Welsh Government

M4 Corridor around Newport

Environmental Statement Volume 1 Chapter 20: References

M4CaN-DJV-EGN-ZG_GEN-RP-EN-0037

At Issue | March 2016

Contents

		Page
20	References	20-1
	Chapter 1: Introduction	20-1
	Chapter 2: Scheme Description	20-2
	Chapter 3: Scheme Construction	20-2
	Chapter 4: Scheme Development and Alternatives Considered	20-2
	Chapter 5: Approach to Assessment	20-5
	Chapter 6: Legislative and Policy Context	20-6
	Chapter 7: Air Quality	20-8
	Chapter 8: Cultural Heritage	20-10
	Chapter 9: Landscape and Visual Effects	20-12
	Chapter 10: Ecology and Nature Conservation	20-14
	Chapter 11: Geology and Soils	20-25
	Chapter 12: Materials	20-28
	Chapter 13: Noise and Vibration	20-30
	Chapter 14: All Travellers	20-32
	Chapter 15: Community and Private Assets	20-34
	Chapter 16: Road Drainage and the Water Environment	20-35
	Chapter 17: Assessment of Cumulative Effects and Inter-relationships	20-37
	Chapter 18: Environmental Management	20-37
	Chapter 19: Conclusions	20-38

20 References

Chapter 1: Introduction

Legislation

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 in the Environment.

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 in the Environment (codification).

Highways Act 1980. Part VA Environmental Impact Assessments.

The Highways (Assessment of Environmental Effects) Regulations 1999. SI 1999 No 369.

The Highways (Assessment of Environmental Effects) Regulations 2007. SI 2007 No 1062.

The Marine Works (Environmental Impact Assessment) Regulations 2007. SI 2007 No. 1518.

The Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2011. SI 2011 No. 735.

Publications

Highways Agency, Scottish Government, Welsh Assembly Government, The Department for Regional development Northern Ireland (2008) Design Manual for Roads and Bridges Volume 11, Section 2, Part 3: HD 47/08. Screening of Projects for Environmental Impact Assessment.

Welsh Assembly Government (2008) One Wales: Connecting the Nation. The Wales Transport Strategy.

Welsh Assembly Government (2011) Interim Advice Note 126/09(W) Environmental Impact Assessment: Reporting of the Determination and Publication of Notices (Wales Only).

Welsh Government (2012) M4 Corridor Enhancement Measures (CEM) Strategic Environmental Assessment (SEA) Environmental Report: Consultation Document. November 2012.

Welsh Government (2013) M4 Corridor around Newport Strategic Environmental Assessment Environmental Report. M4 Corridor around Newport draft Plan: Consultation Document. September 2013.

Welsh Government (2014) M4 Corridor Around Newport: The Plan. July 2014.

Chapter 2: Scheme Description

Highways Agency, Transport Scotland, Welsh Assembly Government & The Department for Regional Development Northern Ireland (2006) Design Manual for Roads and Bridges, Volume 4, Section 2, Part 9: Grassed surface water channels for highway runoff, (HA119/06) (May 2006).

Chapter 3: Scheme Construction

No references.

Chapter 4: Scheme Development and Alternatives Considered

R (on the application of Friends of the Earth England, Wales and Northern Ireland Ltd) v Welsh Ministers [2015] EWHC 776 (Admin).

Transport Wales (2006a) M4 Corridor Re-examination of Route Corridors, Workshop Report for 23 February 2006. Welsh Assembly Government.

Transport Wales (2006b) New M4 Project - Magor to Castleton, Preferred Route Review - April 2006. Welsh Assembly Government.

Transport Wales (2006c). New M4 Project - Magor to Castleton, Junction Strategy Review - April 206. Welsh Assembly Government.

Welsh Assembly Government (2003) Wales: A Better Country.

Welsh Assembly Government (2008a) Wales Spatial Plan, updated.

Welsh Assembly Government (2008b) Welsh Transport Planning and Appraisal Guidance: WelTAG.

Welsh Assembly Government (2009a) New M4 Project Magor to Castleton WelTAG Planning Stage Report.

Welsh Assembly Government (2009b) New M4 Project Magor to Castleton Addendum to WelTAG Planning Stage Report.

Welsh Assembly Government (2009c) New M4 Project Magor to Castleton WelTAG Appraisal Report Stage 1, July 2009.

Welsh Assembly Government (2010a) New M4 Project Magor to Castleton WelTAG Appraisal Report Stage 1, January 2010.

Welsh Assembly Government (2010b) National Transport Plan: March 2010.

Welsh Government (2011) M4 Corridor Enhancement Measures: Alternatives Considered – Measures Falling Outside of the M4 CEM Programme. Supporting Technical Document, November 2011.

Welsh Government (2012a) M4 Corridor Enhancement Measures Magor to Castleton (M4 CEM) Easing the Flow. Consultation Document. WG14775.

Welsh Government (2012b) M4 Corridor Enhancement Measures (M4 CEM) Health Impact Assessment. November 2012.

Welsh Government (2012c) M4 Corridor Enhancement Measures (M4 CEM) Equality Impact Assessment. November 2012.

Welsh Government (2012d) M4 Corridor Enhancement Measures (CEM) Strategic Environmental Assessment (SEA) Environmental Report. November 2012. WG16557.

Welsh Government (2012e) M4 Corridor Enhancement Measures (CEM) Strategic Habitats Regulations Assessment (SHRA) Screening Report. November 2012. WG16557.

Welsh Government (2012f) M4 Corridor Enhancement Measures (CEM) Strategic Habitats Regulations Assessment (SHRA) Statement to inform Appropriate Assessment. November 2012. WG16557.

Welsh Government (2013a) M4 Corridor Enhancement Measures (M4 CEM) WelTAG Appraisal Report Stage 1 (Strategic Level). March 2013.

Welsh Government (2013b) M4 Corridor around Newport WelTAG Appraisal Report Stage 1 (Strategic Level). June 2013.

Welsh Government (2013c) M4 Corridor Enhancement Measures Public Transport Overview. February 2013.

Welsh Government (2013d) M4 Corridor around Newport draft Plan: Strategic Environmental Assessment Scoping Report.

Welsh Government (2013e) M4 Corridor around Newport draft Plan: Consultation Document. WG19741.

Welsh Government (2013f) M4 Corridor around Newport draft Plan: Equality Impact Assessment. 23rd September 2013. WG19741.

Welsh Government (2013g) M4 Corridor around Newport draft Plan: Health Impact Assessment. 23rd September 2013. WG19741.

Welsh Government (2013h) M4 Corridor around Newport draft Plan: Consideration of the options in relation to the requirements of the Habitats Regulations. 23rd September 2013. WG19741.

Welsh Government (2013i) M4 Corridor around Newport draft Plan: Strategic Environmental Assessment Environmental Report. WG19741.

Welsh Government (2013j) M4 Corridor around Newport draft Plan: Consultation Response Form. WG19741.

Welsh Government (2014a) M4 Corridor around Newport: The Plan. Strategic Environmental Assessment Post-Adoption Statement. July 2014.

Welsh Government (2014b) M4 Corridor around Newport: The Plan. Consultation Participation Report. July 2014.

Welsh Government (2014c) M4 Corridor around Newport: The Plan. July 2014.

Welsh Government (2014d) M4 Corridor around Newport: The Plan. Health Impact Assessment Report. July 2014.

Welsh Government (2014e) M4 Corridor around Newport: The Plan. Equality Impact Assessment Report. July 2014.

Welsh Government (2014f) M4 Corridor around Newport: draft Plan. Strategic Habitats Regulations Assessment. July 2014.

Welsh Government (2014g) M4 Corridor around Newport: The Plan. Strategic Appraisal of Alternatives Considered During Consultation. July 2014.

Welsh Government (2014h) M4 Corridor around Newport - Motorway South of Newport. Design Manual for Roads and Bridges Stage 2 Scheme Assessment Report. July 2014.

Welsh Government (2014i) M4 Corridor around Newport - Motorway South of Newport. Design Manual for Roads and Bridges Stage 2 Environmental Assessment Vol 1 Report and Vol 2 Appendices. July 2014.

Welsh Government (2014j) M4 Corridor around Newport - Motorway South of Newport. WelTAG Stage 1 & 2 (Scheme) Appraisal. July 2014.

Welsh Government (2014k) M4 Corridor around Newport. Statement of Reasons for Modification of the 2006 Preferred Route for a New Section of Motorway South of Newport. July 2014.

Welsh Government (2015) M4 Corridor around Newport Design Options Report Volumes 1 & 2.

Welsh Office (1990) South Wales Area Traffic Study.

Welsh Office (1993a) Assessment of Discarded Route Options.

Welsh Office (1993b) Review of Northern Route Adopting Reduced Standards.

Welsh Office (1995) M4 Relief Road Magor to Castleton: Statement of Results of Second Public Consultation and Further Examination of Options for Crossing the River Usk and Reasons for Selection of Preferred Route.

Welsh Office (1999) M4 Motorway Between Magor and Castleton: Common Appraisal Framework. Ove Arup and Partners.

Chapter 5: Approach to Assessment

Legislation

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 in the Environment.

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 in the Environment (codification).

Highways Act 1980. Part VA Environmental Impact Assessments.

The Highways (Assessment of Environmental Effects) Regulations 1999. SI 1999 No 369.

The Highways (Assessment of Environmental Effects) Regulations 2007. SI 2007 No 1062.

The Marine Works (Environmental Impact Assessment) Regulations 2007. SI 2007 No. 1518.

