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6.4 Environmental Statement  
Appendix 4.5 Changes to Scope  
and Methodology

Planning Act 2008

APFP Regulation 5(2)(a)  
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Planning Act 2008

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

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Development Consent Order 202[x]

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**6.4 Environmental Statement  
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# 1 Changes to scope and methodology

## 1.1 Background

- 1.1.1 The Scoping Report<sup>i</sup> was submitted to the Planning Inspectorate (PINS) in May 2019 and the Scoping Opinion (ES Appendix 4.1 The Planning Inspectorate Scoping Opinion) was provided by PINS in June 2019.
- 1.1.2 Following these key dates, the Design Manual for Roads and Bridges environmental standards were updated. The new standards have been utilised in undertaking the environmental impact assessment.
- 1.1.3 Stakeholders, including all relevant statutory consultees have been made aware of the changes through the Preliminary Environmental Information Reports submitted to support each statutory consultation. The first statutory consultation was between 27 September 2019 and 8 November 2019, and the supplementary consultation was between 13 October and 12 November 2020. Feedback was received through this consultation process and is recorded in the Consultation Report (Document Reference 5.1).
- 1.1.4 This appendix documents the changes in methodology brought about by the new DMRB standards. Table 1 below outlines the changes in methodology since the submission of the Scoping Report.
- 1.1.5 There has been no change to the environmental topics scoped into the assessments.

**Table 1** Changes to methodology since PINS Scoping Opinion

ES Chapter	Guidance used in Scoping Report	Guidance used in ES	Aspect of assessment methodology	Change to Methodology since PINS Scoping Opinion
Chapter 4: Environmental Assessment Methodology	DMRB Volume 11, Section 2, Part 5: HA205/08  Volume 11 Section 3 and Interim Advice Note (IAN) 125/15. Assessment and Management of Environmental Effects	DMRB LA 104 Environmental assessment and monitoring <sup>ii</sup>	Environmental Value of Receptors	No change to assessment methodology.
			Magnitude of Impact	No change to assessment methodology.
			Significance of Effect Matrix	No change to assessment methodology.
Chapter 5: Air Quality	IAN 170/12 v3  IAN 174/13  IAN 175/13  Defra's Local Air Quality Management Technical Guidance TG16. Latest Transport Analysis Guidance as provided by the Department for Transport	DMRB LA 105 Air Quality <sup>iii</sup>	Construction dust assessment	No change to assessment methodology.
			Local air quality assessment	No change to assessment methodology.
		DMRB LA 114 Climate <sup>iv</sup>	Designated ecosystem assessment	No change to assessment methodology but additional designated habitat types are now required to be assessed. These additional habitats to consider are: Local nature reserves, local wildlife sites, nature improvement areas, ancient woodland and veteran trees.
			Local air quality compliance risk assessment	No change to assessment methodology.
			Regional Assessment	Regional assessment of carbon emissions undertaken in the Climate Change chapter following DMRB LA114. Regional assessment of total NO <sub>x</sub> and PM <sub>10</sub> emissions is no longer included in the Environmental Impact Assessment process in either of DMRB LA105 or LA114.
			Additional aspects included in assessment	Additional designated habitats considered in the ecosystem assessment, these include: Local nature reserves, local wildlife sites, nature improvement areas, ancient woodland and veteran trees.

