

# M25 junction 28 improvement scheme

TR010029

## 9.4 Habitats Regulation Assessment (HRA) Screening Matrices

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#### 9.4 Habitats Regulations Assessment HABITATS REGULATIONS ASSESSMENT (HRA) SCREENING MATRICES(HRA) Screening Matrices

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## 1. Terms of reference

- 1.1.1 This HRA screening matrix document relates to the M25 junction 28 improvement Development Consent Order (DCO) application and has been produced in response to the Rule 6 letter issued by the Planning Inspectorate dated 12 November 2020. The Rule 6 letter requests (in paragraph 3 of Annex D) that Habitats Regulations Assessment (HRA) screening and integrity matrices are produced following the template in Appendix 1 of *Planning Inspectorate Advice Note 10: Habitats Regulations Assessment relevant to nationally significant infrastructure projects*<sup>1</sup> ('Advice note 10').
- 1.1.2 Highways England has submitted an HRA No Significant Effects Report (APP-093), which concludes there are no there are no likely significant effects on European Sites as a result of the Scheme. This document was written following Highways England Design Manual for Roads and Bridges guidance<sup>2</sup>.
- 1.1.3 In accordance with the Rule 6 letter request, the information from the HRA No Significant Effects Report has been used to populate screening matrices following the template in Appendix 1 of Advice Note 10. The integrity matrices are not required as none of the European sites identified required a Stage 2 Assessment. The matrices are provided in Appendix A of this document.
- 1.1.4 The matrices in Appendix A do not replace the information in the HRA No Significant Effects Report (APP-093). As required by Advice Note 10, the information provided in the matrices has been taken directly from the Highways England's existing HRA No Significant Effects Report (APP-093). No new information has been added to the matrices that is not included in APP-093.

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<sup>1</sup> [Advice-note-10v4.pdf \(planninginspectorate.gov.uk\)](#) [accessed December 2020]. Appendix 1 version listed a 'v7 Jan 2016'

<sup>2</sup> Previously available at the following address, but now withdrawn:  
<http://www.standardsforhighways.co.uk/ha/standards/dmr/vol11/section4/hd4409.pdf>

# Appendices

# Appendix A. Habitat Regulations Assessment Screening Matrices

## A.1 Potential effects

A.1.1 Potential effects upon the European site(s)<sup>3</sup> which are considered within the submitted HRA report (M25 junction 28 improvement scheme TR010029 6.9 Habitat regulations assessment: No significant effects report ([APP-093](#)) are provided in the table below.

**Table 1.1: Effects considered within the screening matrices**

Designation	Effects described in submission information	Presented in screening matrices as
Thames Estuary and Marshes Special Protection Area (SPA)	<ul style="list-style-type: none"> <li>Land take</li> <li>Resource requirement from European site</li> </ul>	<ul style="list-style-type: none"> <li>Habitat loss</li> </ul>
	<ul style="list-style-type: none"> <li>Disturbance to species</li> </ul>	<ul style="list-style-type: none"> <li>Disturbance to species</li> </ul>
	<ul style="list-style-type: none"> <li>Emissions (water quality)</li> </ul>	<ul style="list-style-type: none"> <li>Degradation of habitats due to changes in water quality</li> </ul>
	<ul style="list-style-type: none"> <li>Emissions (air quality)</li> </ul>	<ul style="list-style-type: none"> <li>Degradation of habitat due to changes in air quality</li> </ul>
Thames Estuary and Marshes Wetland of International Importance (Ramsar)	<ul style="list-style-type: none"> <li>Land take</li> <li>Resource requirement from European site</li> </ul>	<ul style="list-style-type: none"> <li>Habitat loss</li> </ul>
	<ul style="list-style-type: none"> <li>Disturbance to species</li> </ul>	<ul style="list-style-type: none"> <li>Disturbance to species</li> </ul>
	<ul style="list-style-type: none"> <li>Emissions (water quality)</li> </ul>	<ul style="list-style-type: none"> <li>Degradation of habitats due to changes in water quality</li> </ul>
	<ul style="list-style-type: none"> <li>Emissions (air quality)</li> </ul>	<ul style="list-style-type: none"> <li>Degradation of habitat due to changes in air quality</li> </ul>

<sup>3</sup> As defined in Advice Note 10.