The Marine Works (Environmental Impact Assessment) (Amendment) Regulations 2011. SI 2011 No. 735.

Publications

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008a) (as amended 2009) Design Manual for Roads and Bridges HA 200/08 Volume 11, Section 1, Part 1. Aims and Objectives of Environmental Assessment.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008b) Design Manual for Roads and Bridges HA 201/08 Volume 11, Section 2, Part 1. General Principles and Guidance of Environmental Impact Assessment.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008c) Design Manual for Roads and Bridges HA 202/08 Volume 11, Section 2, Part 2. Environmental Impact Assessment.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008d) Design Manual for Roads and Bridges HA 204/08 Volume 11, Section 2, Part 4. Scoping of Environmental Impact Assessments.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008e) Design Manual for Roads and Bridges HA 205/08 Volume 11, Section 2, Part 5. Assessment and Management of Environmental Effects.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008f) Design Manual for Roads and Bridges HD 44/08 Volume 11, Section 2, Part 6. Reporting of Environmental Impact Assessments.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008g) Design Manual for Roads and Bridges HA

218/08 Volume 11, Section 2, Part 7. Glossary of Terms Used in DMRB Volume 11, Sections 1 and 2.

Institute of Environmental Management and Assessment (IEMA) (2004) Guidelines for Environmental Impact Assessment.

Institute of Environmental Management and Assessment (2011) The State of Environmental Impact Assessment Practice.

UK Climate Impacts Programme (UK CIP) (2016) UK Climate Projections (UKCP09). Available at: http://ukclimateprojections.metoffice.gov.uk/. Accessed January 2016.

Welsh Assembly Government (2010) Interim Advice Note 125/09(W) Supplementary Guidance for Users of DMRB Volume 11 'Environmental Assessment' Wales Only.

Welsh Government and Department for Environment, Food & Rural Affairs (2012) A Climate Change Risk Assessment for Wales, January 2012.

Chapter 6: Legislative and Policy Context

Legislation

Active Travel (Wales) Act 2013.

Climate Change Act 2008.

Conservation of Habitats and Species Regulations 2010.

Countryside and Rights of Way Act 2000.

Environment (Wales) Bill 2015.

European Directive 92/42/EEC on the Conservation of Natural Habitats and Wild Flora and Fauna.

Historic Environment (Wales) Bill 2015.

Human Rights Act 1998.

Natural Environment Rural Communities Act 2006.

Planning (Wales) Act 2015.

Planning (Listed Buildings and Conservation Areas) Act 1990.

The Ancient Monuments and Archaeological Areas Act 1979.

Well-being of Future Generation Act (Wales) 2015.

Wildlife and Countryside Act 1981 (as amended).

Publications

Department for Environment, Food and Rural Affairs (Defra) (2004) Rural Strategy.

HM Government (2009) The UK Low Carbon Transition Plan: National Strategy for Climate and Energy.

Monmouthshire County Council (2014) Monmouthshire Local Development Plan 2011 – 2021.

National Assembly for Wales (2009) Trunk Road Forward Programme.

Newport City Council (2015) Newport Local Development Plan 2011-2016.

South East Wales Transport Alliance (SEWTA) (2010) Regional Transport Plan.

Welsh Assembly Government (2004a) Technical Advice Note 15: Development and Flood Risk.

Welsh Assembly Government (2004b) Trunk Road Estate Biodiversity Action Plan 2004-2014.

Welsh Assembly Government (2005) Wales: A Vibrant Economy. Strategic Framework for Economic Development. Consultation Report.

Welsh Assembly Government (2006) Environment Strategy for Wales.

Welsh Assembly Government (2007) Technical Advice Note 18: Transport.

Welsh Assembly Government (2008a) People, Places, Futures. The Wales Spatial Plan Update 2008.

Welsh Assembly Government (2008b) One Wales: Connecting the Nation. The Wales Transport Strategy.

Welsh Assembly Government (2008c) A Walking and Cycling Action Plan for Wales 2009-2013.

Welsh Assembly Government (2009) One Wales: the Planet. The Sustainable Development Scheme of the Welsh Assembly Government.

Welsh Assembly Government (2010a) National Transport Plan 2010.

Welsh Assembly Government (2010b) Economic Renewal: A New Direction.

Welsh Assembly Government (2010c) Climate Change Strategy for Wales.

Welsh Assembly Government (2010d) Climate Change Strategy for Wales: Delivery Plan for Emission reduction.

Welsh Government (2011a) Programme for Government 2011:2016.

Welsh Government (2011b) Environment Strategy Annual Report 2010-2011.

Welsh Government (2012) State of the Environment Report, 2012.

Welsh Government (2014a) Technical Advice Note 12: Design.

Welsh Government (2014b) National Transport Plan 2015- Draft.

Welsh Government (2014c) Climate Change Annual Report, December 2014.

Welsh Government (2015a) How do you Measure a nation's Progress? Proposals for the national indicators to measure whether wales is achieving the seven well-being goals in the Well-being of Future generations (Wales) Act 2015.

Welsh Government (2015b) Wales Infrastructure Investment Plan for Growth and Jobs. 2015 Annual Report, including Annex: Project Pipeline Update.

Welsh Government (2015c) National Transport Finance Plan 2015.

Welsh Government (2016) Planning Policy Wales, Edition 8.

Chapter 7: Air Quality

Legislation

Council Directive 2008/50/EC: Directive 2008/50/EC of the European Parliament and of the Council of 21 May 2008 on Ambient Air Quality and Cleaner Air for Europe, Official Journal of the European Union No L 152/2, 11/6/2008.

Environmental Permitting (England and Wales) (Amendment) Regulations 2015 (SI 2015 No.0000).

Natural Environment and Rural Communities Act 2006.

The Air Quality (Wales) Regulations 2000 No. 1940 (WSI 2000 No. 1940 (W. 138)).

The Air Quality (Amendment) (Wales) Regulations 2002 (WSI 2002 No. 3182 (Wales 298)).

The Air Quality Standards (Wales) Regulations 2010 (WSI 2010 No. 1433 (W.126).

The Environment Act 1995, Chapter 25.

The Wildlife and Countryside Act 1981.

Publications

Cardiff City Council (1996) City of Cardiff Local Plan.

Cardiff City Council (1997) South Glamorgan (Cardiff Area) Replacement Structure Plan.

Cardiff City Council (2016) Cardiff Local Development Plan 2006-2026.

Department for Environment Food and Rural Affairs (Defra) (2009) Local Air Quality Management Technical Guidance.

Department for Environment Food and Rural Affairs (Defra) (2012) Trends in NOx and NO2 emissions and ambient measurement in the UK.

Department for Environment Food and Rural Affairs (Defra) (2014a), http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html#NOxNO2calc.

Department for Environment Food and Rural Affairs (Defra) (2014b), http://lagm.defra.gov.uk/review-and-assessment/tools/emissions-factors-toolkit.html.

Department for Environment Food and Rural Affairs (Defra) (2014c), http://uk-air.defra.gov.uk/data/laqm-background-maps?year=2011.

Department for Environment Food and Rural Affairs (Defra) (2014d), http://laqm.defra.gov.uk/review-and-assessment/tools/background-maps.html#NOxsector.

Department for Environment Food and Rural Affairs (Defra), Scottish Executive, Welsh Assembly Government and Department of the Environment Northern Ireland (2007) National Air Quality Strategy.

Department for Environmental Food and Rural Affairs (Defra), Welsh Government, The Scottish Government, and Department for Environment, Northern Ireland (2011) Air Quality Plan for the Achievement of EU Air Quality Limit Values for Nitrogen Dioxide (NO2) in South Wales (UK0041). September 2011.

Department for Environmental Food and Rural Affairs (Defra), Welsh Government, The Scottish Government, and Department for Environment, Northern Ireland (2015) Air Pollution in the UK, September 2015.

Department for Environmental Food and Rural Affairs (Defra 2015b), Welsh Government, The Scottish Government, and Department for Environment, Northern Ireland (2015) Draft Air Quality Plan for the Achievement of EU Air Quality Limit Value for Nitrogen Dioxide (NO2) in South Wales (UK0041). December 2015.

Forest of Dean District Council (2012) Core Strategy Adopted Version. 23 February 2012.

Ginzburg and Schattanek (1997) Analytical approach to estimate pollutant concentrations from a tunnel portal exit plume.

Highways Agency (2013a) Interim Advice Note 175/13 Updated Air Quality Advice on Risk Assessment related to Compliance with the EU Directive on Ambient Air Quality and on the Production of Scheme Air Quality Action Plans for Users of DMRB Volume 11, Section 3, Part 1 Air Quality (HA207/07).

Highways Agency (2013b) IAN 174/13 Updated Advice for Evaluating Significant Local Air Quality Effects for Users of DMRB Volume 11, Section 3, Part 1. Air Quality (HA207/07).

Highways Agency (2013c) IAN 170/12v3 Updated Air Quality Advice on the Assessment of Future NOx and NO2 Projections for Users of DMRB Volume 11, Section 3, Part 1 'Air Quality'.

Highways Agency (2014), Note on HA's Interim Alternative Long Term Annual Projection Factors (LTTE6) for Annual Mean NO2 and NOx concentrations between 2008 and 2030.

Highways Agency (2015) IAN 185/15 Updated Traffic, Air Quality and Noise Advice on the Assessment of Link Speeds and Generation of Vehicle Data into 'Speed-bands' for Users of DMRB Volume 11, Section 3, Part 1 'Air Quality' and Volume 11, Section 3, Part 7 Noise.