ES Chapter	Guidance used in Scoping Report	Guidance used in ES	Aspect of assessment methodology	Change to Methodology since PINS Scoping Opinion
			Aspects excluded from assessment	Assessment of changes to PM <sub>2.5</sub> added to the scope of the local assessment due to inclusion in DMRB LA105 but assessment of PM <sub>2.5</sub> was screened out during assessment. No new aspects scoped out of the assessment.
Chapter 6: Cultural Heritage	DMRB, V11, S3, P2: HA208/07 Cultural Heritage	DMRB LA 106 Cultural Heritage <sup>v</sup>  DMRB LA 104 Environmental assessment and monitoring	Chapter title	No change.
			Archaeological assets	No change to study area. Receptor sensitivity/ value and magnitude of impact criteria updated in line with LA 106 and LA 104.
			Built heritage	No change to significance of effect matrix compliant with LA 104.
			Historic landscapes	No additional aspects scoped in for assessment.
			Additional aspects included in assessment	No new aspects scoped out of the assessment.
Chapter 7: Landscape and Visual	DMRB V11, S3, P5: Landscape Effects.  Interim Advice Note 135/10, Landscape and Visual Effects Assessment.  Guidelines for Landscape and Visual	DMRB LA 107 Landscape and Visual <sup>vi</sup>  DMRB LA 104 Environmental assessment and monitoring  Guidelines for Landscape and Visual Impact	Chapter title	No change.
			Landscape assessment	No change to study area. Receptor sensitivity/ value and magnitude of impact criteria updated in line with LA 107.
			Visual assessment	Significance of effects matrix updated in line with LA 104. Viewpoint photography figures updated in line with Landscape Institute TGN 06/19.
			Additional aspects included in assessment	Night time views scoped in, in response to consultation response.

ES Chapter	Guidance used in Scoping Report	Guidance used in ES	Aspect of assessment methodology	Change to Methodology since PINS Scoping Opinion
	Impact Assessment (Third Edition)	Assessment (Third Edition) <sup>vii</sup>  Landscape Institute Technical Guidance Note 06/19 Visual Representation of development proposals <sup>viii</sup>	Aspects excluded from assessment	No new aspects of the LVIA have been scoped out.
Chapter 8: Biodiversity	DMRB, V11, S3, P4: Ecology and Nature Conservation. DMRB, V10 S4: Nature Conservation  IAN 130/10: Ecology and Nature Conservation: Criteria for Impact Assessment.  Guidelines of Ecological Impact Assessment in the UK and Ireland (Chartered Institute of Ecology and Environmental Management, Second Edition 2016)	DMRB LA 108 Biodiversity <sup>ix</sup>	Chapter title	No change.
		DMRB LA 118 Biodiversity design <sup>x</sup>	International nature conservation designations	Study area for sites not designated for bats, changed from 2km to bespoke study area(s) for each site defined by the Natural England SSSI Impact Risk Zone for the SSSI/s that comprise the international site. Change of scope agreed with Natural England. Receptor importance, level of impact and significance matrix criteria updated in line with LA108. Terminology changes but no change to impact assessment.
		DMRB LA115 Habitats Regulation Assessment <sup>xi</sup>	National and Local statutory nature conservation designations	National and local statutory designated sites study area changed from 1km to 2km from the scheme boundary. Any SSSI that has an Impact Risk Zone that extends into the scheme boundary. Receptor importance, level of impact and significance matrix criteria updated in line with LA108. Terminology changes but no change to impact assessment.
		Guidelines of Ecological Impact Assessment in the UK and Ireland (Chartered Institute of Ecology and Environmental Management, v1.1 2018) <sup>xii</sup>  Natural England, Ancient woodland, ancient trees and veteran trees:	Non-statutory nature conservation designations	Non-statutory designated sites study area, including ancient woodland, changed to 2km from the scheme boundary. Receptor importance, level of impact and significance matrix criteria updated in line with LA108. Terminology changes but no change to impact assessment.

