

**M42 Junction 6 Improvement
Scheme Number TR010027
Volume 6**

6.3 Environmental Statement

**Appendix 5.2 Screening of major accidents
and disasters**

Regulation 5(2)(a)

Planning Act 2008

Infrastructure Planning (Applications: Prescribed
Forms and Procedure) Regulations 2009

January 2019

Infrastructure Planning

Planning Act 2008

**The Infrastructure Planning
(Applications: Prescribed Forms
and Procedure) Regulations 2009**

**M42 Junction 6 Improvement
Development Consent Order 202[-]**

6.3 Environmental Statement
Appendix 1.1 Screening of major accidents and disasters

Regulation Number	Regulation 5(2)(a)
Planning Inspectorate Scheme Reference	TR010027
Application Document Reference	6.3
Author	M42 Junction 6 Improvement Project Team and Highways England

Version	Date	Status of Version
1	January 2019	DCO Application

Appendix 5.2: Screening of major accidents and disasters

2.1 Background

- 1.1.1 Regulation 5(4) of The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (the 2017 EIA Regulations) [REF 1] stipulates that the “*expected significant effects arising from the vulnerability of a proposed development to major accidents or disasters that are relevant to that development*” are to be identified and assessed as part of an Environmental Impact Assessment (EIA).
- 1.1.2 This requirement derives from EU Directive 2011/92/EU [REF 2], as amended by EU Directive 2014/52/EU [REF 3]. This legislation emphasises the need to consider the vulnerability of projects, in terms of their exposure and resilience, to major accidents and/or disasters (such as flooding, earthquakes and sea level rises), the risk of those accidents and/or disasters occurring, and the implications for the likelihood of significant adverse environmental effects.
- 1.1.3 The identification of likely significant effects associated with major accidents and disasters (collectively termed ‘major events’ in this appendix) enables projects to be developed in a manner that provides protection of the environment, for example by making allowances in the design of developments to build resilience to the effects of a flood event arising from future climate change.

2.2 Scope of the assessment

- 1.1.4 The scope of the major events assessment was presented within the EIA scoping report [REF 4], following a scoping exercise (see Chapter 5 EIA methodology and consultation [TR010027/APP/6.1]).
- 1.1.5 The scoping exercise identified that major events should be reported within relevant assessment topics using the following approach:
- a. through a process of screening, identify any major events of relevance and categorise these in relation to the likelihood of occurrence and relationship to the Scheme;
 - b. for identified major events, describe the potential for any change in the significance of effects recorded within each relevant assessment topic;
 - c. report the outcomes and conclusions within each assessment topic; and
 - d. describe any assumed mitigation measures to both support the conclusions of the assessment and demonstrate that effects related to major events have been mitigated, or can be managed to an acceptable level.
- 1.1.6 The scoping exercise also acknowledged the potential for the topic of major events to be scoped out of the EIA, prior to publication of the Environmental Statement. This was because the design-development process would continue post-scoping to ensure that no genuine risk or serious possibility remains of an event interacting with the Scheme.
- 1.1.7 The Inspectorate provided their formal scoping opinion [REF 5] in December 2017. This identified a need for the Environmental Statement to include a description of the potential vulnerability of the Scheme to risks of major accidents

and/or disasters, including vulnerability to climate change, considered relevant to the Scheme.

- 1.1.8 The scoping opinion [REF 5] noted that other EU legislation could be used to identify relevant information and to inform undertake risk-based assessments, where appropriate. Additionally, the Inspectorate noted that any measures envisaged to prevent or mitigate significant adverse effects on the environment arising from major events should be described in the assessment, and information included on the preparedness for (and response to) such emergencies. The Inspectorate also agreed that the reporting of major events within relevant environmental topics reported in the Environmental Statement would be appropriate for this assessment.
- 1.1.9 In order to frame the assessment scope, a major event has been defined as an acute or chronic accident or disaster, of human or natural origin, which occurs either as a consequence of, or which interacts with, the construction or operation of the Scheme, and which has substantial consequences for people or the environment.
- 1.1.10 This definition does not distinguish between a major accident and a major disaster as substantial overlap exists, but does recognise that an accident is necessarily of human origin, whereas a disaster can be of human or natural origin.
- 1.1.11 Scoping concluded that the Scheme can be a: source of major events, for example if a bridge or tunnel forming an integral component of the Scheme were to fail and collapse; and a receptor of major events, for example if a major flood event occurred which inundated parts of the Scheme.