## A.2 Stage 1: Screening matrices

A.2.1 The European sites included within the screening assessment are:

- Thames Estuary and Marshes SPA
- The Thames Estuary and Marshes Ramsar site

A.2.2 Evidence for, or against, likely significant effects on the European site(s) and its qualifying feature(s) is detailed within the footnotes to the screening matrices below.

Matrix Key:

✓ = Likely significant effect **cannot** be excluded

✗ = Likely significant effect **can** be excluded

**C** = construction

**O** = operation

**D** = decommissioning

A.2.3 In view of the indefinite design life of the Scheme it is not considered appropriate for demolition to form part of each environmental topic assessment, rather the focus is on seeking to minimise disruption and to re-use materials as the Scheme is upgraded, that will also form part of the materials assessment. Demolition of the Scheme has therefore not been included in this the environmental assessment. Following Advice Note 10 Appendix 1 template guidance, the decommissioning column in the matrix tables below has been coloured grey.



### A.3 HRA Screening Matrix 1: Thames Estuary and Marshes SPA

Table 1.2: HRA Screening Matrix 1: Thames Estuary and Marshes SPA

Name of European site and designation	Thames Estuary and Marshes SPA														
EU code	UK9012021														
Distance to NSIP	16 km (36 km downstream)														
European site features	Likely effects of NSIP														
Effect	Habitat loss			Disturbance to species			Degradation of habitats due to changes in water quality			Degradation of habitat due to changes in air quality			In combination		
Stage of development	C	O	D	C	O	D	C	O	D	C	O	D	C	O	D
<b>Feature 1</b> A672 <i>Calidris alpina</i> alpine; dunlin (wintering)	x <sub>a</sub>	x <sub>a</sub>		x <sub>b</sub>	x <sub>b</sub>		x <sub>c</sub>	x <sub>c</sub>		x <sub>d</sub>	x <sub>d</sub>		x <sub>e</sub>	x <sub>f</sub>	
<b>Feature 2</b> A143 <i>Calidris canutus</i> ; red knot (wintering)	x <sub>a</sub>	x <sub>a</sub>		x <sub>b</sub>	x <sub>b</sub>		x <sub>c</sub>	x <sub>c</sub>		x <sub>d</sub>	x <sub>d</sub>		x <sub>e</sub>	x <sub>f</sub>	
<b>Feature 3</b> A137 <i>Charadrius hiaticula</i> ; ringed plover (wintering)	x <sub>a</sub>	x <sub>a</sub>		x <sub>b</sub>	x <sub>b</sub>		x <sub>c</sub>	x <sub>c</sub>		x <sub>d</sub>	x <sub>d</sub>		x <sub>e</sub>	x <sub>f</sub>	
<b>Feature 4</b> A082 <i>Circus cyaneus</i> ; hen harrier (wintering)	x <sub>a</sub>	x <sub>a</sub>		x <sub>b</sub>	x <sub>b</sub>		x <sub>c</sub>	x <sub>c</sub>		x <sub>d</sub>	x <sub>d</sub>		x <sub>e</sub>	x <sub>f</sub>	
<b>Feature 5</b> A616 <i>Limosa islandica</i> ; black-tailed godwit (wintering)	x <sub>a</sub>	x <sub>a</sub>		x <sub>b</sub>	x <sub>b</sub>		x <sub>c</sub>	x <sub>c</sub>		x <sub>d</sub>	x <sub>d</sub>		x <sub>e</sub>	x <sub>f</sub>	

