

A358 Taunton to Southfields Dualling Scheme

Preliminary Environmental Information Report - Appendix 5.2
Air Quality Receptors

HE551508-ARP-EAQ-ZZ-RP-LA-000006

08/09/21

Table of contents

	Pages
1 Air quality receptors	i
1.1 Human receptors	i
1.2 Ecological receptors	i
2 References	xi

Table of Tables

Table 1-1 Designated habitats assessed	i
Table 1-2 Ecological receptors nitrogen deposition critical loads	iii
Table 1-3 Receptor locations for ecological assessment	iv

1 Air quality receptors

1.1 Human receptors

1.1.1 A total of 44 receptors were included in the assessment. They were selected following the standards in *Design Manual for Roads and Bridges* (DMRB) LA 105 *Air quality* [1], using professional judgement and the following criteria:

- Within 200m of the Affected Road Network (ARN).
- Representativeness of the receptor of the maximum effects of the proposed scheme in that region.
- At risk of exceeding the annual mean nitrogen dioxide (NO₂) Air Quality Objective (AQO).

1.1.2 All locations, referred to as ‘receptors’ are treated as being equally sensitive. The locations are shown in Figure 5.3 Human Receptors.

1.2 Ecological receptors

1.2.1 There are 21 designated habitat sites¹ within 200m of the ARN, which are sensitive to nitrogen (N). These sites and their habitat type are shown in Table 1-1. Critical loads² for designated habitat sites are presented in Table 1-2.

1.2.2 The designated habitats have been included in the air quality modelling assessment. As this assessment followed a ‘simple’ assessment approach, transects have only been modelled at ecological sites with a 1% change against the critical load. The locations modelled are shown in Table 1-3.

1.2.3 Ecological receptor locations are presented in Figure 5.4 Assessed Ecology Receptors.

Table 1-1 Designated habitats assessed

Site name	Site designation	Habitat
Ruttersleigh	Site of Special Scientific Interest (SSSI)	Fen, marsh and swamp
Killerton	SSSI	Broad-leaved, mixed and yew woodland
Deadman	SSSI	Fen, marsh and swamp
Maiden Down	SSSI	Dwarf shrub heath
Huntspill River	National Nature Reserve (NNR)	Fen, marsh and swamp
Children’s Wood/Riverside Park	Local Nature Reserve (LNR)	Fen, marsh and swamp
Grand Western Canal Country Park	LNR	Fen, marsh and swamp
South Taunton Streams	LNR	Fen, marsh and swamp
Screech Owl	LNR	Fen, marsh and swamp
Unnamed ancient woodland 1/2/3/4/5/6	Ancient Woodland (AW)	Broad-leaved, mixed and yew woodland
Bickenhall Wood	AW	Broad-leaved, mixed and yew woodland

¹ Designated habitats, as defined in DMRB LA 105 *Air Quality*, include Ramsar sites, special protection areas, special areas of conservation, sites of special scientific interest, local nature reserves, local wildlife sites, nature improvement areas, ancient woodland and veteran trees.

² Critical loads have been taken from the Air Pollution Information Site (<http://www.apis.ac.uk>).

Site name	Site designation	Habitat
Helliars Copse	AW	Broad-leaved, mixed and yew woodland
Higher Ash/Long Woods	AW	Broad-leaved, mixed and yew woodland
Knights Wood	AW	Broad-leaved, mixed and yew woodland
Line Wood	AW	Broad-leaved, mixed and yew woodland
Parsonage wood	AW	Broad-leaved, mixed and yew woodland
Parsons Steeple	AW	Broad-leaved, mixed and yew woodland
Staple Park Wood	AW	Broad-leaved, mixed and yew woodland
Warren Hill	AW	Broad-leaved, mixed and yew woodland