2.3 Assessment methodology

- 1.1.12 A four stage approach was adopted in the assessment to identify, screen, scope and assess major events as part of the Environmental Impact Assessment of the Scheme.
- Stage 1** commences with the identification and collation of all possible major events that could occur.
 - Stage 2** involves the screening of major events within the long list, the purpose of which is to identify events of specific relevance to the Scheme, and/or where the Scheme would be sensitive to a particular event occurring.
 - Stage 3** involves the scoping of the remaining major events within the long list to review the remaining relevant events, in order to establish whether they would require assessment.
 - Stage 4** involves the assessment of major events within the relevant topic-specific assessments presented within the Environmental Statement (where the scoping exercise was unable to adequately justify the scoping out of a particular major event), to identify and evaluate the potential risks and consequences on environmental receptors and resources in a qualitative manner.
- 1.1.13 A summary of the key activities undertaken, and the findings and outcomes of the staged process detailed above are described in the following sections.

Stage 1: Long list of major events

- 1.1.14 The following information sources were reviewed to develop a long list of major events for further consideration:
- e. the UK Government's Risk Register of Civil Emergencies [REF 6].
 - f. information provided by the Inspectorate and statutory and non-statutory bodies within the EIA scoping opinion [REF 5].
 - g. professional judgement, based on the form and nature of the Scheme and the receiving environment.
- 1.1.15 Each identified major event was then categorised within the following broad types of disaster and accident.
- h. geological and ground-related disasters.
 - i. hydrological disasters.
 - j. meteorological disasters.
 - k. space disasters.
 - l. transport accidents and disasters.
 - m. engineering accidents and failures.
 - n. industrial accidents.
 - o. terrorism, crime, war and civil unrest.
 - p. disease.

Stage 2: Screening of the long list of major events

- 1.1.16 Events that would not realistically occur due to their type or applicability to the Scheme, the characteristics of the Scheme, and/or the geographic location of the Scheme were screened out and discounted from further consideration. Examples included avalanches and famine which are major events, but which do not occur within the UK due to our climate and economic status.
- 1.1.17 The screening review then identified that a number of major events are already covered by legislative provisions and design requirements which offer legal protection and provide minimum design standards and operational requirements. Such examples include:
- q. Health and Safety at work etc. Act 1974 [REF 7];
 - r. The Workplace (Health, Safety and Welfare) Regulations 1992 [REF 8];
 - s. The Management of Health and Safety at Work Regulations 1999 [REF 9];
 - t. Construction (Design and Management) Regulations 2015 [REF 10];
 - u. Design Manual for Roads and Bridges (1993-2018) [REF 11]; and
 - v. Interim Advice Note 191/16 Safety Governance for Highways England [REF 12].
- 1.1.18 The screening review concluded that it would be reasonable and proportionate to scope out construction workers, and similar operatives undertaking future maintenance activities on the Scheme, as specific types of receptor in the assessment. This was on the grounds that their health and wellbeing in the

workplace would be safeguarded through existing legal protection, which would minimise the risk from major events to an acceptable level.

Stage 3: Scoping of major events within the long list

1.1.19 The identification of the need for assessment was facilitated by categorising the identified major events into two types:

w. **Type 1** – events that could realistically occur, but for which the Scheme and its associated environmental resources and receptors are no more vulnerable than any other type of project or development; and

x. **Type 2** – events that could occur, and to which the Scheme is particularly vulnerable, or which the construction, operation and/or maintenance of the Scheme has a particular capacity to exacerbate.

1.1.20 Factors considered in the scoping of major events included:

y. the likelihood of major events occurring and their potential to interact with relevant environmental resources and receptors;

z. the extent to which major events could alter the significance of effects associated with the topic-specific assessments reported within the Environmental Statement;

aa. whether such events are already being appropriately mitigated and/or managed such that the consequential effects would not be significant and could therefore be scoped out of further consideration; and

bb. whether further mitigation (i.e. measures over and above those embedded within the Scheme design, the standard measures that would be applied during Scheme construction, and the additional measures identified within the topic-specific assessments) would be necessary to reduce their likelihood/risk and/or improve the resilience of the Scheme to major events.

