

A417 Missing Link

Preliminary Environmental Information Report

Chapter 1 Introduction - Appendices

28 September 2020

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Legislative and Planning Policy Framework

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1 Legislative and planning policy framework

1.1 Legislation

Environment bill

- 1.1.1 The Environment Bill was introduced to Parliament on 15 October 2019 to tackle environmental priorities to protect and enhance the natural environment. The Bill was set to establish a comprehensive legal framework for environmental improvement. The Bill is currently passing through Parliament; the Bill was introduced to the House of Commons and given its First Reading on Thursday 30 January 2020. It is being considered by a Public Bill Committee but due to the current COVID-19 pandemic, the sittings of the Committee have been temporarily suspended.

1.2 Planning policy

- 1.2.1 The following National Policy Statements (NPS) are of primary importance to the decision-making process for DCO applications.

National Policy Statement for National Networks (NPSNN) (December 2014)

- 1.2.2 The National Policy Statements are produced by central Government and provide policy on specific aspects of national infrastructure. Specifically, these statements clarify:

- how infrastructure contributes to sustainable development;
- how infrastructure takes account of the mitigation of, and adaptation to, climate change;
- how infrastructure objectives have been integrated with other Government policies;
- how actual and projected capacity and demand have been taken into account;
- consider relevant issues in relation to safety or technology;
- circumstances where it would be particularly important to address the adverse impacts of development; and
- specific locations, where appropriate, in order to provide a clear framework for investment and planning decisions.

- 1.2.3 The NPSNN sets the policy against which the Secretary of State for Transport will make decisions on applications for development consent for nationally significant infrastructure projects on road, rail and strategic rail freight interchange developmentsⁱ. Specifically, paragraph 1.1 states that the purpose of the NPSNN is to establish:

“the need for, and Government’s policies to deliver, development of nationally significant infrastructure projects (NSIPs) on the national road and rail networks in England. It provides planning guidance for promoters of nationally significant infrastructure projects on the road and rail networks, and the basis for the examination by the Examining Authority and decisions by the Secretary of State.”

Drivers of need for development on the national road network

- 1.2.4 The NPSNN sets out the ‘vision and strategic objectives for the national networks’. This recognises that there is a critical need to provide safe, expeditious

and resilient networks that better support social and economic activity, and to provide a transport network that is capable of supporting economic growth and rebalancing the economyⁱⁱ.

“Government’s vision and strategic objectives for the national networks The Government will deliver national networks that meet the country’s long-term needs; supporting a prosperous and competitive economy and improving overall quality of life, as part of a wider transport system. This means:

- Networks with the capacity and connectivity and resilience to support national and local economic activity and facilitate growth and create jobs.
- Networks which support and improve journey quality, reliability and safety.
- Networks which support the delivery of environmental goals and the move to a low carbon economy.
- Networks which join up our communities and link effectively to each other.ⁱⁱⁱ”

- 1.2.5 Whilst the NPSNN is not scheme specific, it provides a decision-making framework for applications on the strategic highway network. It does however state that in some cases, it will not be sufficient to simply expand capacity on the existing network, through factors such as junction improvements or new slip roads, implementing ‘smart motorways’ or improving trunk roads. In these circumstances *“new road alignments and corresponding links... may be needed to support increased capacity and connectivity.”^{iv}*

Assessment principles

- 1.2.6 Unlike other types of infrastructure covered by the Planning Act, the NPSNN deals predominantly with linear infrastructure which are designed to link together separate points, provide linear infrastructure connected to a wider network. Development will usually be determined by economic activity and population, and the location of existing transport networks^v.
- 1.2.7 Paragraph 4.2 sets out that subject to the detailed policies and protections in the NPS, and the legal constraints set out in the Planning Act, there is a presumption in favour of granting development consent for national networks NSIPs that fall within the need for infrastructure established in the NPS. In considering proposed development, and weighing adverse impacts against benefits, the Secretary of State should take into account:
- *“its potential benefits, including the facilitation of economic development, including job creation, housing and environmental improvement, and any long-term or wider benefits; and*
 - *its potential adverse impacts, including any longer-term and cumulative adverse impacts, as well as any measures to avoid, reduce or compensate for any adverse impacts^{vi}.”*
- 1.2.8 With regard to alternatives, paragraphs 4.26 and 4.27 of the NPSNN set out that applicants should comply with all legal requirements and any policy requirements for the assessment of alternatives. Specifically, this will include: reference to the EIA Directive, which requires projects with significant environmental effects to include an outline of the main alternatives studied by the applicant; other legal requirements for the consideration of alternatives, including under the Habitats and Water Framework Directives (WFD) ; or a policy requirement of the assessment of alternatives (such as the flood risk sequential test). Of particular relevance to the proposed scheme, given that it is located in the Cotswolds