Table 1-2 Ecological receptors nitrogen deposition critical loads

Designated site	Site designation	Habitat	Total background nitrogen deposition (kg N/ha/yr)	Empirical critical load (kg N/ha/yr)
			Average	
Ruttersleigh	SSSI	Fen, marsh and swamp	21.7	10-15
Killerton	SSSI	Broad-leaved, mixed and yew woodland	33.7	10-20
Deadman	SSSI	Fen, marsh and swamp	21.5	10-15
Maiden Down	SSSI	Dwarf shrub heath	25.1	10-20
Huntspill River	NNR	Fen, marsh and swamp	26.7	10-15
Children's Wood/Riverside Park	LNR	Fen, marsh and swamp	21.8	10-15
Grand Western Canal Country Park	LNR	Fen, marsh and swamp	28.7	10-15
South Taunton Streams	LNR	Fen, marsh and swamp	22.1	10-15
Screech Owl	LNR	Fen, marsh and swamp	22.5	10-15
Unnamed ancient woodland 1/2/3/4	AW	Broad-leaved, mixed and yew woodland	40.0	10-20
Unnamed ancient woodland 5	AW	Broad-leaved, mixed and yew woodland	40.0	10-20
Unnamed ancient woodland 6	AW	Broad-leaved, mixed and yew woodland	38.6	10-20
Bickenhall Wood	AW	Broad-leaved, mixed and yew woodland	40.6	10-20
Helliars Copse	AW	Broad-leaved, mixed and yew woodland	44.5	10-20
Higher Ash/Long Woods	AW	Broad-leaved, mixed and yew woodland	39.9	10-20
Knights Wood	AW	Broad-leaved, mixed and yew woodland	46.3	10-20
Line Wood	AW	Broad-leaved, mixed and yew woodland	37.2	10-20
Parsonage wood	AW	Broad-leaved, mixed and yew woodland	36.1	10-20
Parsons Steeple	AW	Broad-leaved, mixed and yew woodland	37.4	10-20
Staple Park Wood	AW	Broad-leaved, mixed and yew woodland	35.1	10-20
Warren Hill	AW	Broad-leaved, mixed and yew woodland	42.1	10-20

Table 1-3 Receptor locations for ecological assessment

ID	Receptor ID	Site designation	Coordinates closest to the road		Distance from nearest road (m)
			X	Y	
1.0	Ruttersleigh	SSSI	326671	115877	12.5
1.1	Ruttersleigh	SSSI	325174	115966	200.0
3.0	Killerton	SSSI	298089	100062	113.0
4.0	Deadman	SSSI	323832	116198	4.0
6.0	Maiden Down	SSSI	308469	116139	28.4
6_T1	Maiden Down	SSSI	308469	116139	38.4
6_T2	Maiden Down	SSSI	308469	116139	48.4
6_T3	Maiden Down	SSSI	308469	116139	58.4
6_T4	Maiden Down	SSSI	308469	116139	68.4
6_T5	Maiden Down	SSSI	308469	116139	78.4
6_T6	Maiden Down	SSSI	308469	116139	88.4
6_T7	Maiden Down	SSSI	308469	116139	98.4
6_T8	Maiden Down	SSSI	308469	116139	108.4
6_T9	Maiden Down	SSSI	308469	116139	118.4
6_T10	Maiden Down	SSSI	308469	116139	128.4
6_T11	Maiden Down	SSSI	308469	116139	138.4
6_T12	Maiden Down	SSSI	308469	116139	148.4
6_T13	Maiden Down	SSSI	308469	116139	158.4
6_T14	Maiden Down	SSSI	308469	116139	168.4
6_T15	Maiden Down	SSSI	308469	116139	178.4
7.0	Huntspill River	LNR	332276	144311	13.5
7_T1	Huntspill River	LNR	332276	144311	23.5
7_T2	Huntspill River	LNR	332276	144311	33.5
7_T3	Huntspill River	LNR	332276	144311	43.5
7_T4	Huntspill River	LNR	332276	144311	53.5
7_T5	Huntspill River	LNR	332276	144311	63.5
7_T6	Huntspill River	LNR	332276	144311	73.5
7_T7	Huntspill River	LNR	332276	144311	83.5