Highways Agency, Transport Scotland, Welsh Assembly Government, The Department for Regional Development Northern Ireland (2007) Design Manual for Roads and Bridges HA207/07, Volume 11, Section 3, Part 1. Air Quality.

Highways Agency, Scottish Government, Welsh Assembly Government, The Department for Regional Development Northern Ireland (2008) Design Manual for Roads and Bridges HA205/08 Volume 11, Section 2, Part 5. Assessment and Management of Environmental Effects.

Institute of Air Quality Management (IAQM) (2014) Guidance on the Assessment of Dust from Demolition and Construction.

Monmouthshire County Council (2014) Monmouthshire Local Development Plan 2011 – 2021.

Newport City Council (2015) Newport Local Development Plan 2011-2016.

Newport City Council (2008) Air Quality Action Plan.

South Gloucestershire Council (2013) South Gloucestershire Local Plan Core Strategy 2006-2027, adopted December 2013.

Torfean County Borough Council (2013) Local Development Plan (to 2010) Adopted Plan – Written Statement, December 2013.

Welsh Assembly Government (2009) Part IV of the Environment Act 1995: Local Air Quality Management. Local Air Quality Management Policy Guidance for Wales.

Welsh Government (2008) One Wales: Connecting the Nation, The Wales Transport Strategy.

Welsh Government (2012) Part IV of the Environment Act 1995: Local Air Quality Management. Local Air Quality Management Policy Guidance for Wales. Addendum: Air Quality and Traffic Noise.

Welsh Government (2016a) Planning Policy Wales Edition 8.

Welsh Government (2016b) M4 Corridor around Newport, Traffic Forecasting Report.

Chapter 8: Cultural Heritage

Legislation

Ancient Monuments and Archaeological Areas Act 1979.

Historic Environment (Wales) Bill.

Planning (Listed Buildings and Conservation Areas) Act 1990.

Publications

BSI (2013) Guide to the Conservation of Historic Buildings. British Standards Institute. BS7913:2013.

Cadw, Countryside Council for Wales (CCW) and Welsh Assembly Government (2007) Guide to Good Practice on Using the Register of Landscapes of Historic Interest in Wales in the Planning and Development Process. Revised (2nd) Edition Including Revisions to the Assessment Process (ASIDOHL2).

Cardiff City Council (1996) City of Cardiff Local Plan. Adopted January 1996.

Cardiff City Council (1997) South Glamorgan (Cardiff Area) Replacement Structure Plan 1991-2011. Adopted April 1997.

Cardiff City Council (2006) Supplementary Planning Guidance: Archaeologically Sensitive Areas. Approved July 2006.

Cardiff City Council (2013) Cardiff Local Development Plan 2006-2026. Deposit Plan. September 2013.

Chartered Institute for Archaeologists (2014a) Standard and Guidance for Historic Environment Desk-Based Assessment. December 2014.

Chartered Institute for Archaeologists (2014b) Standard and Guidance for Archaeological Geophysical Survey. December 2014.

Chartered Institute for Archaeologists (2014c) Standard and Guidance for Archaeological Field Evaluation. December 2014.

Chartered Institute for Archaeologists (2014d) Standard and Guidance for the Creation, Compilation, Transfer and Deposition of Archaeological Archives.

Chartered Institute for Archaeologists (2014e) Standard and Guidance for the Collection, Documentation, Conservation and Research of Archaeological Materials.

Glamorgan-Gwent Archaeological Trust (GGAT) (2007) Notes for Archaeologists undertaking Desk-Based Studies in South-East Wales.

Highways Agency (2007) Assessing the Effect of Road Schemes on Historic Landscape Character. March 2007.

Highways Agency, Transport Scotland, Welsh Assembly Government, the Department for Regional Development Northern Ireland (2007) Design Manual for Roads and Bridges, Volume 11, Section 3, Part 2: HA 208/07. Cultural Heritage.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008) Design Manual for Roads and Bridges HA 205/08 Volume 11, Section 2, Part 5. Assessment and Management of Environmental Effects.

Historic England (2015) The Settings of Heritage Assets, Historic Environment Good Practice Advice in Planning: Note 3.

Historic Scotland (2010) Managing Change in the Historic Environment: Setting.

Monmouthshire County Council (2014) Monmouthshire County Council Adopted Local Development Plan 2011-2021. Adopted 27 February 2014.

Newport City Council (2015a) Newport Local Development Plan 2011-2026. Adopted Plan, January 2015.

Newport City Council (2015b) Archaeology and Archaeologically Sensitive Areas. Adopted August 2015.

Powell, J., Murphy, K., Ings, M. and Chambers, F. M. (2012) A Strategic Approach for Assessing and Addressing the Potential Impact of Climate Change on the Historic Environment of Wales, Report to Historic Environment Group – Climate Change Subgroup. CCRI: Gloucester.

Temple Group (2014) Aviation Noise Metric – Research on the Potential Noise Impacts on the Historic Environment by Proposals for Airport Expansion in England, Report No. 6865 for English Heritage, Temple Group with Cotswold Archaeology.

Welsh Assembly Government (2008a) People, Places, Futures: The Wales Spatial Plan, 2008 Update.

Welsh Assembly Government (2008b) One Wales: Connecting the Nation. The Wales Transport Strategy, April 2008.

Welsh Assembly Government (2011) Conservation Principles for the Sustainable Management of the Historic Environment in Wales.

Welsh Government (2013) Historic Environment Strategy for Wales, May 2013.

Welsh Government (2014b) Technical Advice Note 12: Design, July 2014.

Welsh Government (2015) Historic Environment (Wales) Bill – Complementary Document for Consideration. Draft Technical Advice Note 24: Historic Environment.

Welsh Government (2016) Planning Policy Wales, Edition 8, January 2016.

Welsh Office (1996a) Welsh Office Circular 60/96 Planning and the Historic Environment: Archaeology.

Welsh Office (1996b) Welsh Office Circular 61/96 Planning and the Historic Environment: Historic Buildings and Conservation Areas.

Welsh Office (1998) Welsh Office Circular 1/98 Planning and the Historic Environment: Directions by the Secretary of State for Wales.

Chapter 9: Landscape and Visual Effects

Legislation

Hedgerows Regulations 1997.

National Parks and Access to the Countryside Act 1949.

The Countryside and Rights of Way (CRoOW) Act 2000.

The Natural Environment and Rural Communities (NERC) Act 2006.

Wildlife and Countryside Act 1981 (as amended).

Publications

Cardiff City Council (2006) Cardiff Supplementary Planning Guidance Public Rights of Way and Development, October 2006.

Cardiff City Council (2007) Cardiff Supplementary Planning Guidance Trees and Development, March 2007.

Cardiff City Council (2008) Cardiff Supplementary Planning Guidance Open Space, March 2008.

Cardiff City Council (2009) Cardiff Supplementary Planning Guidance Tall Buildings, April 2009.

Cardiff City Council (2011a) Cardiff Supplementary Planning Guidance Biodiversity Part 1: Policy Guidance, June 2011.

Cardiff City Council (2011b) Cardiff Supplementary Planning Guidance Biodiversity Part 2: The Cardiff Resource, June 2011.

Cardiff City Council (2016) Cardiff Local Development Plan 2006-2026. Deposit Plan Adopted January 2016.

Countryside Council for Wales (2015) LANDMAP – The Landscape Atlas. Available at: http://www.ccw.gov.uk/landmap, accessed on-line 2015.

Department of the Environment, Welsh Office (1993) Welsh Office Circular 5/93: Public Rights of Way.

Department of the Environment, Welsh Office (1978) Welsh Office Circular 64/78: Trees and Forestry.

Highways Agency (1993) Design Manual for Roads and Bridges (DMRB) Volume 11, Section 3 Part 5, Landscape Effects.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008) Design Manual for Roads and Bridges HA 205/08 Volume 11, Section 2, Part 5. Assessment and Management of Environmental Effects.

Landscape Institute (2011) Landscape Institute Advice Note 01/2011: Photography and Photomontage in Landscape and Visual Assessment, Published March 2011.

Landscape Institute and Institute of Environmental Management and Assessment (2013) Guidelines for Landscape and Visual Impact Assessment, 3rd Edition.

Monmouthshire County Council (2014) Monmouthshire County Council Adopted Local Development Plan 2011-2021. Adopted 27 February 2014.

Monmouthshire County Council (2015) Green Infrastructure Supplementary Planning Guidance, Adopted April 2015.

National Assembly for Wales (2002) Circular 31/2001: Countryside and Rights of Way Act 2000, 15 February 2002.

Natural Resources Wales (2013a) LANDMAP Guidance Note 3: Guidance for Wales. Using LANDMAP for Landscape and Visual Impact Assessment of Onshore Wind Turbines, May 2013.

Natural Resources Wales (2013b) LANDMAP Guidance Note 4: Guidance for Wales. LANDMAP and the Cultural Landscape, May 2013.

Natural Resources Wales (2015) http://landmap.ccw.gov.uk/map/Map.aspx Sourced June 2015.

Newport City Council (2015) Newport Local Development Plan 2011-2026. Adopted Plan, January 2015.

Welsh Assembly Government (1997) Planning Policy Wales Technical Advice Note 10: Tree Preservation Orders, October 1997.

Welsh Assembly Government (1998) Planning Policy Wales Technical Advice Note 14: Coastal Planning, March 1998.

Welsh Assembly Government (2004) Technical Advice Note 15 (TAN 15): Development and Flood Risk.

Welsh Assembly Government (2006) Environment Strategy for Wales.