<b>Name of European site and designation</b>	Thames Estuary and Marshes SPA														
<b>EU code</b>	UK9012021														
<b>Distance to NSIP</b>	16 km (36 km downstream)														
<b>European site features</b>	<b>Likely effects of NSIP</b>														
<b>Effect</b>	Habitat loss			Disturbance to species			Degradation of habitats due to changes in water quality			Degradation of habitat due to changes in air quality			In combination		
<b>Stage of development</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>
<b>Feature 6</b> A141 Pluvialis squatarola; grey plover (wintering)	x <sub>a</sub>	x <sub>a</sub>		x <sub>b</sub>	x <sub>b</sub>		x <sub>c</sub>	x <sub>c</sub>		x <sub>d</sub>	x <sub>d</sub>		x <sub>e</sub>	x <sub>f</sub>	
<b>Feature 7</b> A132 Recurvirostra avosetta; avocet (wintering)	x <sub>a</sub>	x <sub>a</sub>		x <sub>b</sub>	x <sub>b</sub>		x <sub>c</sub>	x <sub>c</sub>		x <sub>d</sub>	x <sub>d</sub>		x <sub>e</sub>	x <sub>f</sub>	
<b>Feature 8</b> A162 Tringa totanus; common redshank (wintering)	x <sub>a</sub>	x <sub>a</sub>		x <sub>b</sub>	x <sub>b</sub>		x <sub>c</sub>	x <sub>c</sub>		x <sub>d</sub>	x <sub>d</sub>		x <sub>e</sub>	x <sub>f</sub>	
<b>Feature 9</b> B Waterfowl assemblage; over winter supports an internationally important assemblage of birds (avocet, grey plover, red knot, dunlin, black-tailed godwit, common redshank)	x <sub>a</sub>	x <sub>a</sub>		x <sub>b</sub>	x <sub>b</sub>		x <sub>c</sub>	x <sub>c</sub>		x <sub>d</sub>	x <sub>d</sub>		x <sub>e</sub>	x <sub>f</sub>	

### A.3.1 Evidence supporting conclusions (text extracted from APP-093):

- a. There is no land take from the SPA. The DCO boundary is provided in Appendix A (Figure 1) of the HRA No Significant Effects Report (APP-093).
- b. Disturbance to individuals from the qualifying bird populations of the SPA and any direct pressure on the site itself has been discounted due to the distance between the Scheme and the European Site. The distance between Scheme and European Sites is shown in Appendix A (Figure 2) of the HRA No Significant Effects Report (APP-093).
- c. Refer to HRA No Significant Effects Report (APP-093), Appendix B, Table B.1, page 39. There is a hydrological pathway between the Scheme and the European designated site. This is via the River Ingrebourne, a tributary of which runs through the Scheme area, and then approximately 14 km south to the River Thames. The European Site is approximately 20 km further downstream. In these lower reaches, the River Thames is a large estuarine river subject to tidal flows. As a result of this, there will be considerable mixing and dilution. Therefore, the effects pathway as a result of spillage of pollution on the European Site can be discounted.

Standard protection measures will be employed to ensure that water courses are protected from run-off of silt and pollution. However, these measures are not intended to specifically avoid or reduce impacts on any European site and the screening conclusions in this assessment are not reliant on these.

Detailed assessment of water quality impacts was undertaken as part of the EIA and is reported in full in Environmental Statement (ES) Chapter 8 (Road drainage and the water environment, APP-030)<sup>4</sup>. The relevant results of the Method A and D assessments (calculated as part of the assessment presented in Chapter 8 of the ES) are summarised in Appendix E of the HRA No Significant Effects Report (APP-093). The with 'mitigation values' are presented in Appendix E but are not relied upon in discounting this effect pathway.

The element of the water quality assessment which is most relevant to this HRA is Method A which assesses impacts on surface water and rivers. Method A focuses on the dilution of routine runoff and pollutants. The method is a simple assessment and includes the use of Highways Agency Water Risk Assessment Tool (HAWRAT) considering dilution of indicator metals (dissolved zinc and dissolved copper). The HAWRAT tool is designed to make an assessment of the short-term risks related to the intermittent nature of road run-off, also known as Runoff Specific Threshold (RSTs) as well as the long-term risks. All discharges have been tested using HAWRAT. The methodology for routine runoff involves tests to predict future concentrations of zinc and copper in receiving watercourses with addition of discharge from the Scheme. This is based on Annual Average Daily Traffic (AADT) flows, catchment size for the road, dilution flows (Q95) and current water quality (hardness) for each receiving watercourse. This method also takes into account the likelihood of and extent of sediment deposition. Method D which relates to serious spillage risk is also relevant.