ID	Receptor ID	Site designation	Coordinates closest to the road		Distance from nearest road (m)
			X	Y	
7_T8	Huntspill River	LNR	332276	144311	93.5
7_T9	Huntspill River	LNR	332276	144311	103.5
7_T10	Huntspill River	LNR	332276	144311	113.5
7_T11	Huntspill River	LNR	332276	144311	123.5
7_T12	Huntspill River	LNR	332276	144311	133.5
7_T13	Huntspill River	LNR	332276	144311	143.5
7_T14	Huntspill River	LNR	332276	144311	153.5
7_T15	Huntspill River	LNR	332276	144311	163.5
7_T16	Huntspill River	LNR	332276	144311	173.5
7_T17	Huntspill River	LNR	332276	144311	183.5
8.0	Children's Wood/Riverside Park	LNR	324529	125634	8.0
8_T1	Children's Wood/Riverside Park	LNR	324529	125634	18.0
8_T2	Children's Wood/Riverside Park	LNR	324529	125634	28.0
8_T3	Children's Wood/Riverside Park	LNR	324529	125634	38.0
8_T4	Children's Wood/Riverside Park	LNR	324529	125634	48.0
8_T5	Children's Wood/Riverside Park	LNR	324529	125634	58.0
8_T6	Children's Wood/Riverside Park	LNR	324529	125634	68.0
8_T7	Children's Wood/Riverside Park	LNR	324529	125634	78.0
8_T8	Children's Wood/Riverside Park	LNR	324529	125634	88.0
8_T9	Children's Wood/Riverside Park	LNR	324529	125634	98.0
8.1	Children's Wood/Riverside Park	LNR	324968	125621	11.3
8.1_T1	Children's Wood/Riverside Park	LNR	324968	125621	47.3
8.1_T2	Children's Wood/Riverside Park	LNR	324968	125621	57.3
8.1_T3	Children's Wood/Riverside Park	LNR	324968	125621	67.3
8.1_T4	Children's Wood/Riverside Park	LNR	324968	125621	77.3
8.1_T5	Children's Wood/Riverside Park	LNR	324968	125621	87.3
8.1_T6	Children's Wood/Riverside Park	LNR	324968	125621	97.3
8.1_T7	Children's Wood/Riverside Park	LNR	324968	125621	107.3
8.1_T8	Children's Wood/Riverside Park	LNR	324968	125621	117.3

ID	Receptor ID	Site designation	Coordinates closest to the road		Distance from nearest road (m)
			X	Y	
8.1_T9	Children's Wood/Riverside Park	LNR	324968	125621	127.3
8.1_T10	Children's Wood/Riverside Park	LNR	324968	125621	137.3
8.1_T11	Children's Wood/Riverside Park	LNR	324968	125621	147.3
8.1_T12	Children's Wood/Riverside Park	LNR	324968	125621	157.3
8.1_T13	Children's Wood/Riverside Park	LNR	324968	125621	167.3
8.1_T14	Children's Wood/Riverside Park	LNR	324968	125621	177.3
8.2	Children's Wood/Riverside Park	LNR	325866	125368	11.6
8.2_T1	Children's Wood/Riverside Park	LNR	325866	125368	21.6
8.2_T2	Children's Wood/Riverside Park	LNR	325866	125368	31.6
8.2_T3	Children's Wood/Riverside Park	LNR	325866	125368	41.6
8.2_T4	Children's Wood/Riverside Park	LNR	325866	125368	51.6
8.2_T5	Children's Wood/Riverside Park	LNR	325866	125368	61.6
8.2_T6	Children's Wood/Riverside Park	LNR	325866	125368	71.6
9.0	Grand Western Canal Country Park	LNR	303818	114760	11.1
9_T1	Grand Western Canal Country Park	LNR	303818	114760	21.1
9_T2	Grand Western Canal Country Park	LNR	303818	114760	31.1
9_T3	Grand Western Canal Country Park	LNR	303818	114760	41.1
9_T4	Grand Western Canal Country Park	LNR	303818	114760	51.1
9_T5	Grand Western Canal Country Park	LNR	303818	114760	61.1
9_T6	Grand Western Canal Country Park	LNR	303818	114760	71.1
9_T7	Grand Western Canal Country Park	LNR	303818	114760	81.1
9_T8	Grand Western Canal Country Park	LNR	303818	114760	91.1
9_T9	Grand Western Canal Country Park	LNR	303818	114760	101.1
9_T10	Grand Western Canal Country Park	LNR	303818	114760	111.1
9_T11	Grand Western Canal Country Park	LNR	303818	114760	121.1
9_T12	Grand Western Canal Country Park	LNR	303818	114760	131.1
9_T13	Grand Western Canal Country Park	LNR	303818	114760	141.1
9_T14	Grand Western Canal Country Park	LNR	303818	114760	151.1
9_T15	Grand Western Canal Country Park	LNR	303818	114760	161.1