Welsh Assembly Government (2007) Planning Policy Wales Technical Advice Note 18: Transport, March 2007.

Welsh Assembly Government (2009) Planning Policy Wales Technical Advice Note 5: Nature Conservation and Planning. September 2009.

Welsh Government (2014a) Planning Policy Wales, Edition 7. July 2014.

Welsh Government (2014b) Technical Advice Note 12 (TAN 12): Design.

Welsh Government (2014c) Interim Advice Note 135/10 Landscape and Visual Effects Assessment, Wales Only.

Welsh Office (1993) Roads in Lowland Areas: Design Guide.

Welsh Office (1996) Welsh Office Circular 60/96: Planning and the Historic Environment: Archaeology.

White Consultants (2009) Monmouthshire Landscape Sensitivity and Capacity Study, October 2009.

White Consultants (2010) Monmouthshire Landscape Sensitivity and Capacity Study: Main Villages and H4 Settlement, June 2010.

Chapter 10: Ecology and Nature Conservation

Legislation

Wildlife and Countryside Act 1981 (as amended).

Eels (England and Wales) Regulations 2009.

Hedgerows Regulations 1997.

The Conservation of Habitats and Species Regulations 2010.

The Countryside and Rights of Way Act 2000.

The Natural Environment and Rural Communities (NERC) Act 2006.

The Protection of Badgers Act 1992.

The Water Environment (Water Framework Directive) (England and Wales) Regulations 2003.

Publications

Abbott I.M., Butler F. & Harrison S. (2012) When flyways meet highways – the relative permeability of different motorway crossing sites to functionally diverse bat species. *Landscape and Urban Planning*, 106, 293–302.

Abbott I.M., Harrison S., Butler F. (2012) Clutter-adaptation of bat species predicts their use of under-motorway passageways of contrasting sizes - a natural experiment. Journal of Zoology, 287, 124–132.

Aprahamian, W.M., Lester, S.M. and Aprahamian, C.D. (1998). Shad Conservation in England and Wales. R&D Technical Report W110.

ARG UK (2010) Advice Note 5 - Great Crested Newt Habitat Suitability Index. Amphibian and Reptile Groups of the United Kingdom.

Avian Ecology Unit (1994). A study of the potential impact of a new road crossing at Kincardine-on-Forth. Avian Ecology Unit, University of Stirling.

Bach, L., Burkhardt, P. and Limpens, H. J. G. A. (2004) Tunnels as a possibility to connect bat habitats. *Mammalia* 68 (4): 411-420.

Bash, J., C. Berman, and S. Bolton. (2001). Effects of turbidity and suspended solids on salmonids. Center for Streamside Studies, University of Washington, Seattle, WA.

Beardsley, H. (2012) Factors affecting the growth and recruitment of cyprinid populations of the River Wensum, Eastern England, with special reference to roach Rutilus rutilus. MSc Thesis. Bournemouth University/Environment Agency.

Becker, A., Whitfield, A.K., Cowley, P.D., Jamegren, J. and Næsje, T.F. (2013). Potential effects of artificial light associated with anthropogenic infrastructure on the abundance and foraging behaviour of estuary-associated fishes. Journal of Applied Ecology, 50, 43–50.

Berthinussen, A. and Altringham, J. (2012) Do Bat Gantries and Underpasses Help Bats Cross Roads Safely? PLOS One

http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0038775 (accessed 6/2/2016).

Berthinussen, A. and Altringham, J. (2015) Development of a cost-effective method for monitoring the effectiveness of mitigation for bats crossing linear transport infrastructure. WC1060.

Bibby, C.J., Burgess, N,D., Hill, D.A. and Mustoe, S.H. (2000) Bird Census Techniques, 2nd Edition. Academic Press, London.

Billard, R. (1997). Les poissons d'eau douce des rivières de France. Identification, inventaire et répartition des 83 espèces. Lausanne, Delachaux & Niestlé, 192p.

Bird, D.J. (2008). The Biology and Conservation of the Fish Assemblage of the Severn Estuary. CCW Report CCW/SER/08/01.

BirdLife International (2016) Species factsheet: Tringa totanus. Downloaded from http://www.birdlife.org on 14/01/2016.

Boonman M. (2011) Factors determining the use of culverts underneath highways and railway tracks by bats in lowland areas. Lutra 54 (1): 3-16.

Boyce (2009) Monitoring Invertebrate Features on SSSIs: Aquatic Invertebrates on Gwent Levels: Whitson SSSI, 2009. D C Boyce. CCW Regional Report No. CCW/SEW/10/1.

Boyce (2012) Monitoring invertebrate features on Sites of Special Scientific Interest: aquatic invertebrates on the Gwent Levels: Redwick and Llandevenny SSSI, St Brides SSSI. DC Boyce. CCW Regional Report No. SEW/12/01.

Boyce (2013) Monitoring invertebrate features on Sites of Special Scientific Interest: aquatic invertebrates on the Gwent Levels: Magor and Undy SSSI, Nash and Goldcliff SSSI, Newport Wetlands SSSI, Rumney and Peterstone SSSI. DC Boyce. CCW Regional Report No. CCW/SEW/13/3.

Bright, P., Morris, P. & Mitchell-Jones, T. (2006) The dormouse conservation handbook (2nd edition). English Nature.

Brinkmann, R., Bach, L., Biedermann, M., Dietz, M., Dense, C., Fiedler, W., Fuhrmann, M., Kiefer, A., Limpens, H., Niermann, I., Schorcht, W., Rahmel, U., Reiter, G., Simon, M., Steck, C. and Zahn, A. (2003) Schadensbegrenzung bei der Lebensraumzerschneidung durch Verkehrsprojekte – Kenntnisstand-Untersuchungsbedarf im Einzelfall-fachliche Standards zur Ausführung. Positionspapier der Arbeitsgemeinschaft Querungshilfen. (http://www.buero-brinkmann.de/downloads/Positionspapier_2003_4.pdf). Cited in Highways Agency, 2011.

British Trust for Ornithology (BTO) (2012) WeBS Core Counts Methodology and counting techniques

(http://www.bto.org/sites/default/files/u18/downloads/counter_resources/02_corecount.pdf) (accessed 27/4/2015)

Bruce-White, C and Shardlow, M, (2011). A Review of the Impact of Artificial Light on Invertebrates. Buglife – The Invertebrate Conservation Trust.

Bruijs, M.C.M. and Durif, C.M.F. (2009) Silver Eel Migration and Behaviour. In van den Thillart, G, Dufour, S. and Rankin, J.C. (2009). Spawning Migration of the European eel. Reproductive index, a useful tool for conservation management. Fish and Fisheries Series 30.

Burton N.H.K., Musgrove A.J., Rehfisch M.M. & Clark N.A. (2010). Birds of the Severn Estuary and Bristol Channel: Their current status and key environmental issues. Marine Pollution Bulletin 61, p. 115-123. Cardiff City Council (1996) City of Cardiff Local Plan.

Caldicot & Wentlooge Levels IDB (undated) Water Level Management Plan http://www.caldandwentidb.gov.uk/docs/wlmp.pdf (accessed 6/2/2016).

Canal and River Trust (2015). [online]. Minnow. Available at: https://canalrivertrust.org.uk/news-and-views/features/types-of-fish-found-in-canals-and-rivers/minnow. [Accessed: 28/09/15].

Cardiff City Council (1997) South Glamorgan (Cardiff Area) Replacement Structure Plan.

Cardiff Council (2013) Cardiff County Council Deposit Local Development Plan 2006-2026. Deposit Plan. September 2013.

Carstairs, M. (2000). The ecology and conservation of allis and twaite shad. British Wildlife, 11, 159-166.

Chanin, P. (2003) Monitoring the Otter Lutra lutra. Conserving Natura 2000 Rivers Monitoring Series No. 10, English Nature, Peterborough.

Cheffing, C.M. & Farrell L. (Eds.) (2005) Vascular Plant Red Data Book for Great Britain, JNCC.

(CIEEM) (2006) Guidelines for Ecological Impact Assessment in the UK. Chartered Institute of Ecology and Environmental Management, Winchester.

CIEEM (2016) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater and Coastal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester

Claridge, P.N., Potter, I.C. and Hardisty, M.W. (1986). Seasonal changes in the movements, abundance, size composition and diversity of the fish fauna of the Severn Estuary. Journal of the Marine Biological Association of the United Kingdom, 66: 229-258.

Clark, R.B., (1997). Marine Pollution, 4th ed. Oxford: Clarendon Press.

Collins, J. (ed.) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd edn), The Bat Conservation Trust, London.

Countryside Council for Wales (1991) Botanical Survey of Reens, Gwent Levels.

Countryside Council for Wales (1996) Guidance Note 2: Flora Monitoring on the Gwent Levels Sites of Special Scientific Interest. Countryside Council for Wales.

Countryside Council for Wales (CCW) (2006). Marine Intertidal Phase 1 species dataset from the Countryside Council for Wales 1996-2005. Available from https://data.nbn.org.uk/Datasets/GA000944.

Countryside Council for Wales (CCW) (2008a). Gwent Levels: Magor and Undy Site of Special Scientific Interest. Your Special Site and It's Future. January 2008.

Countryside Council for Wales (CCW) (2008b). Gwent Levels: Nash and Goldcliff Site of Special Scientific Interest. Your Special Site and It's Future. January 2008.

Countryside Council for Wales (CCW) (2008c). Gwent Levels: Redwick and Llandevenny Site of Special Scientific Interest. Your Special Site and It's Future. January 2008.