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<sup>4</sup> See APP-030, Chapter 8 in general and paras 8.5.16-17, Tables 8.12-15 in particular.

The overall conclusion of the ES in relation to surface and river quality impacts taking into account committed mitigation is a negligible impact with neutral/insignificant effects anticipated. HRA screening has been undertaken using the ‘without mitigation’ calculations (as presented in Appendix E of the HRA No Significant Effects Report, [APP-093](#)). Slight significant effects on local receptors (Ingrebourne River and Weald Brook) without mitigation in Table E.1 (in Appendix E of the HRA No Significant Effects Report, [APP-093](#)) can be discounted in the context of the distance of the scheme from the designation (as a result of distance and mixing as described above).

The conclusion of no likely significant effect is made based on the relative distance of the Scheme from the European Site, the limited expectation of discharge from the scheme and the nature of the European site. The HAWRAT results has been provided to qualify this conclusion. Details of standard water protection measures have been provided for information but are not relied upon for the conclusion.

- d. Refer to HRA No Significant Effects Report ([APP-093](#)), Appendix B, Table B.1, page 36. There will be no permanent change in the air quality of the SPA due to the Scheme – air quality close to the SPA is likely to be more directly affected by vehicle movements on the road network surrounding the SPA than by conditions in and around the Scheme. With regard to potential risks from road traffic emissions, Natural England and Highways England are in agreement that protected sites falling within 200m of the edge of a road affected by a plan or project need to be considered further<sup>5</sup>. Given that the SPA is located more than 200m of the ARN, this is not considered to represent a potential impact pathway. During the construction period there is no anticipated change in air quality of the European Site due to the distance between the Scheme and the SPA. At operation, there is no anticipated change in air quality at the SPA. The air quality assessment has been undertaken using standard methodologies and data sets. The vehicle emission factors used in the assessment only take into account expected improvements in vehicle emissions technology resulting from the European emission standards, together with the projected vehicle fleet composition up until the year 2030.
- e. Refer to HRA No Significant Effects Report ([APP-093](#)), paragraph 3.3.2 to 3.3.4. There are no European Sites within 2 km of the Scheme. Consequently, there is no effect pathway and no potential for in combination effects with any of the identified projects. Scoping identified a downstream pathway to Thames Estuary and Marshes SPA and Ramsar site (35 km and 36 km respectively via watercourses from the Scheme). As explained in the ‘alone’ assessment, this effect pathway is very weak due to the distance, relative size of the Scheme and nature of the European designations and consequently there is no risk of likely significant effects. The identified projects local to the Scheme, would have a similar pathway via watercourses to Thames Estuary and Marshes SPA and Ramsar site and are of a similar size or smaller than the Scheme and it is reasonable to assume that they also represent no risk of likely significant effects. The Lower Thames Crossing Scheme is larger than the junction 28 Scheme and has greater potential to cause pollution effects on the European designated sites, however since the watercourse effect pathway for the Scheme has been discounted, any risk of in-combination effects can also be discounted. Any construction phase in-combination effects are therefore

<sup>5</sup> Natural England Internal Guidance - Approach to advising competent authorities on the assessment of road traffic emissions and HRAs V1.4 Final – June 2018

discounted.

- f. Refer to HRA No Significant Effects Report ([APP-093](#)), paragraph 3.3.5 and 3.3.6. The traffic modelling used to generate the Affected Road Network extent, includes changes resulting from traffic flow in and around junction 28 and also projected traffic flows for the highway network (accounting for development and other changes). The traffic model therefore represents the Scheme in-combination with other plans and projects. There are no European Sites within 200 m of the Affected Road Network. Any operational phase in-combination effects are therefore discounted.