ES Chapter	Guidance used in Scoping Report	Guidance used in ES	Aspect of assessment methodology	Change to Methodology since PINS Scoping Opinion
		protecting them from development (2018) <sup>xiii</sup> .	Protected Species	<p>A number of the study areas for protected species have been revised since the scoping opinion. These changes were updated in the 2019 and 2020 PEI Reports and reviewed by Natural England and the Joint Councils.</p> <p>Receptor importance, level of impact and significance matrix criteria updated in line with LA108.</p> <p>Terminology changes but no change to impact assessment.</p> <p>Changes to the study areas, or scope are as follows:</p> <ul style="list-style-type: none"> <li>• Bat activity transects to cover suitable bat foraging and commuting habitat within 250m of the scheme boundary rather than landscape scale transects over 1km.</li> <li>• Advance survey technique bat trapping and radio tracking surveys in woodlands/tree-dominated habitats within or adjacent to the scheme boundary.</li> <li>• Reptile survey study area changed from within 250m of the scheme to 100m of the scheme.</li> </ul>
			Additional aspects included in assessment	<p>Nitrogen deposition on designated habitats including ancient woodland and veteran trees within 200m of the Affected Road Network were added to scope of assessment in accordance with LA105 Air Quality.</p> <p>Recreational pressure on nationally designated sites including SSSIs as component parts of an international site (in addition to HRA).</p> <p>Assessment on tufaceous habitat.</p>
			Aspects excluded from assessment	No aspects scoped out.
Chapter 9: Geology and Soils	DMRB, V11, S3, P11: Geology and Soils	DMRB, LA 109 Geology and Soils <sup>xiv</sup>	Chapter title	No change
			Geology and geologically designated sites	<p>No change to study area.</p> <p>Receptor sensitivity and magnitude of impact criteria have been updated in line with LA 109.</p> <p>Significance matrix updated in line with LA104.</p>



ES Chapter	Guidance used in Scoping Report	Guidance used in ES	Aspect of assessment methodology	Change to Methodology since PINS Scoping Opinion
			Contamination (Human Health)	<p>No change to study area.</p> <p>Receptor sensitivity and magnitude of impact criteria a have been updated in line with LA 109.</p> <p>Significance matrix updated in line with LA104.</p>
			Controlled Waters (Contamination)	<p>Study area for potential controlled waters (now referred to instead as surface water and groundwater) receptors of contamination remains at 1 km.</p> <p>Receptor sensitivity and magnitude of impact criteria a have been updated in line with LA 109 and LA 113.</p> <p>Significance matrix updated in line with LA104.</p>
			Agricultural land	<p>No change to study area.</p> <p>Receptor sensitivity and magnitude of impact criteria have been updated in line with LA 109.</p> <p>Impacts on Agricultural Land Classification was previously scoped in as part of Chapter 12: Population and Human Health. This aspect is now assessed in Chapter 9: Geology and Soils.</p> <p>Significance matrix updated in line with LA104.</p>
			Additional aspects included in assessment	No additional aspects scoped in for assessment

ES Chapter	Guidance used in Scoping Report	Guidance used in ES	Aspect of assessment methodology	Change to Methodology since PINS Scoping Opinion
			Aspects excluded from assessment	<p>No new aspects scoped out of the assessment.</p> <p>Impacts on agricultural land holdings are now reported in Chapter 12: Population and Human Health.</p> <p>Geotechnical hazards are assessed in accordance with DMRB, CD622 Managing geotechnical risk.</p> <p>Mineral resources are now reported in Chapter 10 and assessed in accordance with DMRB, LA 110 Material Assets and Waste</p> <p>Geomorphology, effects associated with hydromorphology are now reported in Chapter 13.</p> <p>Geomorphology – effects associated with landform are now reported in Chapter 7 and assessed in accordance with DMRB, LA 107 Landscape and visual effects.</p>
Chapter 10: Material Assets and Waste	IAN 153/11	DMRB LA 110 Material Assets and Waste <sup>xv</sup>	Chapter title	No change
			Impact on the existing capacity of landfill	Assessment methodology unchanged, no change to assessment outcome.
			Impacts on the use of primary material resources	Assessment methodology unchanged, no change to assessment outcome.
			Additional aspects included in assessment	Effects on mineral deposits as a resource are assessed in this chapter rather than Geology and Soils (LA 109).
			Aspects excluded from assessment	No change
Chapter 11: Noise and Vibration	DMRB HD 213/11 V11, S3, IAN 185/15	DMRB LA 111 Noise and Vibration <sup>xvi</sup>	Chapter title	No change
			Construction impacts	The DMRB LA 111 introduces LOAEL and SOAEL criteria and gives criteria and processes to determine significance of noise and vibration effects.