Countryside Council for Wales (CCW) (2008d). Gwent Levels: Whitson Site of Special Scientific Interest. Your Special Site and It's Future. January 2008.

Countryside Council for Wales (CCW) (2008e). Gwent Levels: St Brides Site of Special Scientific Interest. Your Special Site and It's Future. January 2008.

Countryside Council for Wales (CCW) (2008f). Gwent Levels: Rumney and Peterstone Site of Special Scientific Interest. Your Special Site and It's Future. January 2008.

Countryside Council for Wales (CCW) (2010). Phase 1 Intertidal Habitats of Wales Dataset 1996 – 2005.

Crawford, A.K. (2003) The fourth otter survey of England 2000-02. Environment Agency, Bristol.

Coull, K.A, Johnstone, R., Rogers, S.I., (1998). Fisheries Sensitivity Maps in British Waters. Published and distributed by UKOOA Ltd.

DECC (2008). Severn Tidal Power – Scoping Topic Paper. Migratory and Estuarine Fish. Department of Energy and Climate Change. December 2008.

DEFRA (2007) Hedgerow Survey Handbook. Department for Environment, Food and Rural Affairs.

Global Maritime Consultancy Ltd (2015) M4 Corridor around Newport: Shipping Analysis (Draft, July 2015).

Dines, T. D. (2008). A vascular plant red data list for Wales. Plantlife International, Salisbury.

Eaton M.A., Brown A.F., Musgrove A.J., Hearn R., Aebischer N.J., Stroud D.A. (2015). Birds of Conservation Concern 4: the population status of birds in the United Kingdom, Channel Islands and the Isle of Man. British Birds 108, p708–746.

EcoSpan (2012) Severn Estuary SAC and SPA: Intertidal Mudflats and Sandflats Condition Assessment 2012. Report Number: ER13-198. Undertaken by EcoSpan Environmental Ltd for Natural England. Framework Agreement No. 22643/04.

EDF (2011) Hinkley Point C. Environmental Statement - Volume 2. Doc Ref 4.3.

Eklöf, J. (2003) Vision in echolocating bats - Doctoral thesis. Zoology Department, Göteborg University.

Ellis, J.R., Milligan, S., Readdy, L., South, A., Taylor, N., Brown, M. (2010). MB5301 Mapping spawning and nursery areas of species to be considered in Marine Protected Areas (Marine Conservation Zones). Report No. 1: Final Report on development of derived data layers for 40 mobile species considered to be of conservation importance. Final version. August 2010.

English Nature (2001) Great Crested Newt Mitigation Guidelines.

Environment Agency (2010a) Fluvial Design Guide.

Environment Agency (2010b) Wye and Usk Catchment Flood Management Plan.

Environment Agency (2011) Pollution Prevention Guidance (PPG)22: Dealing with Spills.

Environment Agency (2014) Severn Estuary Flood Risk Management Strategy: Strategy Appraisal Report.

Environment Agency (Undated). Elver and eel passes - A guide to the design and implementation of passage solutions at weirs, tidal gates and sluices. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/297338/geho0411btqc-e-e.pdf (Accessed 6/2/2016)

Fish-UK (2015) [online]. Species of UK Coarse Fish – Gudgeon. Available at: http://www.fish-uk.com/species_gudgeon.htm [Accessed 28/09/15].

Frank-Gopolos, T., Bekkevold, D., Guyomard, R., De Innocentiis, S., Portela, P. M., Fernández, C. B., and Vera, M. (2015). Brown trout. AquaTrace Species Leaflet.

Freyhof, J., M. Kottelat and A. Nolte, (2005). Taxonomic diversity of European Cottus with description of eight new species (Teleostei: Cottidae). Ichthyol. Explor. Freshwat. 16(2):107-172.

Freyhof, J. and Brooks, E. 2011. European Red List of Freshwater Fishes. Luxembourg: Publications Office of the European Union.

Froglife (1999) Froglife Advice Sheet 10: reptile survey. Froglife, London.

Fure A., 2006. Bats and lighting. The London Naturalist, 85.

Genny, D.R., Hale, A.D., Woods, R.G., and Wright, M. (2009) Chapter 20 Grassland Fungi of Guidelines for selection of biological SSSIs (JNCC).

Gilbert, G., Gibbons, D.W. and Evans, J. (1998) Bird Monitoring Methods: A manual of techniques for key UK species. RSPB, Bedfordshire.

Gow. D. (2007) Water vole reintroduction projects - the lessons and the success factors. ECOS: 28(1).

Gow, D., Holder, K., and Jeffrey, C. (2004). Captive breeding as a recovery component of water vole (Arvicola terrestris) conservation projects. Journal of the IEEM. In Practice No 44. Pages 14 – 17.

Gwent Ornithological Society (2012). Gwent Bird Report 2012.

Hadderingh, E.R.H., van der Stoep, J. W. and Habraken, J.M.P.M. (1992): Deflecting eels from water inlets of power stations with light. Irish Fisheries Investigations Series A (Freshwater), No. 36 (1992).

Henley, W.F., Patterson, M.A., Neves, R.J. and Lemly, A.D. (2000) Effects of Sedimentation and Turbidity on Lotic Food Webs: A Concise Review for Natural Resource Managers. Reviews I Fisheries Science, 8(2): 125-139.

Herbert, R., Samuel, S. and Patterson, G. (1999) Using Local Stock for Planting Native Trees and Shrubs, Forestry Commission Practice Note.

Hiscock, K. (2002). Aphelochaeta marioni and Tubificoides spp. in variable salinity infralittoral mud. Marine Life Information Network: Biology and Sensitivity Key Information Subprogramme [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 13/11/2015].

Available from: http://www.marlin.ac.uk/habitatbenchmarks.php?habitatid=201&code=2004.

Highways Agency (1993) DMRB Volume 11, Section 3, Part 4: Ecology and Nature Conservation.

Highways Agency (1999) DMRB Volume 10, Section 4, Part 4: Nature Conservation advice in reation to Otters (HA 81/99).

Highways Agency (2001a) DMRB Volume 10 Section 4 Part 6 (HA 97/01): Nature Conservation Management in Relation to Dormice.

Highways Agency (2001b) DMRB Volume 10, Section 4, Part 2 (HA 59/92): Mitigating against Effects on Badgers.

Highways Agency (2008a) DMRB Volume 11, Section 2, Part 5 (HA 205/08). Assessment and Management of Environmental Effects.

Highways Agency (2008b) Interim Advice Note 116/08 Nature Conservation Advice In Relation To Bats.

Highways Agency (2009a) DMRB Volume 11, Section 4, Part 1 (HD44/09). Assessment of Implications (of Highways and Roads Projects) on European Sites (Including Appropriate Assessment).

Highways Agency (2009b) DMRB Volume 11, Section 3, Part 10. HD 45/09 Road Drainage and the Water Environment.

Highways Agency (2010) Interim Advice Note 130/10 Ecology and Nature Conservation: Criteria for Impact Assessment.

Highways Agency (2011) A Review of Bat Mitigation in Relation to Highway Severance. Hundt, L. (2012). Bat Surveys: Good Practice Guidelines, 2nd edition, Bat Conservation Trust

Illingworth, C.A. and Rodkin, R. (2007). Compendium of Pile Driving Sound Data, prepared for The California Department of Transportation.

Institute for Environmental Assessment (IEA) (1995) Guidelines for Baseline Ecological Assessment.

Jerkø H, Turunen-Rise I, Enger PS, Sand O (1989). Hearing in the eel (Anguilla anguilla). Journal of Comparative Physiology A, 165, 455–459.

JNCC (2010) Handbook for Phase 1 habitat survey - a technique for environmental audit. Joint Nature Conservation Committee.

JNCC (2008). Information Sheet on Ramsar Wetlands (RIS): Severn Estuary. Version 3.0, 13/06/2008.

JNCC (2012) UK Post-2010 Biodiversity Framework. Joint Nature Conservation Committee.

JNCC (2015) [online]. Vertebrate Species: Fish, 1163 Bullhead Cottus gobio. Available at: http://jncc.defra.gov.uk/protectedsites/sacselection/species.asp?FeatureIntCode=S1163. [Accessed 28/09/15].

Kelly, F.L. and King, J.J. (2001) A review of the ecology and distribution of three lamprey species, Lampetra fluviatilis (L.), Lampetra planeri (Bloch) and Petromyzon marinus (L.): A context for conservation and biodiversity considerations in Ireland. Biology and Environment: Proceedings of the Royal Irish Academy 101B (3), 165/85.

Kottelat, M. and J. Freyhof, (2007). Handbook of European freshwater fishes. Publications Kottelat, Cornol and Freyhof, Berlin. 646 pp.

Kuijper D. P. J., Schut J., van Dullemen D., Toorman H., Goossens N., Ouwehand J. and Limpens3 H. J. G. A. (2008) Experimental evidence of light disturbance along the commuting routes of pond bats (Myotis dasycneme). Lutra 51 (1): 37-49.

Langston, W. J., Chesman, B.S., Burt, G.R., Hawkins, S.J., Readman, J. and Worsfold, P. (2003). Site Characterisation of the South West European Marine Sites, Severn Estuary pSAC, SPA. April 2003.

Lenhardt, M.L. and Sismour, E., (1995). Hearing in the sea lamprey (Petromyzon marinus) and the long nose gar (Lepisosteus spatula). Assoc. Res. Otolaryngol. Abs: 259. The Association for Research in Otolaryngology.

