26	0.20	0.20
	Impact as % of CL	2.00%	2.34%	2.64%	2.02%	2.00%

Table 9: Modelled Maximum Baseline and Proposed Scheme PC and Impacts at Ecological Receptors for Annual Mean Acid Deposition

Ecological Site	Scenario (PC)	Max PC 2018 (keq/ha/yr)	Max PC 2019 (keq/ha/yr)	Max PC 2020 (keq/ha/yr)	Max PC 2021 (keq/ha/yr)	Max PC 2022 (keq/ha/yr)
Epping Forest - SAC, SSSI	Baseline	0.01	0.01	0.01	0.01	0.01
	Proposed Scheme	0.01	0.01	0.01	0.01	0.01
	Impact	0.00	0.00	0.00	0.00	0.00
	Impact as % of CL	0.09%	0.06%	0.07%	0.08%	0.12%
Oxleas Woodlands - SSSI	Baseline	0.03	0.02	0.03	0.03	0.03
	Proposed Scheme	0.03	0.02	0.03	0.04	0.04
	Impact	0.01	0.00	0.01	0.01	0.01
	Impact as % of CL	0.22%	0.16%	0.22%	0.28%	0.25%

3. MARINE VESSEL MODELLING

3.1. CONSTRUCTION PHASE

HUMAN RECEPTORS

3.1.1. The maximum PC from marine vessels during construction for all pollutants for each of the modelled meteorological years (2018-2022) is shown in **Table 10**.

3.1.2. The data shown represent the maximum impacts anywhere within the model domain, irrespective of the presence of receptors at that location.

Table 10: Maximum Ground Level Pollutant Impacts across the Receptor Grid for Each Modelled Meteorological Year from Marine Vessels during Construction

Pollutant	Averaging Period	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
NO_2	1hr	9.32	9.43	9.80	10.17	10.20
PM_{10}	24hr	0.10	0.08	0.11	0.09	0.12
SO_2	15 minutes	0.81	0.80	0.88	0.84	0.92
	1hr	0.70	0.73	0.76	0.80	0.81
	24hr	0.13	0.14	0.16	0.14	0.15

ECOLOGICAL RECEPTORS

3.1.3. The maximum PC from marine vessels during construction for daily NO_X for each of the modelled meteorological years (2018-2022) at each of the designated is shown in **Table 11**. The maximum impact at each site has also been presented as a percentage of the critical level (CL).

Table 11: Modelled Maximum Marine Vessel Impacts at Ecological Receptors for Daily Mean NO_X during Construction

Ecological Site	Scenario	Max PC 2018 (µg/m³)	Max PC 2019 (µg/m³)	Max PC 2020 (µg/m³)	Max PC 2021 (µg/m³)	Max PC 2022 (µg/m³)
Epping Forest - SAC, SSSI	**Impact**	0.09	0.05	0.10	0.07	0.12
	Impact as % of CL	0.04%	0.02%	0.05%	0.04%	0.06%
Ingrebourne Marshes - SSSI	**Impact**	0.72	0.73	0.76	0.69	0.78
	Impact as % of CL	0.36%	0.36%	0.38%	0.34%	0.39%
Inner Thames Marshes - SSSI	**Impact**	1.20	1.22	1.38	1.54	1.94
	Impact as % of CL	0.60%	0.61%	0.69%	0.77%	0.97%
Oxleas Woodlands - SSSI	**Impact**	0.17	0.17	0.23	0.22	0.18
	Impact as % of CL	0.09%	0.08%	0.11%	0.11%	0.09%
West Thurrock Lagoon and Marshes - SSSI	**Impact**	0.55	0.43	0.51	0.36	0.64
	Impact as % of CL	0.27%	0.21%	0.25%	0.18%	0.32%
Crossness - LNR	**Impact**	4.03	3.62	4.77	4.45	4.47
	Impact as % of CL	2.01%	1.81%	2.39%	2.23%	2.23%
Lesnes Abbey Woods - LNR	**Impact**	0.46	0.36	0.42	0.46	0.45
	Impact as % of CL	0.23%	0.18%	0.21%	0.23%	0.23%
Rainham Marshes - LNR	**Impact**	1.20	1.22	1.38	1.54	1.94
	Impact as % of CL	0.60%	0.61%	0.69%	0.77%	0.97%

3.2. OPERATION PHASE

HUMAN RECEPTORS

3.2.1. The maximum PC from marine vessels during operation for all pollutants for each of the modelled meteorological years (2018-2022) is shown in **Table 12**.

3.2.2. The data shown represent the maximum impacts anywhere within the model domain, irrespective of the presence of receptors at that location.