## A.4 HRA Screening Matrix 2: The Thames Estuary and Marshes Ramsar site

Table 1.3: HRA Screening Matrix 2: The Thames Estuary and Marshes Ramsar site

<b>Name of European Site and designation</b>	The Thames Estuary and Marshes Ramsar site														
<b>EU code</b>	UK9012021														
<b>Distance to NSIP</b>	16 km (35 km downstream)														
<b>European site features</b>	<b>Likely effects of NSIP</b>														
<b>Effect</b>	Habitat loss			Disturbance to species			Degradation of habitats due to changes in water quality			Degradation of habitat due to changes in air quality			In combination		
<b>Stage of development</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>
<b>Feature 1</b> <i>Ramsar Criterion 2: Site supports more than 20 British Red Data Book invertebrates.</i> <i>Bagous longitarsis; Henestaris halophilus; Bagous cylindrus; Polystichus connexus; Erioptera bivittata; Limnophila pictipennis; Hybomitra expollicata; Lejops vittata; Poecilobothrus ducalis; Pteromicra leucopeza; Philanthus triangulum; Lestes dryas; Anisodactylus poeciloides; Aulacochthebius exaratus; Berosus fulvus; Cercyon bifenstratus; Hydrochus elongatus; Hydrochus ignicollis; Ochthebius exaratus; Hydrophilus piceus; Malachius vulneratus; Philonthus punctus; Telmatophilus brevicollis; Campsicnemus magius; Haematopota bigoti; Stratiomys longicornis; Baryphyma duffeyi.</i>	xg	xg		xh	xh		xi	xi		xj	xj		xk	xk	

<b>Name of European Site and designation</b>	The Thames Estuary and Marshes Ramsar site														
<b>EU code</b>	UK9012021														
<b>Distance to NSIP</b>	16 km (35 km downstream)														
<b>European site features</b>	<b>Likely effects of NSIP</b>														
<b>Effect</b>	Habitat loss			Disturbance to species			Degradation of habitats due to changes in water quality			Degradation of habitat due to changes in air quality			In combination		
<b>Stage of development</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>
<b>Feature 2</b> <i>Ramsar Criterion 2: The site supports one endangered plant species and at least 14 nationally scarce plants of wetland habitat</i> <i>Lactuca saligna (least lettuce); Alopecurus bulbosus (bulbous foxtail); Bupleurum tenuissimum (slender hare's ear); Carex divisa (divided sedge); Chenopodium chenopodioides (saltmarsh goosefoot); Hordeum marinum (sea barley); Inula crithmoides (golden samphire); Polypogon monspeliensis (annual beard grass); Puccinellia fasciculata (Borrer's saltmarsh-grass); Puccinellia rupestris (stiff saltmarsh grass); Salicornia pusilla (one-flowered glasswort); Trifolium glomeratum (clustered clover); Trifolium squamosum (sea clover); Zostera angustifolia (narrow-leaved eelgrass); Zostera noltei (dwarf eelgrass)</i>	xg	xg		xh	xh		xi	xi		xj	xj		xk	xk	

<b>Name of European Site and designation</b>	The Thames Estuary and Marshes Ramsar site														
<b>EU code</b>	UK9012021														
<b>Distance to NSIP</b>	16 km (35 km downstream)														
<b>European site features</b>	<b>Likely effects of NSIP</b>														
<b>Effect</b>	Habitat loss			Disturbance to species			Degradation of habitats due to changes in water quality			Degradation of habitat due to changes in air quality			In combination		
<b>Stage of development</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>
<b>Feature 3</b> <i>Ramsar Criterion 5: wintering waterfowl assemblage of international importance</i> <i>Peak counts in spring/autumn:</i> <i>Tringa nebularia (common greenshank); Tachybaptus ruficollis (little grebe); Egretta garzetta (little egret); Philomachus pugnax (ruff); Tringa nebularia (common greenshank)</i> <i>Peak counts in winter:</i> Tadorna (common shelduck); Anas strepera (gadwall); Anas clypeata (northern shoveler); Recurvirostra avosetta (avocet); Tringa erythropus (spotted redshank); Rallus aquaticus (water rail)	xg	xg		xh	xh		xi	xi		xj	xj		xk	xl	
<b>Feature 4</b> <i>Ramsar Criterion 6: Charadrius hiaticula; ringed plover (peak count spring/autumn)</i>	xg	xg		xh	xh		xi	xi		xj	xj		xk	xl	
<b>Feature 5</b>	xg	xg		xh	xh		xi	xi		xj	xj		xk	xl	