ES Chapter	Guidance used in Scoping Report	Guidance used in ES	Aspect of assessment methodology	Change to Methodology since PINS Scoping Opinion
	<p>BS 5228: 2009+A1: 2014 'Code of Practice for Noise and Vibration Control on Construction and Open Sites' CRTN methodology BNL</p> <p>BS 7385-2: 1993 'Evaluation and measurement for vibration in buildings – Part 2: Guide to damage levels from ground borne vibration'</p> <p>ISO 4866:2010 'Mechanical vibration and shock. Vibration of fixed structures. Guidelines for the measurement of vibrations and evaluation of their effects on structures' WHO Guidelines for Community Noise</p>		Operational phase noise impacts	<p>The DMRB LA 111 introduces LOAEL and SOAEL criteria and gives criteria and processes to determine significance of noise effects.</p> <p>The study area and calculation area of DMRB HD213/11 is now called 'Study Area' only in DMRB LA 111. Its definition is similar to the DMRB HD213/11 method but allows more flexibility according to the context of the assessment, including considering stakeholder expectation to determine the study area.</p> <p>The study area has been extended beyond the LA111 guidance to include Cowley and Coberley villages, as a result of public consultation.</p>
			Additional aspects included in assessment	No additional aspects scoped in for assessment.
			Aspects excluded from assessment	Operational vibration impacts and operational traffic noise annoyance impacts scoped out as no longer required
Chapter 12: Population and	DMRB V11, S3, P6: Land Use.	DMRB LA 112 Population and	Chapter title	Updated to 'Population and <u>Human</u> Health' from 'Population and Health' in line with LA112.

ES Chapter	Guidance used in Scoping Report	Guidance used in ES	Aspect of assessment methodology	Change to Methodology since PINS Scoping Opinion
Human Health	<p>DMRB V11, S3, P8: Pedestrians, Cyclists, Equestrians and Community Effects.</p> <p>DMRB V11, S3, P9: Vehicle Travellers.</p> <p>IEMA, Health in Environmental Impact Assessment: A Primer for a Proportionate Approach.</p>	<p>Human Health.<sup>xvii</sup></p> <p>DMRB LA 104 Environmental Assessment and Monitoring</p> <p>IEMA, Health in Environmental Impact Assessment: A Primer for a Proportionate Approach.<sup>xviii</sup></p>	Non-motorised users (NMUs)	<p>NMUS are now referred to as Walkers, Cyclists and Horse-riders (WCH). No change to study area.</p> <p>WCH are considered under the wider heading of 'Land use and access'. Receptor sensitivity and magnitude of impact criteria and significance</p>
			Motorised users	Views from the road' and 'driver stress' are no longer required to be assessed under the current DMRB standards. It is considered that aspects such as vehicle journey times, congestion and safety are the detailed in the Combined Modelling and Appraisal (ComMA) Report (Document Reference 7.6). These aspects have not been assessed as part of the Population and Human Health Assessment.
			Private assets and development land	<p>These aspects are considered under the wider heading of 'Land use and access' which considers the impacts of the Scheme on 'Businesses and development land', 'Private property and housing', 'Community land and assets', 'agricultural land holdings' and 'WCH'.</p> <p>The study area has been extended to include receptors up to 500m from the Scheme boundary.</p> <p>Receptor sensitivity and magnitude of impact criteria and significance effect matrix have been updated in line with LA 112 and LA104.</p>
			Community severance	<p>Community severance is now considered under the 'Land use and access' assessment which assesses the change in impact on accessibility restrictions/ severance within the following aspects of the assessment 'community land and assets', 'development land and business' and 'agricultural land holdings'.</p> <p>Receptor sensitivity and magnitude of impact criteria and significance effect matrix have been updated in line with LA 112 and LA104.</p>
			Human health	<p>No change to study area or methodology.</p> <p>In line with LA 112, the human health assessment now considers a set of 9 health determinants.</p>
			Vehicle travellers	Vehicle travellers is not included within the health considerations of LA 112 which means that this is no longer covered within the assessment.