Table 12: Maximum Ground Level Pollutant Impacts across the Receptor Grid for Each Modelled Meteorological Year from Marine Vessels during Operation

Pollutant	Averaging Period	Max PC 2018 ($\mu g/m^3$)	Max PC 2019 ($\mu g/m^3$)	Max PC 2020 ($\mu g/m^3$)	Max PC 2021 ($\mu g/m^3$)	Max PC 2022 ($\mu g/m^3$)
NO_2	1hr	4.81	4.92	5.09	4.93	4.95
	Annual	0.53	0.62	0.64	0.58	0.56
PM_{10}	24hr	0.46	0.47	0.46	0.46	0.46
	Annual	0.07	0.08	0.08	0.07	0.07
$PM_{2.5}$	Annual	0.07	0.08	0.08	0.07	0.07
SO_2	15 minutes	1.55	1.57	1.66	1.71	1.69
	1hr	1.07	1.13	1.13	1.13	1.18
	24hr	0.68	0.70	0.70	0.67	0.69

ECOLOGICAL RECEPTORS

3.2.3. The maximum PC from marine vessels during operation for annual mean NO_x for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 13**.

3.2.4. The maximum PC from marine vessels during operation for daily NO_X for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 14**.

3.2.5. The maximum PC from marine vessels during operation for annual mean SO_2 for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 15**.

3.2.6. The maximum PC from marine vessels during operation for nitrogen deposition for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 16**.

The maximum PC from marine vessels during operation for acid deposition for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 17**.

3.2.7. The maximum impact at each site has also been presented as a percentage of the pollutant and site-specific critical level/load (CL).

Table 13: Modelled Maximum Marine Vessel Impacts at Ecological Receptors for Annual Mean NO_X during Operation

Ecological Site	Scenario	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
Epping Forest - SAC, SSSI	Impact	0.002	0.002	0.002	0.001	0.002
	Impact as % of CL	0.005%	0.004%	0.004%	0.004%	0.005%
Ingrebourne Marshes - SSSI	Impact	0.042	0.049	0.048	0.051	0.047
	Impact as % of CL	0.105%	0.122%	0.119%	0.128%	0.118%
Inner Thames Marshes - SSSI	Impact	0.082	0.093	0.102	0.093	0.094
	Impact as % of CL	0.206%	0.233%	0.255%	0.233%	0.234%
Oxleas Woodlands - SSSI	Impact	0.008	0.007	0.008	0.010	0.009
	Impact as % of CL	0.020%	0.017%	0.019%	0.024%	0.023%
West Thurrock Lagoon and Marshes - SSSI	Impact	0.021	0.026	0.025	0.025	0.026
	Impact as % of CL	0.052%	0.064%	0.062%	0.062%	0.064%
Crossness - LNR	Impact	0.155	0.133	0.130	0.153	0.143
	Impact as % of CL	0.388%	0.332%	0.325%	0.382%	0.356%
Lesnes Abbey Woods - LNR	Impact	0.022	0.019	0.020	0.026	0.024
	Impact as % of CL	0.056%	0.048%	0.050%	0.064%	0.061%
Rainham Marshes - LNR	Impact	0.082	0.093	0.102	0.093	0.090
	Impact as % of CL	0.206%	0.233%	0.255%	0.233%	0.226%

Table 14: Modelled Maximum Marine Vessel Impacts at Ecological Receptors for Daily Mean NO_X during Operation

Ecological Site	Scenario	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
Epping Forest - SAC, SSSI	Impact	0.072	0.042	0.053	0.060	0.068
	Impact as % of CL	0.04%	0.02%	0.03%	0.03%	0.03%
Ingrebourne Marshes - SSSI	Impact	0.403	0.412	0.424	0.387	0.448
	Impact as % of CL	0.20%	0.21%	0.21%	0.19%	0.22%
Inner Thames Marshes - SSSI	Impact	0.636	0.578	0.632	0.652	0.689
	Impact as % of CL	0.32%	0.29%	0.32%	0.33%	0.34%
Oxleas Woodlands - SSSI	Impact	0.106	0.118	0.155	0.150	0.127
	Impact as % of CL	0.05%	0.06%	0.08%	0.07%	0.06%
West Thurrock Lagoon and Marshes - SSSI	Impact	0.355	0.275	0.332	0.237	0.410
	Impact as % of CL	0.18%	0.14%	0.17%	0.12%	0.20%
Crossness - LNR	Impact	2.292	1.899	1.906	1.888	2.040
	Impact as % of CL	1.15%	0.95%	0.95%	0.94%	1.02%
Lesnes Abbey Woods - LNR	Impact	0.272	0.249	0.326	0.349	0.332
	Impact as % of CL	0.14%	0.12%	0.16%	0.17%	0.17%
Rainham Marshes - LNR	Impact	0.636	0.578	0.600	0.615	0.686
	Impact as % of CL	0.32%	0.29%	0.30%	0.31%	0.34%