Stage 4: Assessment of shortlisted major events

1.1.21 The findings of Stage 3 concluded that the initial identification, screening and subsequent scoping of major events resulted in no requirement for these events to be assessed in Stage 4.

1.1.22 The results of the major events screening exercise are tabulated in Annex A.

2.4 References

REF 1	The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. HMSO (2017). http://www.legislation.gov.uk/ukxi/2017/572/contents/made
REF 2	Directive 2011/92/EU of the European Parliament and of the Council of 13 December 2011 on the assessment of the effects of certain public and private projects on the environment (codification). Official Journal of the European Union (2011). https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32011L0092

REF 3	<p>Directive 2014/52/EU of the European Parliament and of the Council of 16 April 2014 amending Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment. Official Journal of the European Union (2014).</p> <p>https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=celex%3A32014L0052</p>
REF 4	<p>M42 Junction 6 Improvement Scheme: Environmental Impact Assessment Scoping Report. Highways England (2017).</p> <p>https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010027/TR010027-000016-M42%20Junction%206%20Improvement%20Scheme%20-%20EIA%20Scoping%20Report.pdf</p>
REF 5	<p>Scoping Opinion: Proposed M42 Junction 6 Improvement Scheme. Planning Inspectorate (2017).</p> <p>https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010027/TR010027-000013-42J6%20-%20Scoping%20Opinion.pdf</p>
REF 6	<p>National Risk Register of Civil Emergencies, 2017 Edition. Cabinet Office (2017).</p> <p>https://www.gov.uk/government/publications/national-risk-register-of-civil-emergencies-2017-edition</p>
REF 7	<p>Health and Safety at work etc. Act 1974. HMSO (1974).</p> <p>https://www.legislation.gov.uk/ukpga/1974/37</p>
REF 8	<p>The Workplace (Health, Safety and Welfare) Regulations 1992. HMSO (1992).</p> <p>http://www.legislation.gov.uk/uksi/1992/3004/contents/made</p>
REF 9	<p>The Management of Health and Safety at Work Regulations 1999. HMSO (1999).</p> <p>http://www.legislation.gov.uk/uksi/1999/3242/contents/made</p>
REF 10	<p>Construction (Design and Management) Regulations 2015. HMSO (2015).</p> <p>http://www.legislation.gov.uk/uksi/2015/51/contents/made</p>
REF 11	<p>Design Manual for Roads and Bridges, Volume 11. Highways England (1993 to date).</p> <p>http://www.standardsforhighways.co.uk/ha/standards/dmrb/vol11/index.htm</p>
REF 12	<p>Interim Advice Note 191/16: Safety Governance for Highways England. Highways England (2016).</p> <p>http://www.standardsforhighways.co.uk/ha/standards/ians/</p>

Annex A: Screening and scoping of major events relevant to the Scheme

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
`	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Geological and Ground Related Disasters						
Avalanches	No - avalanches are not considered relevant given the geographical location of the Scheme.	N/A	N/A	N/A	N/A	N/A
Landslides	Yes	2	Water resources and ecological receptors Properties People, drivers and workers	Considered by the geotechnical and highway engineering teams as a fundamental part of the Scheme's design-development. In designing the Scheme to applicable standards, resources and receptors would not be put at a greater risk as a consequence of the Scheme.	No	Chapter 10: Geology and soils
Earthquakes	No - the Scheme would not be located in a geologically active area, and as such the risk of earthquake events is not considered a risk to the Scheme.	N/A	N/A	N/A	N/A	N/A

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Sinkholes	Yes	2	Water resources and ecological receptors Properties People, drivers and workers	Considered by the geotechnical and highway engineering teams as a fundamental part of the Scheme's design-development. The nature of the underlying geology beneath the Scheme is such that sinkholes are considered unlikely to occur.	No	Chapter 10: Geology and soils
Ground stability	Yes	2	Aquatic environment and ecological receptors Properties People, drivers and workers	Considered by the geotechnical and highway engineering teams as a fundamental part of the Scheme's design-development. In designing the Scheme to applicable standards, resources and receptors would not be put at a greater risk as a consequence of the Scheme.	No	Chapter 10: Geology and soils
Volcanic eruptions	No - the Scheme is not located in a volcanically active area, and it is considered highly unlikely that an ash cloud could significantly impact on any aspect of the Scheme.	N/A	N/A	N/A	N/A	N/A