ES Chapter	Guidance used in Scoping Report	Guidance used in ES	Aspect of assessment methodology	Change to Methodology since PINS Scoping Opinion
			Additional aspects included in assessment	Impacts on Agricultural Land Holdings was previously scoped in as part of Chapter 9: Geology and Soils. This aspect is now assessed in Chapter 12: Population and Human Health. No change to study area. Receptor sensitivity and magnitude of impact criteria and significance effect matrix have been updated in line with LA 112 and LA104.
			Aspects excluded from assessment	No new aspects have been scoped out of the assessment.
Chapter 13: Road Drainage and the Water Environment	V11, S3, P10: HD45/09 Road Drainage and the Water Environment	DMRB LA 113 Road Drainage and the Water Environment <sup>xix</sup>	Chapter title	No change
			Groundwater	No change to study area. Receptor sensitivity/value and magnitude of impact criteria updated in line with LA 113. Significance of effects matrix updated in line with LA 113 and LA 104. New assessment methodologies for groundwater level and flow which is presented in the Hydrogeological Impact Assessment (HIA) as an appendix to the ES.
			Surface Water	No change to study area. Receptor sensitivity/value and magnitude of impact criteria updated in line with LA 113. Significance of effects matrix updated in line with LA 113 and LA 104. Highways Agency Water Risk Assessment Tool (HAWRAT) updated to Highways England Water Risk Assessment Tool (HEWRAT) and includes surface water and groundwater quality and spillage risk. New WFD assessment to be followed.
			Hydromorphology	New assessment methodology for hydromorphology followed in line with LA 113 followed, rather than geomorphological assessment as outlined in the Scoping Report.

ES Chapter	Guidance used in Scoping Report	Guidance used in ES	Aspect of assessment methodology	Change to Methodology since PINS Scoping Opinion
			Flood Risk	A detailed assessment of flood risk has been undertaken, including hydraulic modelling, which has been undertaken in accordance with the requirements of the overseeing organisations (Environment Agency, GCC (in their capacity as the LLFA), Thames Water and Severn Trent and Internal Drainage Boards, where applicable), in accordance with LA 113 and is presented as an appendix to the ES. The hydraulic analysis has been used to inform the drainage design.
			Additional aspects included in assessment	New assessment methodology for groundwater dependant terrestrial ecosystems (GWDTEs) which is presented as an appendix to the ES.
			Aspects excluded from assessment	No new aspects have been scoped out of the assessment.
Chapter 14: Climate	HA 207/07: Air Quality  IAN 114/08: Highways Agency carbon calculations and reporting requirements	DMRB LA 114 Climate  DMRB LA 105 Air quality	Chapter title	No change
			Greenhouse gas impact assessment	No change to study area. GHG emissions as a result of land use change are now considered in the assessment. Total (cumulative) GHG emissions over the 60-year operational period are also now provided, in addition to the scheme opening year and design year.
			Climate change Resilience assessment	No change to study area. Minor changes to the significance matrix in accordance with LA 114. A high level assessment of the sensitivity of vulnerable safety critical features against the H++ climate scenarios is included in the assessment in accordance with LA 114.
			In-combination climate impacts assessment	The in-combination climate change impact assessment is included in the assessment in accordance with LA 114.
			Additional aspects included in assessment	No additional aspects scoped in for assessment.