Table 15: Modelled Maximum Marine Vessel Impacts at Ecological Receptors for Annual Mean SO_2 during Operation

Ecological Site	Scenario	Max PC 2018 (µg/m³)	Max PC 2019 (µg/m³)	Max PC 2020 (µg/m³)	Max PC 2021 (µg/m³)	Max PC 2022 (µg/m³)
Epping Forest - SAC, SSSI	Impact	0.0002	0.0002	0.0002	0.0002	0.0002
	Impact as % of CL	0.0020%	0.0016%	0.0016%	0.0015%	0.0023%
Ingrebourne Marshes - SSSI	Impact	0.005	0.006	0.006	0.006	0.005
	Impact as % of CL	0.049%	0.057%	0.055%	0.060%	0.054%
Inner Thames Marshes - SSSI	Impact	0.009	0.010	0.011	0.010	0.009
	Impact as % of CL	0.044%	0.050%	0.056%	0.049%	0.047%
Oxleas Woodlands - SSSI	Impact	0.001	0.001	0.001	0.001	0.001
	Impact as % of CL	0.0084%	0.0072%	0.0080%	0.0103%	0.0097%
West Thurrock Lagoon and Marshes - SSSI	Impact	0.002	0.002	0.002	0.002	0.002
	Impact as % of CL	0.0084%	0.0105%	0.0101%	0.0100%	0.0104%
Crossness - LNR	Impact	0.018	0.015	0.015	0.017	0.015
	Impact as % of CL	0.175%	0.145%	0.149%	0.174%	0.152%
Lesnes Abbey Woods - LNR	Impact	0.002	0.002	0.002	0.003	0.003
	Impact as % of CL	0.0218%	0.0190%	0.0205%	0.0271%	0.0253%
Rainham Marshes - LNR	Impact	0.009	0.010	0.011	0.010	0.009
	Impact as % of CL	0.044%	0.050%	0.056%	0.049%	0.047%

Table 16: Modelled Maximum Marine Vessel Impacts at Ecological Receptors for Nitrogen Deposition during Operation

Ecological Site	Scenario	Max PC 2018 (kg/N/ha/yr)	Max PC 2019 (kg/N/ha/yr)	Max PC 2020 (kg/N/ha/yr)	Max PC 2021 (kg/N/ha/yr)	Max PC 2022 (kg/N/ha/yr)
Epping Forest - SAC, SSSI	Impact	0.0004	0.0003	0.0003	0.0003	0.0004
	Impact as % of CL	0.007%	0.006%	0.006%	0.006%	0.009%
Ingrebourne Marshes - SSSI	Impact	0.004	0.005	0.005	0.005	0.005
	Impact as % of CL	0.028%	0.033%	0.032%	0.034%	0.032%
Inner Thames Marshes - SSSI	Impact	0.008	0.009	0.010	0.009	0.009
	Impact as % of CL	0.083%	0.094%	0.103%	0.094%	0.094%
Oxleas Woodlands - SSSI	Impact	0.002	0.001	0.002	0.002	0.002
	Impact as % of CL	0.011%	0.009%	0.010%	0.013%	0.012%
West Thurrock Lagoon and Marshes - SSSI	Impact	0.002	0.003	0.003	0.002	0.003
	Impact as % of CL	0.021%	0.026%	0.025%	0.025%	0.026%
Crossness - LNR	Impact	0.016	0.013	0.013	0.015	0.014
	Impact as % of CL	0.156%	0.134%	0.131%	0.154%	0.143%
Lesnes Abbey Woods - LNR	Impact	0.004	0.004	0.004	0.005	0.005
	Impact as % of CL	0.045%	0.039%	0.041%	0.052%	0.049%
Rainham Marshes - LNR	Impact	0.008	0.009	0.010	0.009	0.009
	Impact as % of CL	0.083%	0.094%	0.103%	0.094%	0.091%

Table 17: Modelled Maximum Marine Vessel Impacts at Ecological Receptors for Acid Deposition during Operation

Ecological Site	Scenario	Max PC 2018 (keq/ha/yr)	Max PC 2019 (keq/ha/yr)	Max PC 2020 (keq/ha/yr)	Max PC 2021 (keq/ha/yr)	Max PC 2022 (keq/ha/yr)
Epping Forest - SAC, SSSI	**Impact**	0.000073	0.000060	0.000060	0.000056	0.000085
	Impact as % of CL	0.001%	0.001%	0.001%	0.001%	0.002%
Oxleas Woodlands - SSSI	**Impact**	0.00031	0.00027	0.00030	0.00038	0.00036
	Impact as % of CL	0.002%	0.002%	0.002%	0.003%	0.002%

4. FULL PROPOSED SCHEME

4.1. CONSTRUCTION PHASE

HUMAN RECEPTORS

4.1.1. The maximum Full Proposed Scheme PC during construction for all pollutants for each of the modelled meteorological years (2018-2022) is shown in **Table 18**.