AONB, is the requirement to assess alternatives for developments in AONBs. Paragraph 4.27 goes on to state that “*all projects should be subject to an options appraisal.*”

- 1.2.9 Paragraph 5.151 sets out three tests that applications should be assessed against to determine whether exceptional circumstances exist which justify granting development consent for a highways scheme in a nationally designated site:
- the need for the development, including in terms of any national considerations, and the impact of consenting, or not consenting it, upon the local economy;
 - the cost of, and scope for, developing elsewhere, outside the designated area, or meeting the need for it in some other way; and
 - any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated.
- 1.2.10 Paragraph 5.152 states that there will be a presumption against road widening or the building of new roads in AONBs unless it can be shown there are compelling reasons for the new and enhanced capacity and that the benefits outweigh the costs “*very significantly*”.
- 1.2.11 The general principles of assessment and impacts which are of relevance to a particular topic are set out within each PEI Report topic chapter. A Case for the Scheme will be prepared which will document an assessment of the proposed scheme against the three tests. This will accompany the DCO application.

National Planning Policy Framework (NPPF)

Role of the NPPF and NPS

- 1.2.12 The overall strategic aims of the NPPF and the NPS are consistent; however, as set out above, the two documents have two differing roles to play. Paragraph 5 of the NPPF makes it clear that it does not contain specific policies for NSIPs for which particular considerations apply. It goes on to state however, that it may be a ‘relevant’ matter to be considered in decision making for NSIPs. The role of the NPS will be to assume the function of providing specific policies and provide transport policy which will guide individual development brought under it^{vii}.
- 1.2.13 Paragraph 7 of the NPPF states that “*the purpose of the planning system is to contribute to the achievement of sustainable development*”. The NPPF goes on to set out three overarching objectives which are interdependent and need to be pursued in mutually supportive ways to achieve sustainable development; an economic objective, a social objective and an environmental objective^{viii}.
- 1.2.14 The NPPF mandates that “significant weight should be placed on the need to support economic growth and productivity”^{ix}. This includes through planning policies which should “seek to address potential barriers to investment, such as inadequate infrastructure”^x.
- 1.2.15 The NPPF also places emphasis on high quality design in development, stating that it is “fundamental” to what the planning and development process should achieve”^{xi}. Paragraph 124 of the NPPF further states that “Good design is a key aspect of sustainable development, creates better places in which to live and work and helps make development acceptable to communities”.

- 1.2.16 To this end, paragraph 127 states that planning policies and decisions should ensure that developments are, amongst other criteria, “sympathetic to the local character and history, including the surrounding built environment and landscape setting, while not preventing or discouraging appropriate innovation or change”.
- 1.2.17 Specific regard is also given in the NPPF to protected and designated landscapes. Paragraph 172 states that “great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty, which have the highest status of protection in relation to these issues. The conservation of wildlife and cultural heritage are important considerations in these areas...”.
- 1.2.18 The proposed scheme falls within the Cotswold AONB. No additional internationally designated sites of nature conservation or heritage value are within the proposed scheme boundary or within two kilometres of the proposed scheme. The Environmental Impact Assessment Scoping Report establishes, however, that nationally and locally designated sites of historical landscape and nature conservation interest are located within the footprint (or within close proximity) of the proposed scheme.
- 1.2.19 Paragraphs 174 to 177 of the NPPF call on local planning authorities to aim to conserve and enhance biodiversity in determining planning applications by protecting nationally and internationally designated sites from development which would have an adverse effect upon them and, in all locations, by refusing development which could result in significant harm to biodiversity and which cannot be avoided or adequately mitigated or compensated.
- 1.2.20 Each topic chapter of this PEI Report refers to the relevant paragraphs and sections of the NPPF where considered relevant to the assessment.

Local Development Plan

- 1.2.21 The Local Development Plans relevant to the proposed scheme are detailed in chapter 1.
- 1.2.22 In addition, within the Cotswold District and Tewkesbury Borough areas, there are one and five Neighbourhood Development Plans (NDP) respectively which have been made by local communities and which form part of the development plan for the Councils. However, there is no NDP within or adjacent to the boundary of the proposed scheme. There are numerous other NDPs in progress amongst communities in the Cotswolds and Tewkesbury areas, however these have limited weight in the planning process.
- 1.2.23 There are also a number of guiding documents and supplementary planning documents, which may also feature as material considerations. Where relevant, guidance from these documents is set out within each topic chapter.