<b>Name of European Site and designation</b>	The Thames Estuary and Marshes Ramsar site														
<b>EU code</b>	UK9012021														
<b>Distance to NSIP</b>	16 km (35 km downstream)														
<b>European site features</b>	<b>Likely effects of NSIP</b>														
<b>Effect</b>	Habitat loss			Disturbance to species			Degradation of habitats due to changes in water quality			Degradation of habitat due to changes in air quality			In combination		
<b>Stage of development</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>	<b>C</b>	<b>O</b>	<b>D</b>
<i>Ramsar Criterion 6: Limosa islandica; black-tailed godwit (peak count spring/autumn)</i>															
<b>Feature 6</b> <i>Ramsar Criterion 6: Pluvialis squatarola; grey plover (peak count winter)</i>	xg	xg		xh	xh		xi	xi		xj	xj		xk	xl	
<b>Feature 7</b> <i>Ramsar Criterion 6: Tringa totanus; common redshank (peak count winter)</i>	xg	xg		xh	xh		xi	xi		xj	xj		xk	xl	
<b>Feature 8</b> <i>Ramsar Criterion 6: Calidris alpina alpina; dunlin (peak count winter)</i>	xg	xg		xh	xh		xi	xi		xj	xj		xk	xl	
<b>Feature 9</b> <i>Ramsar Criterion 6: Calidris canutus; red knot (peak count winter)</i>	xg	xg		xh	xh		xi	xi		xj	xj		xk	xl	

#### A.4.1 Evidence supporting conclusions (text extracted from APP-093):

- g. There is no land take from the SPA. The DCO boundary is provided in Appendix A (Figure 1) of the HRA No Significant Effects Report (APP-093).
- h. Disturbance to individuals from the qualifying bird or other species in the Ramsar site and any direct pressure on the site itself has been discounted due to the distance between the Scheme and the European Site. The distance between Scheme and European Sites is shown in Appendix A (Figure 2) of the HRA No Significant Effects Report (APP-093).
- i. Refer to HRA No Significant Effects Report (APP-093), Appendix C, Table C.1, page 54. There is a hydrological pathway between the Scheme and the European designated site. This is via the River Ingrebourne, a tributary of which runs through the Scheme area, and then approximately 14 km south to the River Thames. The European Site is approximately 20 km further downstream. In these lower reaches, the River Thames is a large estuarine river subject to tidal flows. As a result of this, there will be considerable mixing and dilution. Therefore, the effects pathway as a result of spillage of pollution on the European Site can be discounted.

Hyper-eutrophication from nitrogen and phosphorous and water management are identified risks for the Ramsar designation, the Scheme will not cause any negative effects in relation to these factors.

Standard protection measures will be employed to ensure that water courses are protected from run-off of silt and pollution. However, these measures are not intended to specifically avoid or reduce impacts on any European site and the screening conclusions in this assessment are not reliant on these.

Detailed assessment of water quality impacts was undertaken as part of the EIA and is reported in full in Environmental Statement (ES) Chapter 8 (Road drainage and the water environment, APP-030)<sup>6</sup>. The relevant results of the Method A and D assessments (calculated as part of the assessment presented in Chapter 8 of the ES) are summarised in Appendix E of the HRA No Significant Effects Report, APP-093. The with 'mitigation values' are presented in Appendix E but are not relied upon in discounting this effect pathway.