4.1.2. The maximum Full Proposed Scheme impact during construction for all pollutants for each of the modelled meteorological years (2018-2022) is shown in **Table 19**.

4.1.3. The data shown represent the maximum impacts anywhere within the model domain, irrespective of the presence of receptors at that location.

Table 18: Maximum Ground Level Full Proposed Scheme Process Contribution Across the Receptor Grid for each Modelled Meteorological Year during Construction

Pollutant	Averaging Period	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
NO_2	1hr	58.5	58.4	55.7	55.1	59.5
PM_{10}	24hr	0.6	0.7	0.8	0.7	0.7
SO_2	15 minutes	104.3	104.6	101.4	101.4	103.0
	1hr	71.6	70.9	71.4	69.8	70.6
	24hr	6.6	6.3	6.8	7.0	6.5

Table 19: Maximum Ground Level Full Proposed Scheme Impact across the Receptor Grid for each Modelled Meteorological Year during Construction

Pollutant	Averaging Period	Max Impact 2018 (µg/m^3)	Max Impact 2019 (µg/m^3)	Max Impact 2020 (µg/m^3)	Max Impact 2021 (µg/m^3)	Max Impact 2022 (µg/m^3)	Air Quality Standard	Max Impact as % of Standard
NO_2	1hr	9.32	9.43	9.80	10.17	10.20	200	5.1%
PM_{10}	24hr	0.10	0.08	0.11	0.09	0.12	40	0.3%
SO_2	15 minutes	1.09	1.08	1.18	1.12	1.24	266	0.5%
	1hr	0.70	0.73	0.76	0.80	0.81	350	0.2%
	24hr	0.13	0.14	0.16	0.14	0.15	125	0.1%

ECOLOGICAL RECEPTORS

4.1.4. The maximum Full Proposed Scheme PC during construction for daily NO_X during construction for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 20**.

4.1.5. The maximum impact at each site has also been presented as a percentage of the pollutant and site-specific critical level/load (CL).

Table 20: Modelled Maximum Baseline and Full Proposed Scheme PC and Impacts at Ecological Receptors for Daily Mean NO_X during Construction

Ecological Site	Scenario (PC)	Max PC 2018 (µg/m³)	Max PC 2019 (µg/m³)	Max PC 2020 (µg/m³)	Max PC 2021 (µg/m³)	Max PC 2022 (µg/m³)
Epping Forest - SAC, SSSI	Baseline	1.1	0.7	0.8	0.9	1.3
	Proposed Scheme	1.2	0.7	0.9	1.0	1.4
	Impact	0.1	0.1	0.1	0.1	0.1
	Impact as % of CL	0.1%	0.0%	0.0%	0.0%	0.1%
Grays Thurrock Chalk Pits - SSSI	Baseline	1.3	1.0	0.9	1.1	1.4
	Proposed Scheme	1.4	1.2	1.0	1.3	1.5
	Impact	0.1	0.1	0.1	0.2	0.2
	Impact as % of CL	0.0%	0.1%	0.1%	0.1%	0.1%
Ingrebourne Marshes - SSSI	Baseline	5.9	5.9	5.0	5.7	6.3
	Proposed Scheme	6.6	6.6	5.8	6.4	7.1
	Impact	0.7	0.7	0.8	0.7	0.8
	Impact as % of CL	0.4%	0.4%	0.4%	0.3%	0.4%
Inner Thames Marshes - SSSI	Baseline	10.0	10.2	11.4	9.8	10.5
	Proposed Scheme	11.2	11.3	12.5	11.0	11.8
	Impact	1.2	1.2	1.4	1.5	1.9
	Impact as % of CL	0.6%	0.6%	0.7%	0.8%	1.0%
Oxleas Woodlands - SSSI	Baseline	2.1	2.9	2.3	3.4	2.7
	Proposed Scheme	2.3	3.0	2.5	3.6	2.9