ES Chapter	Guidance used in Scoping Report	Guidance used in ES	Aspect of assessment methodology	Change to Methodology since PINS Scoping Opinion
			Aspects excluded from assessment	No new aspects have been scoped out of the assessment.
Chapter 15 Assessment of cumulative effects	DMRB Volume 11, Section 2, Part 5: HA 205/08 Assessment and Management of Environmental Effects.  Planning Inspectorate (2015) Advice Note 17 Cumulative Effects Assessment.	DMRB LA 104 Environmental assessment and monitoring  Planning Inspectorate (2019) Advice Note 17 Cumulative Effects Assessment <sup>xx</sup>	Chapter title	No change
			Assessment of combined effects	Combined effects are now considered within the relevant environmental factor chapters of the ES and assessed in accordance with the corresponding environmental factor DMRB requirements and methodology. They are summarised in ES Chapter 15 Assessment of Cumulative effects (Document Reference 6.2). No change to study area. The methodology is compliant with LA 104.
			Assessment of cumulative effects	The identification of 'other developments' for inclusion in the assessment is now based on the criteria set out in LA 104 (section 3.21.2), which differs from the criteria set out in the Scoping Report. The assessment of significance of cumulative effects is now determined in accordance with the relevant environmental factor DMRB requirements and methodology, and no longer in line with the significance criteria set out within the Scoping Report (Table 16.2). The maximum study area (Zone of Influence) used in the assessment now extends to 5km from the DCO boundary, rather than the 2km specified in the Scoping Report. The methodology is compliant with LA 104.

## References

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- <sup>i</sup> Highways England (2019) Scoping Report. Available online at: <https://infrastructure.planninginspectorate.gov.uk/wp-content/ipc/uploads/projects/TR010056/TR010056-000009-A417%20-%20Scoping%20Report.pdf>
- <sup>ii</sup> Highways England (2020) Design Manual for Roads and Bridges Sustainability and Environment Appraisal LA 104 Environmental assessment and monitoring
- <sup>iii</sup> Highways England (2019) Design Manual for Roads and Bridges Sustainability and Environment Appraisal LA 105 Air quality
- <sup>iv</sup> Highways England (2019) Design Manual for Roads and Bridges Sustainability and Environment Appraisal LA 114
- <sup>v</sup> Highways England (2019) Design Manual for Roads and Bridges Sustainability and Environment Appraisal LA 106 Cultural heritage assessment
- <sup>vi</sup> Highways England (2020) Design Manual for Roads and Bridges Sustainability and Environment Appraisal LA 107 Landscape and visual effects
- <sup>vii</sup> The Landscape Institute and Institute of Environmental Management and Assessment (2013). Guidelines for Landscape and Visual Impact Assessment (GLVIA3), Third Ed. Oxon: Routledge.
- <sup>viii</sup> Landscape Institute (2017) Visual representation of development proposals, Technical Guidance Note 06/19
- <sup>ix</sup> Highways England (2020) Design Manual for Roads and Bridges Sustainability and Environment Appraisal LA 108 Biodiversity
- <sup>x</sup> Highways England (March 2020) LD 118 Biodiversity design
- <sup>xi</sup> Highways England (2020) Design Manual for Roads and Bridges Sustainability and Environment Appraisal LA 115 Habitats Regulations Assessment
- <sup>xii</sup> CIEEM (2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.1. Chartered Institute of Ecology and Environmental Management, Winchester
- <sup>xiii</sup> Natural England (2018) Ancient woodland, ancient trees and veteran trees: protecting them from development. <https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences> (Accessed 16.11.2020)
- <sup>xiv</sup> Highways England (2019) Design Manual for Roads and Bridges Sustainability and Environment Appraisal LA 109 Geology and soils
- <sup>xv</sup> Highways England (2019) Design Manual for Roads and Bridges Sustainability and Environment Appraisal LA 110 Material assets and waste
- <sup>xvi</sup> Highways England (2020) Design Manual for Roads and Bridges Sustainability and Environment Appraisal LA 111 Noise and vibration
- <sup>xvii</sup> Highways England (2020) Design Manual for Roads and Bridges Sustainability and Environment Appraisal LA 112 Population and human health
- <sup>xviii</sup> IEMA, 2017, Health in Environmental Impact Assessment A Primer for a Proportionate Approach
- <sup>xix</sup> Highways England (2020) Design Manual for Roads and Bridges Sustainability and Environment Appraisal LA 113 Road drainage and the water environment
- <sup>xx</sup> Planning Inspectorate (2019) Advice Note 17 Cumulative Effects Assessment.