The element of the water quality assessment which is most relevant to this HRA is Method A which assesses impacts on surface water and rivers. Method A focuses on the dilution of routine runoff and pollutants. The method is a simple assessment and includes the use of Highways Agency Water Risk Assessment Tool (HAWRAT) considering dilution of indicator metals (dissolved zinc and dissolved copper). The HAWRAT tool is designed to make an assessment of the short-term risks related to the intermittent nature of road run-off, also known as Runoff Specific Threshold (RSTs) as well as the long-term risks. All discharges have been tested using HAWRAT. The methodology for routine runoff involves tests to predict future concentrations of zinc and copper in receiving watercourses with addition of discharge from the Scheme. This is based on Annual Average Daily Traffic (AADT) flows, catchment

<sup>6</sup> See APP-030, Chapter 8 in general and paras 8.5.16-17, Tables 8.12-15 in particular.

size for the road, dilution flows (Q95) and current water quality (hardness) for each receiving watercourse. This method also takes into account the likelihood of and extent of sediment deposition. Method D which relates to serious spillage risk is also relevant.

The overall conclusion of the ES in relation to surface and river quality impacts taking into account committed mitigation is a negligible impact with neutral/insignificant effects anticipated. HRA screening has been undertaken using the 'without mitigation' calculations (as presented in Appendix E of the HRA No Significant Effects Report, [APP-093](#)). Slight significant effects on local receptors (Ingrebourne River and Weald Brook) without mitigation in Table E.1 (in Appendix E of the HRA No Significant Effects Report, [APP-093](#)) can be discounted in the context of the distance of the scheme from the designation (as a result of distance and mixing as described above).

The conclusion of no likely significant effect is made based on the relative distance of the Scheme from the European Site, the limited expectation of discharge from the scheme and the nature of the European site. The HAWRAT results has been provided to qualify this conclusion. Details of standard water protection measures have been provided for information but are not relied upon for the conclusion.

- j. Refer to HRA No Significant Effects Report ([APP-093](#)), Appendix C, Table C.1, page 51. There will be no permanent change in the air quality of the Ramsar site due to the Scheme – air quality close to the Ramsar site is likely to be more directly affected by vehicle movements on the road network surrounding the Ramsar site than by conditions in and around the Scheme. With regard to potential risks from road traffic emissions, Natural England and Highways England are in agreement that protected sites falling within 200m of the edge of a road affected by a plan or project need to be considered further. Given that the Ramsar site is located more than 200m of the ARN, this is not considered to represent a potential impact pathway. During the construction period there is no anticipated change in air quality of the European Site due to the distance between the Scheme and the Ramsar site. At operation, there is no anticipated change in air quality at the Ramsar site. The air quality assessment has been undertaken using standard methodologies and data sets. The vehicle emission factors used in the assessment only take into account expected improvements in vehicle emissions technology resulting from the European emission standards, together with the projected vehicle fleet composition up until the year 2030.
- k. Refer to HRA No Significant Effects Report ([APP-093](#)), paragraph 3.3.2 to 3.3.4. There are no European Sites within 2 km of the Scheme. Consequently, there is no effect pathway and no potential for in combination effects with any of the identified projects. Scoping identified a downstream pathway to Thames Estuary and Marshes SPA and Ramsar site (35 km and 36 km respectively via watercourses from the Scheme). As explained in the 'alone' assessment, this effect pathway is very weak due to the distance, relative size of the Scheme and nature of the European designations and consequently there is no risk of likely significant effects. The identified projects local to the Scheme, would have a similar pathway via watercourses to Thames Estuary and Marshes SPA and Ramsar site and are of a similar size or smaller than the Scheme and it is reasonable to assume that they also represent no risk of likely significant effects. The Lower Thames Crossing Scheme is larger than the junction 28 Scheme and has greater potential to

cause pollution effects on the European designated sites, however since the watercourse effect pathway for the Scheme has been discounted, any risk of in-combination effects can also be discounted. Any construction phase in-combination effects are therefore discounted.

- I. Refer to HRA No Significant Effects Report ([APP-093](#)), paragraph 3.3.5 and 3.3.6. The traffic modelling used to generate the Affected Road Network extent, includes changes resulting from traffic flow in and around junction 28 and also projected traffic flows for the highway network (accounting for development and other changes). The traffic model therefore represents the Scheme in-combination with other plans and projects. There are no European Sites within 200 m of the Affected Road Network. Any operational phase in-combination effects are therefore discounted.

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