Ecological Site	Scenario (PC)	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
	Impact	0.2	0.2	0.2	0.2	0.2
	Impact as % of CL	0.1%	0.1%	0.1%	0.1%	0.1%
West Thurrock Lagoon and Marshes - SSSI	**Baseline**	2.5	2.4	2.3	2.2	2.3
	Proposed Scheme	3.0	2.8	2.8	2.6	2.9
	Impact	0.5	0.4	0.5	0.4	0.6
	Impact as % of CL	0.3%	0.2%	0.3%	0.2%	0.3%
Crossness - LNR	**Baseline**	27.2	15.8	26.2	19.2	17.1
	Proposed Scheme	29.7	17.3	28.4	21.2	18.9
	Impact	4.0	3.6	4.8	4.5	4.5
	Impact as % of CL	2.0%	1.8%	2.4%	2.2%	2.2%
Lesnes Abbey Woods - LNR	**Baseline**	5.6	4.2	3.6	6.7	4.2
	Proposed Scheme	6.1	4.6	4.1	7.2	4.7
	Impact	0.5	0.4	0.5	0.5	0.6
	Impact as % of CL	0.3%	0.2%	0.2%	0.3%	0.3%
Rainham Marshes - LNR	**Baseline**	10.0	10.2	11.0	9.8	10.5
	Proposed Scheme	11.2	11.3	12.3	11.0	11.8
	Impact	1.2	1.2	1.4	1.5	1.9
	Impact as % of CL	0.6%	0.6%	0.7%	0.8%	1.0%

4.2. OPERATION PHASE

HUMAN RECEPTORS

4.2.1. The maximum Full Proposed Scheme PC during operation for all pollutants for each of the modelled meteorological years (2018-2022) is shown in **Table 21**.

4.2.2. The maximum Full Proposed Scheme impact during operation for all pollutants for each of the modelled meteorological years (2018-2022) is shown in **Table 22**.

4.2.3. The data shown represent the maximum impacts anywhere within the model domain, irrespective of the presence of receptors at that location.

Table 21: Maximum Ground Level Full Proposed Scheme Process Contribution across the Receptor Grid for each Modelled Meteorological Year during Operation

Pollutant	Averaging Period	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
NO_2	1hr	100.1	102.2	100.9	102.7	104.5
	Annual	2.3	2.7	2.8	2.4	2.3
PM_{10}	24hr	0.8	0.9	0.9	0.8	0.8
	Annual	0.2	0.2	0.2	0.2	0.2
SO_2	15 minutes	199.3	199.2	215.6	202.5	209.6
	1hr	138.5	140.9	139.4	143.7	145.1
	24hr	5.8	7.8	10.7	7.4	6.4

Table 22: Maximum Ground Level Full Proposed Scheme Impact Across the Receptor Grid for Each Modelled Meteorological Year during Operation

Pollutant	Averaging Period	Max Impact 2018 ($\mu g/m^3$)	Max Impact 2019 ($\mu g/m^3$)	Max Impact 2020 ($\mu g/m^3$)	Max Impact 2021 ($\mu g/m^3$)	Max Impact 2022 ($\mu g/m^3$)	Air Quality Standard	Max Impact as % of Standard
NO_2	1hr	76.3	77.6	80.2	78.1	83.4	200	41.7%
	Annual	1.0	1.3	1.4	1.2	1.1	40	3.4%
PM_{10}	24hr	0.3	0.4	0.3	0.3	0.3	50	0.7%
	Annual	0.0	0.1	0.1	0.1	0.1	40	0.2%
SO_2	15 minutes	150.7	148.7	168.3	151.6	165.0	266	63.3%
	1hr	105.6	108.0	109.7	109.8	115.3	350	32.9%
	24hr	3.7	5.9	8.3	5.6	5.1	125	6.6%

ECOLOGICAL RECEPTORS

4.2.4. The maximum Full Proposed Scheme PC during operation and impacts for annual mean NO_x for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 23**.

4.2.5. The maximum Full Proposed Scheme PC during operation and impacts for daily NO_x for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 24**.

4.2.6. The maximum Full Proposed Scheme PC during operation and impacts for annual mean SO_2 for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 25**.

4.2.7. The maximum Full Proposed Scheme PC during operation and impacts for nitrogen deposition for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 26**.

4.2.8. The maximum Full Proposed Scheme PC during operation and impacts for acid deposition for each of the modelled meteorological years (2018-2022) at each of the designated ecological sites is shown in **Table 27**.

4.2.9. The maximum impact at each site has also been presented as a percentage of the pollutant and site-specific critical level/load (CL).