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Landfill accidents	Yes	2	Water resources Aquatic environment and ecological receptors Properties People, drivers and workers	A historic landfill site is present to the west of Catherine-de-Barnes Lane, west of Bickenhill village. This site falls outside the Order Limits of the Scheme. Records do not provide a clear indication of the type of material that has been disposed; however potential exists for the site contain materials that could be damaging to human and ecological receptors e.g. asbestos, hazardous gas and leachate. Standard mitigation measures would be implemented during construction of the Scheme to avoid and/or minimise the risk of any disturbance to this site and the opening of pollutant pathways, as detailed in the Outline Construction Environmental Management Plan and the Register of Environmental Actions and Commitments.	No	Chapter 10: Geology and soils

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
`	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Hydrological Disasters						
Flooding	Yes	2	Aquatic environment and ecological receptors Properties People, drivers and workers	Detailed flood modelling has been undertaken as part of the Environmental Impact Assessment to identify, model and evaluate flood risk associated with the Scheme. This has considered both the vulnerability of the Scheme to flooding, and the potential for the Scheme to exacerbate flooding. Appropriate measures have been incorporated into the Scheme design to capture, control, manage, treat and discharge surface water. Allowances have also been made in the design to allow for the effects of future climate change predictions. It is considered that these measures would appropriately manage potential flood risk associated with the Scheme.	No	Chapter 3: The project Chapter 14: Road drainage and the water environment

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Limnic eruptions	No – the Scheme is not located in proximity to any natural deep water lakes.	N/A	N/A	N/A	N/A	N/A
Groundwater contamination events within Source Protection Zones	No – the Scheme is not located in any Source Protection Zones.	N/A	N/A	N/A	N/A	N/A
Tsunami or storm surge	No – the Scheme is geographically located at considerable distance from the UK's coastline.	N/A	N/A	N/A	N/A	N/A
Meteorological Disasters						
Blizzards	Yes	1	People, drivers and workers	This type of event could cause road users to be trapped on the highway; however, the risk is no different to any other highway or road users in the UK. Specific measures are therefore not considered to be required as part of the Scheme.	No	N/A

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Cyclonic storms	Yes	1	People, drivers and workers	This type of event could result in damage to highway infrastructure and could affect journeys made by road users; however, the risk is no different to any other highway or road users in the UK. Specific measures are therefore not considered to be required as part of the Scheme.	No	N/A
Droughts	Yes	1	Aquatic environment and ecological receptors People, drivers and workers	The Scheme is not considered to be vulnerable to drought events. Accordingly, the risk is no different to any other highway or road users in the UK. Specific measures are therefore not considered to be required as part of the Scheme.	No	N/A

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Thunderstorm s	Yes	1	People, drivers and workers	This type of event could result in lightning strikes to new elevated structures (such as bridges) introduced as part of the Scheme; however, the risk is no different to any other highway or road users in the UK. Specific measures are therefore not considered to be required as part of the Scheme.	No	N/A
Hailstorms	Yes	1	People, drivers and workers	This type of event could result in difficult driving conditions for road users; however, the risk is no different to any other highway or road users in the UK. Specific measures are therefore not considered to be required as part of the Scheme.	No	N/A

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Heat waves	Yes	1	Aquatic environment and ecological receptors People, drivers and workers	This type of event could give rise to changes in climatic conditions, with road infrastructure exposed to greater heat intensity and exposure to sunlight; however, the risk is no different to any other highway or road users in the UK. Specific measures are therefore not considered to be required as part of the Scheme.	No	N/A
Tornadoes	No – these events are uncommon in the UK, and on the rare occasions where these conditions do emerge they are typically of a force that is much less destructive in comparison to those found in other parts of the world.	N/A	N/A	N/A	N/A	N/A

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Wildfires	Yes	1	Aquatic environment and ecological receptors Properties People, drivers and workers	Parts of the Scheme would be located in, and be surrounded by, areas of grassland that could be at risk of wildfire events during hot, dry periods; however, the risk is no different to any other highway or road users in the UK. Specific measures are therefore not considered to be required as part of the Scheme.	No	N/A
Air quality events	Yes	2	Ecological receptors People, drivers and workers	Emissions associated with vehicles travelling on new and improved sections of highway proposed as part of the Scheme may contribute to events associated with poor air quality. The potential for this event has been considered in detail as part of the Environmental Impact Assessment process, and it is therefore not considered a requirement to evaluate this further.	No	Chapter 6: Air quality
Space Disasters						