ID	Receptor ID	Site designation	Coordinates closest to the road		Distance from nearest road (m)
			X	Y	
9_T16	Grand Western Canal Country Park	LNR	303818	114760	171.1
9_T17	Grand Western Canal Country Park	LNR	303818	114760	181.1
9_T18	Grand Western Canal Country Park	LNR	303818	114760	191.1
10.0	South Taunton Streams	LNR	323553	122415	128.0
11.0	Screech Owl	LNR	331449	135097	175.0
12.0	Unnamed AW 1/2/3/4	AW	340944	110014	3.3
12_T1	Unnamed AW 1/2/3/4	AW	340944	110014	13.3
12_T2	Unnamed AW 1/2/3/4	AW	340944	110014	23.3
12_T3	Unnamed AW 1/2/3/4	AW	340944	110014	33.3
12_T4	Unnamed AW 1/2/3/4	AW	340944	110014	43.3
12_T5	Unnamed AW 1/2/3/4	AW	340944	110014	53.3
12_T6	Unnamed AW 1/2/3/4	AW	340944	110014	63.3
12_T7	Unnamed AW 1/2/3/4	AW	340944	110014	73.3
12_T8	Unnamed AW 1/2/3/4	AW	340944	110014	83.3
12_T9	Unnamed AW 1/2/3/4	AW	340944	110014	93.3
12_T10	Unnamed AW 1/2/3/4	AW	340944	110014	103.3
12_T11	Unnamed AW 1/2/3/4	AW	340944	110014	113.3
12_T12	Unnamed AW 1/2/3/4	AW	340944	110014	123.3
12_T13	Unnamed AW 1/2/3/4	AW	340944	110014	133.3
12_T14	Unnamed AW 1/2/3/4	AW	340944	110014	143.3
12_T15	Unnamed AW 1/2/3/4	AW	340944	110014	153.3
12_T16	Unnamed AW 1/2/3/4	AW	340944	110014	163.3
12_T17	Unnamed AW 1/2/3/4	AW	340944	110014	173.3
12_T18	Unnamed AW 1/2/3/4	AW	340944	110014	183.3
12_T19	Unnamed AW 1/2/3/4	AW	340944	110014	193.3
12_T20	Unnamed AW 1/2/3/4	AW	340944	110014	203.3
13.0	Unnamed AW 5	AW	341714	110134	8.1
13_T1	Unnamed AW 5	AW	341714	110134	18.1
13_T2	Unnamed AW 5	AW	341714	110134	28.1

ID	Receptor ID	Site designation	Coordinates closest to the road		Distance from nearest road (m)
			X	Y	
13_T3	Unnamed AW 5	AW	341714	110134	38.1
13_T4	Unnamed AW 5	AW	341714	110134	48.1
13_T5	Unnamed AW 5	AW	341714	110134	58.1
13_T6	Unnamed AW 5	AW	341714	110134	68.1
13_T7	Unnamed AW 5	AW	341714	110134	78.1
13_T8	Unnamed AW 5	AW	341714	110134	88.1
13_T9	Unnamed AW 5	AW	341714	110134	98.1
13_T10	Unnamed AW 5	AW	341714	110134	108.1
13_T11	Unnamed AW 5	AW	341714	110134	118.1
13_T12	Unnamed AW 5	AW	341714	110134	128.1
13_T13	Unnamed AW 5	AW	341714	110134	138.1
13_T14	Unnamed AW 5	AW	341714	110134	148.1
13_T15	Unnamed AW 5	AW	341714	110134	158.1
13_T16	Unnamed AW 5	AW	341714	110134	168.1
13_T17	Unnamed AW 5	AW	341714	110134	178.1
13_T18	Unnamed AW 5	AW	341714	110134	188.1
13_T19	Unnamed AW 5	AW	341714	110134	198.1
14.0	Unnamed AW 6	AW	339220	115433	122.5
15.0	Bickenhall Wood	AW	329277	119966	21.1
15_T1	Bickenhall Wood	AW	329277	119966	31.1
15_T2	Bickenhall Wood	AW	329277	119966	41.1
15_T3	Bickenhall Wood	AW	329277	119966	51.1
15_T4	Bickenhall Wood	AW	329277	119966	61.1
15_T5	Bickenhall Wood	AW	329277	119966	71.1
15_T6	Bickenhall Wood	AW	329277	119966	81.1
15_T7	Bickenhall Wood	AW	329277	119966	91.1
15_T8	Bickenhall Wood	AW	329277	119966	101.1
15_T9	Bickenhall Wood	AW	329277	119966	111.1
15_T10	Bickenhall Wood	AW	329277	119966	121.1