Table 23: Modelled Maximum Baseline and Full Proposed Scheme PC and Impacts at Ecological Receptors for Annual Mean NO_X during Operation

Ecological Site	Scenario (PC)	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
Epping Forest - SAC, SSSI	Baseline	0.1	0.0	0.0	0.0	0.1
	Proposed Scheme	0.1	0.1	0.1	0.1	0.1
	Impact	0.0	0.0	0.0	0.0	0.0
	Impact as % of CL	0.0%	0.0%	0.0%	0.0%	0.1%
Grays Thurrock Chalk Pits - SSSI	Baseline	0.1	0.1	0.1	0.1	0.1
	Proposed Scheme	0.1	0.1	0.1	0.1	0.1
	Impact	0.0	0.0	0.0	0.0	0.0
	Impact as % of CL	0.0%	0.0%	0.0%	0.1%	0.1%
Ingrebourne Marshes - SSSI	Baseline	0.9	1.1	1.1	1.1	1.0
	Proposed Scheme	1.0	1.3	1.2	1.3	1.1
	Impact	0.1	0.1	0.1	0.2	0.1
	Impact as % of CL	0.4%	0.4%	0.4%	0.5%	0.4%
Inner Thames Marshes - SSSI	Baseline	1.5	1.7	2.0	1.4	1.5
	Proposed Scheme	1.7	2.0	2.3	1.7	1.8
	Impact	0.3	0.4	0.4	0.3	0.3
	Impact as % of CL	1.0%	1.2%	1.3%	1.1%	1.1%

Ecological Site	Scenario (PC)	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
Oxleas Woodlands - SSSI	Baseline	0.2	0.2	0.2	0.3	0.2
	Proposed Scheme	0.3	0.2	0.2	0.3	0.3
	Impact	0.0	0.0	0.0	0.1	0.1
	Impact as % of CL	0.2%	0.1%	0.2%	0.2%	0.2%
West Thurrock Lagoon and Marshes - SSSI	Baseline	0.2	0.2	0.2	0.2	0.2
	Proposed Scheme	0.2	0.3	0.2	0.2	0.2
	Impact	0.0	0.0	0.0	0.0	0.0
	Impact as % of CL	0.1%	0.1%	0.1%	0.1%	0.1%
Crossness - LNR	Baseline	1.1	0.6	1.1	1.0	0.9
	Proposed Scheme	1.0	0.7	1.0	1.3	1.0
	Impact	0.4	0.3	0.2	0.5	0.4
	Impact as % of CL	1.3%	1.2%	0.8%	1.6%	1.3%
Lesnes Abbey Woods - LNR	Baseline	0.3	0.2	0.3	0.4	0.3
	Proposed Scheme	0.4	0.3	0.4	0.6	0.5
	Impact	0.1	0.1	0.1	0.2	0.2
	Impact as % of CL	0.5%	0.4%	0.4%	0.7%	0.5%
Rainham Marshes - LNR	Baseline	1.5	1.7	2.0	1.4	1.5
	Proposed Scheme	1.7	2.0	2.3	1.7	1.8
	Impact	0.3	0.4	0.4	0.3	0.3
	Impact as % of CL	1.0%	1.2%	1.3%	1.1%	1.1%

Table 24: Modelled Maximum Baseline and Full Proposed Scheme PC and Impacts at Ecological Receptors for Daily Mean NO_X during Operation

Ecological Site	Scenario	Max PC 2018 (µg/m³)	Max PC 2019 (µg/m³)	Max PC 2020 (µg/m³)	Max PC 2021 (µg/m³)	Max PC 2022 (µg/m³)
Epping Forest - SAC, SSSI	Baseline	1.1	0.7	0.8	0.9	1.3
	Proposed Scheme	1.6	0.8	1.0	1.4	1.5
	Impact	0.5	0.2	0.4	0.5	0.3
	Impact as % of CL	0.2%	0.1%	0.2%	0.3%	0.1%
Grays Thurrock Chalk Pits - SSSI	Baseline	1.3	1.0	0.9	1.1	1.4
	Proposed Scheme	1.5	1.1	1.1	1.6	1.6
	Impact	0.2	0.1	0.2	0.4	0.2
	Impact as % of CL	0.1%	0.1%	0.1%	0.2%	0.1%
Ingrebourne Marshes - SSSI	Baseline	5.9	5.9	5.0	5.7	6.3
	Proposed Scheme	7.2	6.8	5.9	7.4	7.5
	Impact	1.4	0.9	0.9	1.7	1.1
	Impact as % of CL	0.7%	0.5%	0.5%	0.8%	0.6%
Inner Thames Marshes - SSSI	Baseline	10.0	10.2	11.4	9.8	10.5
	Proposed Scheme	10.9	10.6	11.7	10.5	11.0
	Impact	2.1	1.9	2.4	2.6	2.0
	Impact as % of CL	1.1%	0.9%	1.2%	1.3%	1.0%
Oxleas Woodlands - SSSI	Baseline	2.1	2.9	2.3	3.4	2.7
	Proposed Scheme	2.6	3.4	2.8	4.0	3.4