Local planning policy

- 1.2.24 Each chapter of the PEI Report considers the relevant local planning policy for their assessment. This includes the following policies:
- Gloucestershire County Council Minerals Local Plan 2018-2032 (adopted March 2020);
 - Gloucestershire County Council Waste Core Strategy (2012) and Gloucestershire Waste Local Plan 2002-2012 Saved Policies (2004);

- Gloucestershire County Council Local Transport Plan, 2015-2031 (2017);
- Cotswold District Council Local Plan 2011 – 2031 (adopted 2018);
- Joint Core Strategy (JCS) between Gloucester City Council, Cheltenham Borough Council and Tewkesbury Borough Councils (2017);
- Tewkesbury Borough Council Local Plan 2006 – 2011 Saved Policies (2006); and
- Tewkesbury Borough Council Local Plan 2011 – 2031 Pre-Submission Tewkesbury Borough Plan (October 2019), submitted for examination on 18 May 2020.

Non-Statutory Plans

Cotswolds AONB Management Plan (2018-2023)

- 1.2.25 The Cotswolds AONB Conservation Board are identified as a prescribed consultee. Although responsible for publishing the Cotswolds AONB Management Plan (2018-2023), the organisation possesses no ownership or direct management of land situated within the AONB. While considered a non-statutory planning document, policies and guidance set out in the management plan are reflected in planning policy adopted in the Gloucester, Cheltenham and Tewkesbury Joint Core Strategy (2011-2031) and the Cotswold District Council Local Plan (2011-2023).
- 1.2.26 The Cotswolds AONB Management Plan outlines two visions that state that the Cotswolds AONB will be:
- a distinctive, unique and accessible living landscape treasured for its diversity which is recognised by all for its wide-open views, dry stone walls, intimate valleys, flower rich grasslands, ancient woodlands, dark skies, tranquillity, archaeology, historic and cultural heritage and distinctive Cotswold stone architecture; and
 - a thriving, collaborative, pioneering and proactive place, sustained by the passions of residents, visitors and businesses alike, where communities and businesses value its special qualities.
- 1.2.27 The Cotswolds AONB Management Plan outlines three key threats to the AONB which are: the erosion of the natural beauty and special qualities, lack of consistent approach and lack of understanding of the benefits of the Cotswolds AONB.
- 1.2.28 An assessment of the Cotswolds AONB Management Plan has been undertaken and a non-exhaustive summary of policies pertinent to the A417 Missing Link have been outlined below:
- Policy CE6 – Historic Environment and Cultural Heritage states that development within the AONB should seek to conserve and enhance un-designated and designated historic environmental sites such as Scheduled Monuments and Listed Buildings. Opportunities should be sought to promote awareness of the historic environment and cultural heritage assets within the Cotswolds AONB.
 - Policy CE7 – Biodiversity states that development should conserve and enhance ecological networks across the Cotswolds AONB and its wider setting. Developments within the AONB should seek to improve the existing

condition of wildlife sites, increase their number and size and improve their connectivity through the provision of green infrastructure.

- Policy CE10 – Development and Transport states that development within the AONB and its immediate setting should have regard to the conservation and enhancement of the natural beauty and increasing the understanding and enjoyment of the AONB’s special qualities. Transport related development should comply with national planning policy and guidance and have regard to Cotswold Conservation Board guidance including; Landscape Strategy and Guidelines, Landscape Character Assessment; Local Distinctiveness and Landscape Change and Board Position Statements relating to the Cotswold AONB including AONB National Park Position Statement, and Cotswold AONB Tree Species and Provenance.
- Policy CE11 - Major Developments states that proposals for major development in the Cotswolds AONB and within its setting, must comply with nation planning policy and guidance and have regard to guidance on major development set out in Appendix 9 of the Cotswolds AONB Management Plan. All major developments proposed within the Cotswolds AONB, specifically the A417 ‘Missing Link’, should be ‘landscape led’. This should include fully respecting and integrating special qualities of the AONB into the design and management stages of the proposed scheme.
- Policy UE2 – Access and Recreation states that the Cotswolds AONB should be enhanced and promoted as a safe, pleasant and well-connected Public Right of Way (PRoW) network. The AONB Management plan outlines the importance of promoting the AONB as the Walking and Exploring Capital of England.