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Impact events and airburst	No - the risk associated with this type of event occurring is very low, and is such that the Scheme is not considered any more vulnerable to it when compared with other highways in the UK.	N/A	N/A	N/A	N/A	N/A
Solar flare	Yes	1	Road users	Solar flare events are known to interrupt radio and other electronic communications; however, no such systems would be implemented as part of the Scheme. Specific measures are therefore not considered to be required as part of the Scheme.	No	N/A
Transport Accidents and Disasters						

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Road accidents	Yes	2	Aquatic environment and ecological receptors People, drivers and workers	The Scheme has been designed to achieve a reduction in existing accident rates on the road network, and to take account of any accidental spillages through modern drainage and treatment systems. The environmental risks posed by spillages of hazardous loads as a result of road accidents has been considered within the Environmental Impact Assessment.	No	Chapter 14: Road drainage and the water environment

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Rail accidents	Yes	2	Aquatic environment and ecological receptors People, drivers and workers	The existing railway line between Birmingham International and Hampton in Arden crosses beneath the A45 Coventry Road and the M42 motorway. No works are proposed as part of the Scheme which would increase the risk of rail accidents occurring. The presence of the railway would be taken account of during the definition of construction working methods, to be employed by the appointed contractor.	No	Chapter 3: The project

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Aircraft disasters	Yes	2	Aquatic environment and ecological receptors Properties People, drivers and workers	Birmingham Airport is located to the north west of the Scheme's Order Limits. The Scheme has taken account of the safeguarding zone defined by the airport, by restricting taller elements of highway infrastructure, landscaping and waterbodies to reduce potential conflicts and bird attraction. This has been informed by the design-development and Environmental Impact Assessment processes.	No	Chapter 3: The project Chapter 8: Landscape Chapter 9: Biodiversity Chapter 14: Road drainage and the water environment
Maritime disasters	No – the Scheme is located on land and at considerable distance from coastal areas.	N/A	N/A	N/A	N/A	N/A
Engineering Accidents and Failures						

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Bridge failure	Yes	1	Aquatic environment and ecological receptors People, drivers and workers	Bridge works are proposed as part of the Scheme. These structures have been designed to meet modern safety standards, which reduces their likelihood of future failure. The risk associated with the Scheme of this event is considered no greater than other roads that include structures designed to comparable standards.	No	Chapter 3: The project

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Property or bridge demolition accidents	Yes	2	People, drivers and workers	The Scheme involves demolition works to take down a very small number of buildings and structures. The risks of accidents occurring during these works would be taken into account by the appointed contractor, and considered as part of their detailed methodology and risk assessments in advance of these works. Surveys would be undertaken prior to the demolition of properties and structures to confirm whether any potential harmful substances (e.g. asbestos) are present, and to determine the risk to people.	No	Chapter 3: The project
Tunnel failure/fire	No – no tunnel structures are proposed as part of the Scheme.	N/A	N/A	N/A	N/A	N/A
Dam failure	No – no dams are located within proximity of the Scheme.	N/A	N/A	N/A	N/A	N/A

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Flood defence failure	Yes	2	People, drivers and workers	The area associated with the Scheme's Order Limits does not benefit from flood defences or flood storage areas. The design of the Scheme has been developed to include allowances for future climate change predictions that could result in flooding. The potential risk of breach events is considered in the Environmental Impact Assessment.	No	Chapter 3: The project Chapter 14: Road drainage and the water environment
Mast and tower collapse	No – no masts or towers are proposed as part of the Scheme, and no such infrastructure currently exists within a 'topple' distance from the Scheme.	N/A	N/A	N/A	N/A	N/A

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Building failure or fire	Yes	1	People, drivers and workers	Buildings in close proximity of the Scheme are low-rise and predominantly residential, although taller commercial properties exist to the north west of the Scheme's Order Limits. Notwithstanding this, the risk of fires affecting the Scheme is no greater than risks for existing highways.	No	Chapter 2: Site and surroundings Chapter 3: The project