ID	Receptor ID	Site designation	Coordinates closest to the road		Distance from nearest road (m)
			X	Y	
15_T11	Bickenhall Wood	AW	329277	119966	131.1
15_T12	Bickenhall Wood	AW	329277	119966	141.1
15_T13	Bickenhall Wood	AW	329277	119966	151.1
15_T14	Bickenhall Wood	AW	329277	119966	161.1
15_T15	Bickenhall Wood	AW	329277	119966	171.1
15_T16	Bickenhall Wood	AW	329277	119966	181.1
15_T17	Bickenhall Wood	AW	329277	119966	191.1
15_T18	Bickenhall Wood	AW	329277	119966	201.1
16.0	Helliars Copse	AW	333294	111736	163.2
17.0	Higher Ash/Long Woods	AW	313366	118404	31.2
17_T1	Higher Ash/Long Woods	AW	313366	118404	41.2
17_T2	Higher Ash/Long Woods	AW	313366	118404	51.2
17_T3	Higher Ash/Long Woods	AW	313366	118404	61.2
17_T4	Higher Ash/Long Woods	AW	313366	118404	71.2
17_T5	Higher Ash/Long Woods	AW	313366	118404	81.2
17_T6	Higher Ash/Long Woods	AW	313366	118404	91.2
17_T7	Higher Ash/Long Woods	AW	313366	118404	101.2
17_T8	Higher Ash/Long Woods	AW	313366	118404	111.2
17_T9	Higher Ash/Long Woods	AW	313366	118404	121.2
17_T10	Higher Ash/Long Woods	AW	313366	118404	131.2
17_T11	Higher Ash/Long Woods	AW	313366	118404	141.2
17_T12	Higher Ash/Long Woods	AW	313366	118404	151.2
17_T13	Higher Ash/Long Woods	AW	313366	118404	161.2
17_T14	Higher Ash/Long Woods	AW	313366	118404	171.2
17_T15	Higher Ash/Long Woods	AW	313366	118404	181.2
17_T16	Higher Ash/Long Woods	AW	313366	118404	191.2
18.0	Knights Wood	AW	302249	105420	23.2
18_T1	Knights Wood	AW	302249	105420	33.2
18_T2	Knights Wood	AW	302249	105420	43.2

ID	Receptor ID	Site designation	Coordinates closest to the road		Distance from nearest road (m)
			X	Y	
18_T3	Knights Wood	AW	302249	105420	53.2
18_T4	Knights Wood	AW	302249	105420	63.2
18_T5	Knights Wood	AW	302249	105420	73.2
18_T6	Knights Wood	AW	302249	105420	83.2
18_T7	Knights Wood	AW	302249	105420	93.2
18_T8	Knights Wood	AW	302249	105420	103.2
18_T9	Knights Wood	AW	302249	105420	113.2
18_T10	Knights Wood	AW	302249	105420	123.2
18_T11	Knights Wood	AW	302249	105420	133.2
18_T12	Knights Wood	AW	302249	105420	143.2
18_T13	Knights Wood	AW	302249	105420	153.2
18_T14	Knights Wood	AW	302249	105420	163.2
18_T15	Knights Wood	AW	302249	105420	173.2
18_T16	Knights Wood	AW	302249	105420	183.2
18_T17	Knights Wood	AW	302249	105420	193.2
19.0	Line Wood	AW	330096	120974	112.6
20.0	Parsonage Wood	AW	326719	117692	47.8
21.0	Parsons Steeple	AW	358036	125626	199.0
22.0	Staple Park Wood	AW	324635	116129	180.0
23.0	Warren Hill	AW	364581	126458	91.8

2 References

- [1] Highways England, Transport Scotland, Welsh Government, and Department for Infrastructure, “DMRB LA 105 Air Quality Rev 0,” 2019.