1.2.29 With regard to the A417 ‘Missing Link’, the Cotswolds AONB Management Plan states:

“Proposals for upgrading the A417 at Birdlip affect one of the most sensitive parts of the Cotswold scarp and present a change to ensure that, while the traffic and economic needs to upgrade are met, the design will be landscape-led and ensure that the potential benefits to the AONB clearly outweigh any harm.”

A Green Future: Our 25 Year Plan to Improve the Environment

1.2.30 The 25 Year Environment Plan sets out the UK Governments action plan to help the natural world regain and retain good health. Through the adoption of the plan, the Government seeks to achieve cleaner air, water, improved biodiversity, climate and environmental resilience, efficient and sustainable resource/land use and enhancement and engagement with the environmental and cultural environment. This plan does not form part of the development plan for the area but is an important and relevant national strategy that the proposed scheme will have regard to.

1.2.31 The Environment Plan outlines six key areas around which policy actions are focussed:

- Chapter 1 – Using and managing land sustainably;
- Chapter 2 – Recovering nature and enhancing the beauty of landscapes;
- Chapter 3 – Connecting people with the environment to improve health and wellbeing;
- Chapter 4 – Increasing resource efficiency, and reducing pollution and waste;

- Chapter 5 – Securing clean, productive and biologically diverse seas and oceans; and
- Chapter 6 – Protecting and improving the global environment.

1.2.32 While the Environment Plan notes that development is not prohibited in National Parks or Areas of Outstanding Natural Beauty, major development should take place only in exceptional circumstances.

Endnotes

- ⁱ National Policy Statement for National Networks (Paragraph 1.1).
- ⁱⁱ National Policy Statement for National Networks (Paragraph 2.2)
- ⁱⁱⁱ National Policy Statement for National Networks (Vision)
- ^{iv} National Policy Statement for National Networks (Paragraph 2.27)
- ^v National Policy Statement for National Networks (Paragraph 4.13)
- ^{vi} National Policy Statement for National Networks (Paragraph 4.3).
- ^{vii} National Policy Statement for National Networks (Paragraph 1.19).
- ^{viii} NPPF (2019) paragraph 8.
- ^{ix} NPPF (2019) paragraph 80.
- ^x NPPF (2019) paragraph 81 (C).
- ^{xi} NPPF (2019) paragraph 124.

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Appendix 1.2
Competent Expert Evidence

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1 EIA team competent experts

1.1 EIA coordinator

- 1.1.1 Jessica Lauren Postance (EIA Lead and Environmental Coordinator) is a Chartered Engineer (CEng), a Chartered Environmentalist (CEnv) and Chartered Water and Environmental Manager (CWEM). Jessica has a MEng (Hons) degree in Environmental and Earth Resources Engineering from Imperial College London (2002).
- 1.1.2 Jessica is a member of the Chartered Institute for Water and Environmental Management (CIWEM) and has worked as a professional environmental engineer since 2002. Jessica is an accomplished environmental generalist, with a broad range of experience and knowledge across many environmental-related disciplines. Jessica provides expert environmental input into a range of infrastructure projects.
- 1.1.3 Jessica has a wealth of experience working on highway schemes in the UK. Jessica has contributed to, actively managed and coordinated, and published several Highway Environmental Statements in the last 18 years.

1.2 Air quality

- 1.2.1 James Bellinger (Air quality lead) (MSc, CEnv, CSci, MEnvSc, MIAQM, PIEMA) is a senior consultant with over 10 years' experience carrying out air quality assessment. He is an experienced leader (Project Manager) of technical projects including high profile projects and has provided expertise internationally.
- 1.2.2 James has led the air quality assessments for several major motorway schemes in the UK, including, A14 DCO, M1 J23a-25, M1 J13-16, M621 (Leeds), M25 J10-16, M40 M42 interchange, A30 DCO. These schemes have included detailed modelling, analysis of monitoring data, assessment of human and ecological receptors and assessment of significance. He has also been responsible for leading the air quality assessments for a number of other major infrastructure projects, including, HS2 phase 2b (Leeds) and Luton airport expansion DCO.