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Utilities failure	Yes	2	People, drivers and workers	Underground and above-ground utilities are present across the Scheme's Order Limits, the responsibilities of which lie with the relevant local operator or company should this infrastructure fail. Information regarding diversion works has been considered in the Environmental Impact Assessment. The potential risk of construction- related incidents when undertaking diversion works as part of the Scheme would be covered by existing legislation.	No	Chapter 5: EIA methodology and consultation
Industrial Accidents						

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Defence industry and Unexploded Ordnance risk	Yes	2	Aquatic environment and ecological receptors People, drivers and workers	Potential exists for encountering unexploded ordnance during construction of the Scheme. Measures would be undertaken during construction to brief operatives to raise awareness of this issue, and to define appropriate response strategies such this be discovered during the works. There would be a limited risk of unexploded ordnance affecting the Scheme, once operational.	No	Chapter 2: Site and surroundings
Energy industry (fossil fuel)	Yes	2	People, drivers and workers	The risk of ground contamination resulting from Scheme progression has been assessed as part of the geotechnical investigations and hydrological studies undertaken to inform the design-development and Environmental Impact Assessment.	No	Chapter 10: Geology and soils Chapter 14: Road drainage and the water environment

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
		Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Nuclear power	No – no such facilities are located within or in proximity to the Scheme's Order Limits.	N/A	N/A	N/A	N/A	N/A
Oil and gas refinery/storage	No – no such facilities are located within or in proximity to the Scheme's Order Limits.	N/A	N/A	N/A	N/A	N/A
Food industry	No – no such facilities are located within or in proximity to the Scheme's Order Limits.	N/A	N/A	N/A	N/A	N/A
Chemical industry	No – no such facilities are located within or in proximity to the Scheme's Order Limits.	N/A	N/A	N/A	N/A	N/A
Manufacturing industry	No – no such facilities are located within or in proximity to the Scheme's Order Limits.	N/A	N/A	N/A	N/A	N/A

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Mining industry	Yes	2	People, drivers and workers	Mining operations are currently active north east of the Scheme's Order Limits. Geotechnical investigations undertaken as part of the design- development and Environmental Impact Assessment processes have considered historic mining activity within the Scheme's Order Limits.	No	Chapter 2: Site and surroundings Chapter 10: Geology and soils
Terrorism, Crime, War and Civil Unrest						
Bomb/vehicle attack on people	No – the Scheme is unlikely to be a target for this type of event due to the low number of exposed targets.	N/A	N/A	N/A	N/A	N/A
Bomb/vehicle attack on infrastructure	No – the Scheme is unlikely to be a target for this type of event due to the low number of exposed targets.	N/A	N/A	N/A	N/A	N/A

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
		Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Mass shooting	No – the Scheme is unlikely to be a target for this type of event due to the low number of exposed targets.	N/A	N/A	N/A	N/A	N/A
Chemical/gas attack	No – the Scheme is unlikely to be a target for this type of incident due to the low number of exposed targets.	N/A	N/A	N/A	N/A	N/A
Rioting	No – the nature of the Scheme is such that it is not considered to be a target for this type of event.	N/A	N/A	N/A	N/A	N/A

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Cyber attack	Yes	1	People, drivers and workers	The increasing reliance on roadside technology could render the Scheme more vulnerable to a cyber-attack, as technology is proposed to be installed as part of the Scheme along the M42 motorway (gantries and overhead signage). Notwithstanding this, it is not considered to be more vulnerable to attack than similar infrastructure installed and running elsewhere on the strategic road network. Highways England is accountable to the Secretary of State for Transport for ensuring the resilience of their strategic road network to national security risks, including from terrorism, cyber-attack, natural hazards and other risks outlines in the National Risk Assessment.	No	Chapter 3: The project
Disease						

Stage 1: Long List	Stage 2: Screening	Stage 3: Scoping			Stage 4: Assessment	Relevant topic chapter (if covered in the Environmental Statement [TR010027/APP /6.1])?
	Relevant to Scheme?	Type 1 or 2?	Relevant Receptors	Mitigation and/or Management Action	Requires assessment?	
Spread of human, animal and plant diseases	Yes	1	Aquatic and ecological receptors People, drivers and workers	The spread of disease as a consequence of the Scheme is not considered to be any greater than that associated with other highways schemes. Standard control measures would be implemented by the appointed contractor during construction to handle and dispose of any diseased plants and/or injurious weeds, and prevent their spread.	No	Chapter 3: The project Chapter 10: Biodiversity