Ecological Site	Scenario	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
	Impact	0.4	0.5	0.6	0.5	0.7
	Impact as % of CL	0.2%	0.3%	0.3%	0.3%	0.3%
West Thurrock Lagoon and Marshes - SSSI	**Baseline**	2.5	2.4	2.3	2.2	2.3
	Proposed Scheme	2.8	2.8	2.5	2.3	2.7
	Impact	0.3	0.4	0.3	0.1	0.5
	Impact as % of CL	0.2%	0.2%	0.1%	0.0%	0.3%
Crossness - LNR	**Baseline**	27.2	15.8	26.2	19.2	17.1
	Proposed Scheme	16.6	19.5	19.8	27.9	20.1
	Impact	6.1	9.9	6.9	14.4	10.1
	Impact as % of CL	3.0%	4.9%	3.5%	7.2%	5.0%
Lesnes Abbey Woods - LNR	**Baseline**	5.6	4.2	3.6	6.7	4.2
	Proposed Scheme	8.7	6.1	6.3	10.0	6.3
	Impact	3.5	2.1	2.9	3.3	2.4
	Impact as % of CL	1.7%	1.1%	1.5%	1.7%	1.2%
Rainham Marshes - LNR	**Baseline**	10.0	10.2	11.0	9.8	10.5
	Proposed Scheme	10.9	10.5	11.5	10.5	10.8
	Impact	2.1	1.6	2.4	2.6	2.0
	Impact as % of CL	1.1%	0.8%	1.2%	1.3%	1.0%

Table 25: Modelled Maximum Baseline and Full Proposed Scheme PC and Impacts at Ecological Receptors for Annual Mean SO_2 during Operation

Ecological Site	Scenario	Max PC 2018 (µg/m³)	Max PC 2019 (µg/m³)	Max PC 2020 (µg/m³)	Max PC 2021 (µg/m³)	Max PC 2022 (µg/m³)
Epping Forest - SAC, SSSI	Baseline	0.0	0.0	0.0	0.0	0.0
	Proposed Scheme	0.0	0.0	0.0	0.0	0.0
	Impact	0.0	0.0	0.0	0.0	0.0
	Impact as % of CL	0.0%	0.0%	0.0%	0.1%	0.0%
Grays Thurrock Chalk Pits - SSSI	Baseline	0.0	0.0	0.0	0.0	0.0
	Proposed Scheme	0.0	0.0	0.0	0.0	0.0
	Impact	0.0	0.0	0.0	0.0	0.0
	Impact as % of CL	0.0%	0.0%	0.0%	0.0%	0.0%
Ingrebourne Marshes - SSSI	Baseline	0.3	0.3	0.3	0.3	0.3
	Proposed Scheme	0.3	0.3	0.3	0.3	0.3
	Impact	0.0	0.0	0.0	0.0	0.0
	Impact as % of CL	0.2%	0.2%	0.2%	0.3%	0.2%
Inner Thames Marshes - SSSI	Baseline	0.4	0.4	0.5	0.4	0.4
	Proposed Scheme	0.5	0.5	0.6	0.5	0.5
	Impact	0.1	0.1	0.2	0.1	0.1
	Impact as % of CL	1.1%	1.4%	1.6%	1.1%	1.1%
Oxleas Woodlands - SSSI	Baseline	0.1	0.0	0.1	0.1	0.1
	Proposed Scheme	0.1	0.0	0.1	0.1	0.1

Ecological Site	Scenario	Max PC 2018 (µg/m^3)	Max PC 2019 (µg/m^3)	Max PC 2020 (µg/m^3)	Max PC 2021 (µg/m^3)	Max PC 2022 (µg/m^3)
	Impact	0.0	0.0	0.0	0.0	0.0
	Impact as % of CL	0.2%	0.1%	0.2%	0.2%	0.2%
West Thurrock Lagoon and Marshes - SSSI	**Baseline**	0.0	0.1	0.1	0.1	0.1
	Proposed Scheme	0.0	0.1	0.1	0.1	0.1
	Impact	0.0	0.0	0.0	0.0	0.0
	Impact as % of CL	0.0%	0.0%	0.0%	0.0%	0.1%
Crossness - LNR	**Baseline**	0.3	0.1	0.3	0.3	0.2
	Proposed Scheme	0.3	0.2	0.3	0.3	0.3
	Impact	0.2	0.2	0.2	0.1	0.2
	Impact as % of CL	2.2%	1.9%	1.6%	1.4%	2.1%
Lesnes Abbey Woods - LNR	**Baseline**	0.1	0.0	0.1	0.1	0.1
	Proposed Scheme	0.1	0.1	0.1	0.2	0.1
	Impact	0.0	0.0	0.0	0.1	0.1
	Impact as % of CL	0.5%	0.4%	0.5%	0.7%	0.6%
Rainham Marshes - LNR	**Baseline**	0.4	0.4	0.5	0.4	0.4
	Proposed Scheme	0.5	0.5	0.6	0.5	0.5
	Impact	0.1	0.1	0.2	0.1	0.1
	Impact as % of CL	1.1%	1.4%	1.6%	1.1%	1.1%