Limpens, H.J.G.A., Twisk, P. and Veenbaas, G, (2005) Bats and road construction. Dutch Ministry of Transport, Public Works and Water Management Directorate-General for Public

Works and Water Management, Road and Hydraulic Engineering Institute, Delft, the Netherlands and the Association for the Study and Conservation of Mammals, Arnhem, the Netherlands. (Available at: http://publicaties.minienm.nl/documenten/bats-and-road-construction.)

Living With Environmental Change Partnership (2013). The Terrestrial Biodiversity Climate Change Impacts Report Card 2012 -13.

Lucas, M.C., Thom, T.J., Duncan, A. and Slavik, O. (1998). Coarse Fish Migration: Occurrence, Causes and Implications. Technical Report W152: Environment Agency.

Mammal Society (2012) The National Hedgehog Survey.

Mason, C. F. (2002) Biology of Freshwater Pollution, Pearson Education, 2002

McCormick, S.D., Hansen, L.P., Quinn, T.P. and Saunders, R.L. (1998). Movement, migration and smolting of Atlantic salmon (Salmo salar). Canadian Journal of Fish Aquatic Science 55(Suppl.1): 77-92.

Middleton, N., Froud, A., French, K. Sowler, S. & Smith, D. (2014) Social Calls of the Bats of Britain and Ireland. Pelagic Publishing.

Monmouthshire County Council (2005) Monmouthshire Local Biodiversity Action Plan.

Monmouthshire County Council (2014) Monmouthshire Local Development Plan 2011-2021. Adopted 27 February 2014.

Moore, A., Ives, S., Mead, T.A. and Talks, L. (1998). The migratory behaviour of wild Atlantic Salmon (Salmo salar L.) smolts in the River Test and Southampton Water, Southern England. Hydrobiologica, Vol. 371-372, pp. 295-304.

Wildlife on Line (2014). European Hedgehog *Erinaceous europaeus*. Available at: http://www.wildlifeonline.me.uk/hedgehogs.html [Accessed 7/2/2016]

Morrisey, D.J., Sait, S.M., Little, C. and Wilson, R.S. (1994). The benthic ecology of river estuaries entering the Severn Estuary. Biological Journal; of the Linnean Society, 51: 247-251.

Moy, F., Crabtree, R.W. and Simms, T. (2003) The Long-term Monitoring of Pollution From Highway Run-off: Final Report. R&D Technical Report P2-038/TR1: Environment Agency.

Murnane, E., Heap, A., and Swain, A. (2006) Control of water pollution from linear construction projects, CIRIA Technical Guidance C648.

Musgrove A., Aebischer N., Eaton M., Hearn R., Newson S., Noble D., Parsons M., Risely K. & Stroud D. (2013). Population estimates of birds in Great Britain and the United Kingdom. British Birds 106, p. 64-100.

National Rivers Authority (1992). River Corridor Surveys: Conservation Technical Handbook 1.

Natural England & CCW (2009). The Severn Estuary / Môr Hafren European Marine Site comprising: The Severn Estuary / Môr Hafren Special Area of Conservation (SAC), The Severn Estuary Special Protection Area (SPA), The Severn Estuary / Môr Hafren Ramsar Site. Natural England & the Countryside Council for Wales' advice given under Regulation 33(2)(a) of the Conservation (Natural Habitats, &c.) Regulations 1994, as amended.

Natural England (2014) Climate Change Adaptation Manual.

Natural Resources Wales (2015). SOUTH EAST Newport - Caldicot M4 Corridor National Fish data.

Nedwell, J., Turnpenny, A., Langworthy, J. and Edwards, B. (2003). Measurements of underwater noise during piling at the Red Funnel Terminal, Southampton, and observations of its effect on caged fish. October 2003.

Newport Biodiversity Partnership (2014) Newport Local Biodiversity Action Plan.

Newport City Council (2009) River Usk Strategy.

Newport City Council (2015a) Newport Local Development Plan 2011-2026. Adopted Plan, January 2015.

Newport City Council (2015b) Wildlife and Development Supplementary Planning Guidance (SPG).

Nightingale B., Longcore T., Simenstad C.A. (2006) Artificial Night Lighting and Fishes. In: Rich, C., Longcore, T. (Eds.), Ecological Consequences of Artificial Night Lighting, 257-276. Island Press, Washington DC.

Norwegian Meteorological Institute (2016) Available at:

http://www.yr.no/place/United Kingdom/Wales/Newport/statistics.html [Accessed 27/1/2016]

Økland, F., Erkinaro, J., Moen K., Niemela, E., Fiske, P., Mckinley R. S. and Thorsstad, E. B. (2001). Return migration of Atlantic salmon in the River Tana: phases of migratory behavior. Journal of Fish Biology 59:862–874.

OSPAR (2014). OSPAR Threatened and/or Declining Habitats. Compiled on behalf of the OSPAR Commission by JNCC 2014. Updated July 2015.

Packham, J. R. and Willis, A. J. (1997). Ecology of Dunes, Salt Marsh and Shingle. Springer Science & Business Media.

Palmer, M., Drake, M. and Stewart, N. (2013) A manual for the survey and evaluation of the aquatic plant and invertebrate assemblages of grazing marsh ditch systems. Buglife.

Popper, A.N. (2005). A Review of Hearing by Sturgeon and Lamprey. August 12, 2005.

Popper, A. N. and Hastings, M. C. (2009). The Effects of Anthropogenic Sources of Sound on Fishes. Journal of Fish Biology, 75, pp. 455-489.

Popper, A. N., Hawkins, A. D., Fay, R. R., Mann, D., Bartol, S., Carlson, Th., Coombs, S., Ellison, W. T., Gentry, R., Hal vorsen, M. B., Lokkeborg, S., Rogers, P., Southall, B. L., Zeddies, D. G. and Tavolga, W. N. (2014). ASA S3/SC1.4 TR-2014 Sound Exposure Guidelines for Fishes and Sea Turtles: A Technical Report prepared by ANSI-Accredited Standards Committee S3/SC1 and registered with ANSI. Springer and ASA Press, Cham, Switzerland.

Potts, G.W. and Swaby, S.E. (1994). Marine and estuarine fishes of Wales, Bangor: CCW.

Rayment, W.J. (2001). Hediste diversicolor and Macoma balthica in sandy mud shores. Marine Life Information Network: Biology and Sensitivity Key Information Sub-programme [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 12/11/2015]. Available from: http://www.marlin.ac.uk/habitatsbasicinfo.php?habitatid=209&code=2004

Resseguie, T. and Kelsch, S. (2008) Influence of Temperature and Discharge on Reproductive Timing of Common Carp in a Northern Great Plains River. The Prairie Naturalist 40(1/2).

Riley W.D., Bendall B., Ives M.J., Edmonds N.J. & Maxwell D.L. (2012). Street lighting disrupts the diel migratory pattern of wild Atlantic salmon, Salmo salar L., smolts leaving their natal stream. Aquaculture, 330–333, 74–81.

Riley, W.D., Davison, P.I., Maxwell, D.L. and Bendall, B. (2013). Street lighting delays and disrupts the dispersal of Atlantic salmon (Salmo salar) fry. Biological Conservation 158, 140-146.

Riley, W.D., Davison, P.I., Maxwell, D.L., Newman, R.C. and Ives, M.J. (2015). A laboratory experiment to determine the dispersal response of Atlantic salmon (Salmo salar) fry to street light intensity. Freshwater Biology: 60, 1016-1028.

Robertson, M.J., Scruton, D.A., Gregory, R.S. and Clark, K.D. (2006) Effects of Suspended Sediment on Freshwater Fish and Fish Habitat. Canadian Technical Report of Fisheries and Aquatic Sciences 2644.

Rodwell, J. (1991 *et seq.*) British Plant Communities Vols 1-5. Cambridge University Press, Cambridge.

RSPB Cymru, BTO Cymru, the Wildfowl and Wetlands Trust, the Welsh Ornithological Society and Countryside Council for Wales (2012) The State of Birds in Wales.

Russ, J. (2012) British Bat Calls: A Guide to Species Identification. Pelagic Publishing.

Rydell, J. and Racey, P.A. (1995) Street lamps and the feeding ecology of insectivorous bats. Pages 291-307 in Racey, P. A. and Swift S. M. (eds.) Ecology, evolution and behaviour of bats. Symposia of the Zoological Society of London No. 67. Clarendon Press, Oxford.

Salmon and Trout Association (2015). Briefing Paper. The Effects of Excess Fine Sediment in Rivers. Available at:

http://www.salmon-trout.org/pdf/Briefing_Paper_Sediment_NL.pdf (Accessed: 01 December 2015).

Shawyer, C. R. (2011). Barn Owl Tyto alba Survey Methodology and Techniques for use in Ecological Assessment: Developing Best Practice in Survey and Reporting. IEEM, Winchester.

Shawyer C., and Dixon, N. (1999) Impact of Roads on Barn Owl Tyto alba Populations, DPU 9/51/2. Report to The Highways Agency.

Sigler JW, Bjornn TC, Everest FH (1984) Effects of chronic turbidity on density and growth of steelheads and coho salmon. Trans Am Fish Soc 113:142-150.

Simpson, S.D., Purser, J. and Radford, A. (2014). Anthropogenic noise compromises antipredator behaviour in European eels. Global Change Biology, doi: 10.1111/gcb.12685.

SEWBReC (2010) [online]. Fishes of Gwent. Gwent-Glamorgan Recorder's Newsletter, Issue 3 (October 2010), Part 1. Available at: http://sewbrec.org.uk/gwent-glamorgan-recorders-newsletter/recorders-newsletter-2010-contents/recorders-newsletter-issue3-part1.page#fishes-of-gwent. [Accessed 25/09/15].