1.3 Cultural heritage

- 1.3.1 James William Keyte holds a BSc (Hons) in Heritage Conservation and a Postgraduate Diploma in Archaeological Resource Management. James is a Member of the Chartered Institute for Archaeologists, a Member of the Institution of Environmental Sciences, and a Chartered Environmentalist.
- 1.3.2 James has worked as a professional archaeologist for 19 years with positions at Gifford and Partners Ltd (1999-2007) and Ove Arup and Partners Ltd since 2007.
- 1.3.3 The majority of his career has been concerned with assessing the impact of developments upon the historic environment, for both non-EIA and EIA developments. He has worked on projects in a wide range of sectors including transport, mixed use development, energy, education and water. He has worked on a large number of road and rail schemes, including: A34/4 Junction Chieveley, A303 Stonehenge Improvement (2002-2005), M1 Junction 21-30 Improvement, East Coast Mainline Hitchin Grade Separation, A8 Belfast to Larne dualling, A120 Little Hadham bypass, High Speed 2 Phase 1A and 2B and A30 DCO. As a

result, James has extensive experience of the impacts to the historic environment that can result from the development of major infrastructure projects.

1.4 Landscape and visual

- 1.4.1 Alan Kerr is a Senior Landscape Architect at Arup, with 11 years professional experience working in the UK landscape industry. He has been a chartered member of the Landscape Institute for seven years. Alan has a Bachelor of Science in Landscape Design and Ecology and has a Masters of Landscape Architecture both from University of Sheffield. Alan has extensive experience working in landscape planning, particularly landscape and visual impact assessments and landscape character studies, working on a diverse range of projects, including large scale infrastructure projects. Alan is required by the Landscape Institute to conduct himself in accordance with their Code of Conduct, undertaking work within his professional competence and follow best practice guidance such as, in this instance, follow the Guidelines for Landscape and Visual Impact Assessment, 3rd edition.

1.5 Biodiversity

- 1.5.1 Chloe Delgery is a Senior Ecologist at Arup. Chloe is a Chartered Environmentalist of the Society for the Environment (SocEnv), and a Full member of the Chartered Institute of Ecology & Environmental Management (CIEEM). She has an MPhil in Marine Biology (2005), an MSc in Integrated Environmental Studies (2001), and the French equivalent of a BSc (Hons) in Ecosystems Biology (three-year degree including a one-year ERASMUS exchange programme at Portsmouth, 1997-2000). She has published technical papers on ecological matters including a review of work carried out in France about bats and transport infrastructure.
- 1.5.2 Chloe has been working as a professional ecologist since 2005 and has been responsible for leading ecological projects and managing other individuals as a senior ecologist since 2012. She holds survey licences for bats, dormouse and great crested newts in England and Wales, and is a Registered Consultant under Natural England's Bat Low Impact Class Licence. The majority of Chloe's career has been concerned with assessment of ecology for a wide range of projects, including assessment of the ecological impacts from major road schemes.
- 1.5.3 Chloe has worked on numerous major road schemes in England and Northern Ireland, including the A303, A30, M27, M25, A21 and A2. As a result, Chloe has extensive experience in the ecological assessment techniques used for highways proposals. For this assessment, Chloe is the lead ecological expert for the proposals, managing the ecology team that has undertaken the assessment and has had this role since Arup started working on the project at PCF Stage 3. As a member of CIEEM, Chloe is required to abide by their Code of Professional Conduct, which has been considered when undertaking this assessment.

1.6 Geology and soils

- 1.6.1 Lee Taylor (Geology and Soils Lead) is a Chartered Geologist and a Fellow of the Geological Society of London. Lee has an MESci (Hons) degree in Geology and an MSc in Applied Environmental Geology, both from Cardiff University.
- 1.6.2 Lee has worked on engineering geological aspects and Environmental Statements for several highway schemes over a period of over 8 years, including

projects within Northern Ireland (A8 and A26), Wales (M4, M4 CEM and A465) and England (A303 Stonehenge). Lee has also worked on the engineering geological aspects of an Environmental Statement for two proposed shale gas exploration wells within Lancashire. He attended public consultation events to communicate the development of risk mitigation in relation to engineering geology.

- 1.6.3 Agnieszka Lopez-Parodi (Geology and Soils co-author) is a Chartered Engineer and member of the Institute of Civil Engineers. Agnieszka has a MEng (Hons) degree in Environmental Engineering from the Wrocław University of Technology, Poland, and BSc (Hons) degree in Applied Sciences from the University of Glamorgan, Wales.