Table 26: Modelled Maximum Baseline and Full Proposed Scheme PC and Impacts at Ecological Receptors for Nitrogen Deposition during Operation

Ecological Site	Scenario	Max PC 2018 (kg/N/ha/yr)	Max PC 2019 (kg/N/ha/yr)	Max PC 2020 (kg/N/ha/yr)	Max PC 2021 (kg/N/ha/yr)	Max PC 2022 (kg/N/ha/yr)
Epping Forest - SAC, SSSI	Baseline	0.06	0.05	0.04	0.04	0.06
	Proposed Scheme	0.07	0.05	0.05	0.05	0.07
	Impact	0.01	0.01	0.01	0.01	0.02
	Impact as % of CL	0.25%	0.17%	0.20%	0.23%	0.35%
Ingrebourne Marshes - SSSI	Baseline	0.58	0.71	0.68	0.68	0.63
	Proposed Scheme	0.65	0.79	0.75	0.78	0.71
	Impact	0.07	0.08	0.07	0.10	0.08
	Impact as % of CL	0.50%	0.54%	0.48%	0.69%	0.54%
Inner Thames Marshes - SSSI	Baseline	0.86	1.00	1.19	0.81	0.87
	Proposed Scheme	1.04	1.22	1.40	1.02	1.07
	Impact	0.21	0.25	0.27	0.22	0.21
	Impact as % of CL	2.08%	2.46%	2.72%	2.16%	2.13%
Oxleas Woodlands - SSSI	Baseline	0.21	0.15	0.19	0.25	0.21
	Proposed Scheme	0.26	0.17	0.24	0.31	0.26
	Impact	0.05	0.04	0.05	0.07	0.06
	Impact as % of CL	0.34%	0.25%	0.33%	0.44%	0.39%
	Baseline	0.10	0.14	0.11	0.11	0.12
	Proposed Scheme	0.11	0.15	0.13	0.13	0.14

Ecological Site	Scenario	Max PC 2018 (kg/N/ha/yr)	Max PC 2019 (kg/N/ha/yr)	Max PC 2020 (kg/N/ha/yr)	Max PC 2021 (kg/N/ha/yr)	Max PC 2022 (kg/N/ha/yr)
West Thurrock Lagoon and Marshes - SSSI	**Impact**	0.01	0.01	0.01	0.01	0.02
	Impact as % of CL	0.09%	0.11%	0.13%	0.14%	0.16%
Crossness - LNR	**Baseline**	0.67	0.33	0.63	0.63	0.53
	Proposed Scheme	0.66	0.41	0.64	0.76	0.64
	Impact	0.16	0.15	0.13	0.27	0.23
	Impact as % of CL	1.60%	1.53%	1.29%	2.74%	2.34%
Lesnes Abbey Woods - LNR	**Baseline**	0.29	0.17	0.25	0.37	0.31
	Proposed Scheme	0.42	0.27	0.38	0.56	0.46
	Impact	0.14	0.10	0.13	0.19	0.15
	Impact as % of CL	1.38%	1.01%	1.30%	1.89%	1.51%
Rainham Marshes - LNR	**Baseline**	0.86	1.00	1.19	0.81	0.87
	Proposed Scheme	1.04	1.22	1.40	1.02	1.07
	Impact	0.21	0.24	0.27	0.21	0.21
	Impact as % of CL	2.08%	2.42%	2.72%	2.12%	2.08%

Table 27: Modelled Maximum Baseline and Full Proposed Scheme PC and Impacts at Ecological Receptors for Acid Deposition during Operation

Ecological Site	Scenario	Max PC 2018 (keq/ha/yr)	Max PC 2019 (keq/ha/yr)	Max PC 2020 (keq/ha/yr)	Max PC 2021 (keq/ha/yr)	Max PC 2022 (keq/ha/yr)
Epping Forest - SAC, SSSI	Baseline	0.008	0.006	0.006	0.006	0.009
	Proposed Scheme	0.009	0.007	0.007	0.007	0.010
	Impact	0.002	0.001	0.001	0.001	0.002
	Impact as % of CL	0.09%	0.06%	0.07%	0.08%	0.13%
Oxleas Woodlands - SSSI	Baseline	0.029	0.020	0.027	0.034	0.029
	Proposed Scheme	0.035	0.024	0.032	0.041	0.035
	Impact	0.006	0.005	0.006	0.008	0.007
	Impact as % of CL	0.24%	0.17%	0.23%	0.30%	0.27%

DECARBONISATION

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