Severn Estuary Coastal Group (SECG) (2010) Draft Shoreline Management Plan for the Severn Estuary (SMP2).

Soomers, H., Karssenberg, D., Soons, M.B., Verweij, P.A., Verhoeven, J.T.A., and Wasse, M.J. (2013). Wind and Water Dispersal of Wetland Plants Across Fragmented Landscapes. Ecosystems (2013) 16: 434–451.

Sörensen, I. (1951). An investigation of some factors affecting the upstream migration of the eel. Institute of Freshwater Research, Fishery Board of Sweden, Drottingholm, Report No. 32. Pp. 126-132.

South Wales Wildlife Sites Partnership (2004) Guidelines for the Selection of Wildlife Sites in South Wales.

Stone, E.L., Jones, G. and Harris, S. (2009) Street Lighting disturbs commuting bats. Current Biology, 19, 1-5.

Stone, E.L. (2013) Bats and lighting: Overview of current evidence and mitigation. Bat Conservation Trust.

Strachan, R., Moorhouse, T. & Gelling, M. (2011) Water vole Conservation Handbook (third edition). WildCRu: Oxford.

TIDE (2013). Waterbird Disturbance & Mitigation Toolkit. Tidal River Development Project.

Tyler-Walters, H. (2004). Puccinellia maritima salt-marsh community. In Tyler-Walters H. and Hiscock K. (eds) Marine Life Information Network: Biology and Sensitivity Key Information Reviews, [on-line]. Plymouth: Marine Biological Association of the United Kingdom. Available from: http://www.marlin.ac.uk/habitat/detail/350.

Tyler-Walters, H. & Marshall, C. (2006). Muddy sand shores. Marine Life Information Network: Biology and Sensitivity Key Information Sub-programme [on-line]. Plymouth: Marine Biological Association of the United Kingdom. [cited 12/11/2015]. Available from: http://www.marlin.ac.uk/habitatsensitivity.php?habitatid=21&code=2004.

Wales Biodiversity Partnership (2008) Guidelines for the Selection of Wildlife Sites in Wales.

Wells, S.M., Pyle R.M., Collins, N.M. (1983) The IUCN Invertebrate Red Data Book.

Welsh Assembly Government (2004) Trunk Road Estate Biodiversity Action Plan 2004-2014.

Welsh Assembly Government (2008) Welsh Transport Planning and Appraisal Guidance: WelTAG.

Welsh Assembly Government (2009a) Interim Advice Note 116/08 (W) Nature Conservation Advice in Relation to Bats. Wales Only.

Welsh Assembly Government (2009b) Planning Policy Wales Technical Advice Note 5: Nature Conservation and Planning. September 2009.

Welsh Government (2013) Action Plan for Pollinators in Wales.

Welsh Government (2016a) M4 Corridor around Newport - Statement to Inform an Appropriate Assessment under the Conservation of Habitats and Species Regulations 2010.

Welsh Government (2016b) Planning Policy Wales, Edition 8. January 2016.

Welsh Government and Department for Environment, Food and Rural Affairs (Defra) (2012) A Climate Change Risk Assessment for Wales. January 2012.

Wheeler, A., (1992). Freshwater fishes of Britain and Europe. Rainbow Books, Elsley House, London. 124 p.

Wikinson, C. and Chadwick, E. (2012) Otter Road Casualties in South Wales: Recommendations for Mitigation. A report by the Cardiff University Otter Project.

Wray S, Wells D, Long E, Mitchell-Jones T (2010) Valuing Bats in Ecological Impact Assessment, IEEM In-Practice p 23-25.

Wyatt, R. (2008). Joint Industry Programme on Sound and Marine Life Review of Existing Data on Underwater Sounds Produced by the Oil and Gas Industry (REDUSPOG) Issue 1. Seiche Measurements Limited Ref – S186.

Chapter 11: Geology and Soils

Legislation

Construction (Design and Management) Regulations (2015).

Contaminated Land (Wales) Regulations (2006).

Environmental Protection Act (1990).

Environmental Permitting (England and Wales) Regulations (2010).

Environment Act (1995).

Groundwater Regulations (1998).

Groundwater (England and Wales) Regulations (2009).

Hazardous Waste (England and Wales) Regulations (2005).

Health and Safety at Work Act (1974).

Landfill (England and Wales) Regulations (2002).

Waste Framework Directive (2008).

Water Act (2003).

Water Environment (Water Framework Directive) (England and Wales) Regulations (2003).

Water Resources Act (1991).

Publications

Allen (2001) Late Quaternary Stratigraphy in the Gwent Levels (southeast Wales) the subsurface evidence. Proceedings of the Geologists Association, 112, 289-315.

Arup (2014) Welsh Government M4 Corridor Around Newport Preliminary Sources Study Report 14/9197, July 2014.

Bactec (2014) Explosive Ordnance Threat Assessment in respect of M4 Corridor around Newport, November 2014.

British Geological Survey (BGS) (2012) South Wales RIGS Audit.

British Geological Survey (BGS) (2015) accessed via http://www.bgs.ac.uk/lexicon/.

British Standards Institute (2010) BS5930: Code of Practice for Site Investigations including Amendment 2, issued 2010.

British Standards Institute (2013a) BS10175: Code of Practice for Investigation of Potentially Contaminated Sites.

British Standards Institution (2013b) BS EN 1997-1: 2004 and Amendment 1: 2013: Eurocode 7 Geotechnical Design. General Rules.

British Standards Institute (2013c) BS8576: Guidance on Investigations of Ground Gas. Permanent Gases and Volatile Organic Compounds (VOCs).

Construction Industry Research and Information Association (CIRIA) (1996) R132: A Guide for Safe Working on Contaminated Sites, December 1996.

CIRIA (2001) C552: Contaminated land risk assessment A guide to good practice.

CIRIA (2007) C665: Assessing Risks Posed by Hazardous Ground Gases to Buildings.

CIRIA (2009) C681: Unexploded Ordnance (UXO): A guide for the construction industry. London, 2009.

CIRIA (2014) C733: Asbestos in Soil and Made Ground: A Guide to Understanding and Managing Risks.

CL:AIRE (2011) Contaminated Land: Applications in Real Environments The Definition of Waste: Development Industry Code of Practice v2, March 2011.

CL:AIRE (2013) Contaminated Land: Applications in Real Environments SP1010 – Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination. 20th December 2013.

Defra (2014) Water Framework Directive Implementation in England and Wales: New and Updated Standards to Protect the Water Environment. May 2014.

Defra (2014) SP1010: Development of Category 4 Screening Levels for Assessment of Land Affected by Contamination – Policy Companion Document, December 2014.

Environment Agency (2001) Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention National Groundwater and Contaminated Land Centre report NC/99/73, May 2001.

Environment Agency (2009a) Human Health Toxicological Assessment of Contaminants in Soil, Science Report – Final SC050021/SR2. January 2009.

Environment Agency (2009b) Updated Technical Background to the CLEA Model, Science Report: SC050021/SR3. January 2009.

Environment Agency (2013) Groundwater Protection: Policy and Practice (GP3) v1.1, August 2013.

Environment Agency (2014a) H1 Annex D2: Assessment of sanitary and other pollutants within Surface Water Discharges. Issue 1.0, September 2014.

Environment Agency (2014b) Annex D1 Assessment of hazardous pollutants within discharges to surface waters. Issue 2, October 2014.

Environment Agency and Defra (2004) Model Procedures for the Management of Land Contamination, Contaminated Land Report 11 (CLR11), September 2004.

Environment Agency. Chemical Standards Database (http://evidence.environmentagency.gov.uk/ChemicalStandards/Home.aspx).

Environment Agency Aquifer Designation Maps (http://maps.environment-agency.gov.uk/wiyby/wiybyController?topic=groundwater&layerGroups=default&lang=_e&ep =map&scale=5&x=531500&y=181500#x=531500&y=181500&g=3,&scale=5).

Exploration Associates (2000) M4 Relief Road – Stage 2 Preliminary Chemical Investigation. Report 150006. May 2000.

Geotechnical Engineering (2015) M4 Corridor Around Newport Factual Report on Ground Investigation Prepared for Welsh Government, Report Ref: 30238. June 2015.

Health and Safety Executive (2011) EH40 / 2005 Workplace exposure limits, 2nd edition. 2011.

Highways Agency (1993, amended August 1994) Design Manual for Roads and Bridges, Volume 11, Section 3, Part 11 – Geology and Soils.

Highways Agency, Scottish Office Development Department, Welsh Office, Department of the Environment for Northern Ireland (1995) DMRB Volume 4, Section 1, Part 7, HA 73/95 Site Investigation for Highway Works on Contaminated Land.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Norther Ireland (2008a) DMRB Volume 4, Section 1, Part 2, HD 22/08 Managing Geotechnical Risk.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008b) Design Manual for Roads and Bridges HA 205/08 Volume 11, Section 2, Part 5. Assessment and Management of Environmental Effects.

Interim Advice Note 125/09(W) (2010) Supplementary guidance for users of DMRB Volume 11 'Environmental Assessment, July 2010.

LQM/CIEH (2015), S4ULs for Human Health Risk Assessment, 2015.

Monmouthshire County Council (2014) Monmouthshire County Council Adopted Local Development Plan 2011-2021. Adopted 27 February 2014.