1.7 Material assets and waste

- 1.7.1 Tim Wilkinson is a Chartered Geologist and a Fellow of the Geological Society of London. Tim has a BSc (Hons) degree in Geology from the University of Liverpool (2000) and an MSc in Applied Environmental Geology from Cardiff University (2002). Tim has worked as an engineering geologist for 16 years with experience in contaminated land assessments, geotechnical investigation and design, and environmental impact assessments.
- 1.7.2 Tim has provided input to environmental impact assessments for highways and other infrastructure and building developments over the past 11 years including a number of assessments considering the impact on materials resources.

1.8 Noise and vibration

- 1.8.1 Greg Harris is an Associate in Arup. He holds a diploma in Acoustics and Noise Control (Institute of Acoustics) and a MSc in Acoustics and Noise Control (Open University). He is a member of the Institute of Acoustics.
- 1.8.2 Greg has over 28 years' experience in environmental noise research and consultancy. He has specialised in highway noise assessment, firstly as a researcher and then in consultancy over the last 17 years. As a researcher at the Transport Research Laboratory in Berkshire he worked as part of a research team on traffic noise prediction methods, vehicle noise testing procedures, tyre noise, studies of road surface noise performance (particularly low noise surfaces) and the assessment of noise barrier performance. Greg provided policy advice on various noise matters to UK and European governments and produced various research reports and guidance documents.
- 1.8.3 Greg was a member of the panel of specialists reviewing the revision draft of the noise assessment guidance within the Design Manual for Roads and Bridges (DMRB, 2006). Greg has also drafted guidance on the design of highway noise screening for the Design Manual for Roads and Bridges (2011). More recently Greg has worked with Highways England providing advice on a range of traffic noise issues including the feasibility of a national, network-wide noise modelling system.
- 1.8.4 Greg has carried out highway noise assessment and mitigation design for schemes in all regions of the UK. Recent schemes include the A465 Dualling (Brynmawr to Tredegar in South Wales, the A8 Dualling (Coleman's Corner to Ballyrickard Road) in Northern Ireland, and the M1 widening (J25-J28) in

England. He has also advised on noise assessment of highways schemes overseas.

- 1.8.5 Greg has been leading the noise assessment and mitigation design on the A30 Chiverton to Carland Cross (the scheme) since June 2017. As part of the environmental assessment team, he was responsible for assessing the noise and vibration effects associated with the proposed scheme and the development of the mitigation design.
- 1.8.6 The Environmental Statement has been prepared in accordance with the Professional Ethics and Code of Conduct of the Institute of Acoustics.

1.9 Population and human health

- 1.9.1 Allan Pitt MRTPI is a Chartered Town Planner working for Arup with more than nine years' relevant experience including EIA. His qualifications include a BSc in City and Regional Planning and an MSc in Regeneration Studies, both from the Cardiff University School of City and Regional Planning.
- 1.9.2 David Brown MRTPI is a Chartered Town Planner working for Arup with more than twelve years' relevant experience including EIA. His qualifications include a BSc in Human Geography and an MSc in Regeneration Studies, both from the Cardiff University School of City and Regional Planning.

1.10 Road drainage and the water environment

- 1.10.1 Tom Styles is a Senior Consultant at Arup with 10 years' professional experience following a BSc in Geography (University of Southampton) and an MSc in Catchment Dynamics and Management (University of Leeds). Tom is a Chartered Water and Environmental Manager (CWEM), Chartered Scientist (CSci) and Chartered Environmentalist (CEnv), as well as a Practitioner Member of the Institute of Environmental Management and Assessment (IEMA). He has authored, co-authored and reviewed a number of ES water assessments as well as associated assessments including Water Framework Directive assessments, Flood Risk Assessments and drainage strategies.
- 1.10.2 Les Brown is a Senior Engineer with 21 years' professional experience as a hydrogeologist following a PhD in hydrogeology (University of Huddersfield) and an MSc in engineering geology (University of Durham). Les is a member of the International Association of Hydrogeologists and is a specialist in limestone hydrogeology.

1.11 Climate

- 1.11.1 Damien Canning is the climate topic lead for the project. Damien works within Arup's Resilience, Energy and Climate Change group where he develops and manages a broad range of work across the environmental sustainability spectrum. Damien is a Chartered Environmentalist and holds an MSc in Carbon Management. Damien has specialised in climate change with experience across both greenhouse gas emissions mitigation and climate change resilience. He is an experienced carbon management practitioner and has delivered a number of baseline projects. He is a competent user of a range of lifecycle assessment and carbon quantification tools. Damien has seven years practitioner experience and has led, contributed to, or provided technical review to a number of EIAs across transport sectors.