Newport City Council (2012) Regionally Important Geological Sites (RIGS) Background Paper Deposit Plan, April 2012.

Newport City Council (2015a) Newport Local Development Plan 2011-2026. Adopted Plan, January 2015.

Newport City Council (2015b) http://www.newport.gov.uk/documents/Planning-Documents/LDP-2011-2026/LDP-Constraints---Jan-2015.pdf.

Norwest Holst Soil Engineering Ltd. (1998) Ground Investigation. M4 Relief Road for The Welsh Office. NR/SR/F10895 - Volumes 1 to 5.

Norwest Holst Soil Engineering Ltd. (2008) Report on Ground Investigation at New M4 Project – Magor to Castleton. Second Preliminary Ground and Chemical Investigation. Project No. F15056 - Volumes 1 to 7 and Addendum 1. April 2008.

Salminen R. (Chief-editor), Batista M.J., Bidovec M., Demetriades A., De Vivo B., De Vos W. Duris M., Gilucis A, Gregorauskiene V., Halamic J., Heitzmann P., Lima A., Jordan G., Klaver G, Klein P., Lis J.17, Locutura J., Marsina K., Mazreku A., O'Connor P.J., Olsson S.Å., Ottesen R..-T., Petersell V., Plant J.A., Reeder S., Salpeteur I., Sandström H., Siewers U., Steenfelt A., Tarvainen T. (FOREGS) (2005) Geochemical Atlas of Europe. The Association of the Geological Surveys of The European Union (EuroGeoSurveys)/ the Geological Survey of Finland. http://www.gtk.fi/publ/foregsatlas/.

UK Technical Advisory Group (UKTAG) on the Water Framework Directive (WFD) (2008). Proposals For Environmental Quality Standards For Annex Viii Substances. January 2008 (Revised June 2008).

UK Technical Advisory Group (UKTAG) on the Water Framework Directive (WFD) (2012a). Final version for UKTAG. Status: final version for UKTAG consultation (v4.2). April 2012.

UK Technical Advisory Group (UKTAG) on the Water Framework Directive (WFD) (2012b). Scoping study for Dangerous Substance Directive List II chemicals. Report Ref. SC080021/5d. April, 2012.

UK Technical Advisory Group (UKTAG) on the Water Framework Directive (WFD) (2013). Updated Recommendations on Environmental Standards River Basin Management (2015-21). Final Report, November 2013 (Minor amendments January 2014).

Welsh Government (2016) Planning Policy Wales Edition 8, January 2016.

Welsh Government and Defra (2012) A Climate Change Risk Assessment for Wales, January 2012.

Welsh Local Government Association (WLGA) and Environment Agency (2012) Development of Land Affected by Contamination: A Guide for Developers.

Chapter 12: Materials

Legislation

Directive 2005/98/EC of the European Parliament and of the Council of 19 November 2008 on Waste and Repealing Certain Directives.

Directive 2008/98/EC of the European Parliament and of the Council of 19 November 2008 on waste and repealing certain Directives.

The Waste (England and Wales) Regulations 2011. SI 2011 No. 988.

The Hazardous Waste (England and Wales) Regulations 2005. SI 2005 No. 894.

Publications

British Geological Survey (2010a) The Mineral Resources Maps of Wales, Open Report OR/10/032, 2010.

British Geological Survey (2010b) Mineral Resource Map of South East Wales (1:100,000). 2010.

British Geological Survey (2012a) Aggregates Safeguarding Maps of Wales, Commissioned Report CR/12/039. October 2012.

British Geological Survey (2012b) Aggregates Safeguarding Map of South East Wales (1:100,000). 2012.

British Geological Survey (2012c) South Wales Regionally Important Geodiversity Sites (RIGS) Audit, Commercial Report CR/12/033. Draft Report 2012.

CIRIA (1997) Special Publication SP133: Waste Minimisation in Construction – Site Guide. January 1997.

CIRIA (1998) Special Publication SP134: Waste Minimisation and Recycling in Construction – Design Manual. January 1998.

CIRIA (2001) Technical Guidance C536: Demonstrating Waste Minimisation Benefits During Construction.

CL:AIRE (2011) Definition of Waste: Development Industry Code of Practice, Contaminated Land: Applications in Real Environments, London 2011.

Cuesta Consulting Limited (2009) Former Gwent Aggregates Safeguarding Study. May 2009.

Defra (2013) Environmental Permitting Guidance for the Environmental Permitting (England and Wales) Regulations 2010.

EA, NIEA & SEPA (1999): Pollution Prevention Guideline (PPG10): Highways depots, Environment Agency for England and Wales, Northern Ireland Environment Agency and Scottish Environment Protection Agency.

EA, NIEA & SEPA (2005): Pollution Prevention Guideline (PPG5): Works and maintenance in or near water, Environment Agency for England and Wales, Northern Ireland Environment Agency and Scottish Environment Protection Agency.

EA, NIEA & SEPA (2011): Pollution Prevention Guideline (PPG7): Safe storage – The safe operation of refuelling facilities, Environment Agency for England and Wales, Northern Ireland Environment Agency and Scottish Environment Protection Agency.

EA, NIEA & SEPA (2012): Pollution Prevention Guideline (PPG6): Working at construction and demolition sites, Environment Agency for England and Wales, Northern Ireland Environment Agency and Scottish Environment Protection Agency.

EA, NIEA & SEPA (2013): Pollution Prevention Guideline (PPG1): Understanding your environmental responsibilities – good environmental practices, Environment Agency for England and Wales, Northern Ireland Environment Agency and Scottish Environment Protection Agency.

EA (2016) http://www.geostore.com/environment-agency.

Geotechnical Engineering (2015) M4 Corridor Around Newport Factual Report on Ground Investigation Prepared for Welsh Government, Report Ref: 30238. June 2015.

Highways Agency (2011) Interim Advice Note (IAN) 153/11 Guidance on the Environmental Assessment of Material Resources.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008) Design Manual for Roads and Bridges HA 205/08 Volume 11, Sections 1 and 2, Introduction and General Principles of Environmental Assessment.

Monmouthshire County Council (2014) Monmouthshire County Council Adopted Local Development Plan 2011-2021. Adopted 27 February 2014.

National Assembly for Wales (2000) Minerals Planning Policy Wales. December 2000.

Newport City Council (2013) Minerals Background Paper, Revised Deposit Plan, Newport Local Development Plan 2011-26. June 2013.

Newport City Council (2015) Newport Local Development Plan 2011-2026. Adopted Plan, January 2015.

The Hazardous Waste (England and Wales) Regulations 2005.

The Waste (England and Wales) Regulations 2011.

Welsh Assembly Government (2004) Minerals Technical Advice Note (Wales) 1: Aggregates. March 2004.

Welsh Assembly Government (2009) Interim Advice Note (IAN) 125/09(W) Supplementary Guidance for Users of DMRB Volume 11 'Environmental Assessment'. Wales Only.

Welsh Assembly Government (2010) Towards Zero Waste – One Wales: One Planet. June 2010.

Welsh Government (2014) Technical Advice Note 21, Waste. February 2014.

Welsh Government (2016) Planning Policy Wales, Edition 8. January 2016.

Welsh Government and Defra (2012) A climatic change risk assessment for Wales. January 2012.

Chapter 13: Noise and Vibration

Legislation

Control of Pollution Act 1974.

European Commission (2002) The Environmental Noise Directive (2002/49/EC) Directive 2002/49/EC of the European Parliament and of the Council; of 25 June 2002 Relating to the Assessment and Management of Environmental Noise.

National Assembly for Wales, (2006) The Environmental Noise (Wales) Regulations 2006 (Statutory Instrument No. 2629 W.225).

Noise Insulation Regulations (NIR) 1975. SI 19875 No. 1763.

The Land Compensation Act 1973.

The Noise Insulation (Amendment) Regulations 1988. SI 1988 No. 2000.

Well-being of Future Generations (Wales) Act 2015.

Publications

British Standards Institution (1990) BS 7385-1:1990 Evaluation and Measurement of Vibration in Buildings – Part 1: Guide for Measurement of Vibrations and Evaluation in Their Effects on Buildings.

British Standards Institution (1993) BS 7382-2: 1993. Evaluation and Measurement for Vibration in Buildings – Part 2: Guide to Damage from Groundbourne Vibration.

British Standards Institution (2008a) BS 6472-1: 2008 Guide to Evaluation of Human Exposure to Vibration in Buildings – Part 1: Vibration Sources Other than Blasting.

British Standards Institution (2008b) BS 6472-2:2008 Guide to Evaluation of Human Exposure to Vibration in Buildings – Part 2: Blast-induced Vibration.

British Standards Institution (2009a) BS 5228:2009-1 'Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise.

British Standards Institution (2009b) BS 5228:2009-2 'Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration.

British Standards Institution (2010) BS 4866:2010 Mechanical Vibration and Sock – Vibration of Fixed Structures. Guidelines for the Measurement of Vibrations and Evaluation of Their Effects on Structures.

British Standards Institution (2014a) BS 5228-1:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 1: Noise.

British Standards Institution (2014b) BS 5228-2:2009+A1:2014 Code of Practice for Noise and Vibration Control on Construction and Open Sites – Part 2: Vibration.

Department of Transport and Welsh Office (1988) Calculation of Road Traffic Noise.

Highways Agency (2015) IAN 185/15 Updated Traffic, Air Quality and Noise Advice on the Assessment of Link Speeds and Generation of Vehicle Data into 'Speed-bands' for Users of DMRB Volume 11, Section 3, Part 1 'Air Quality' and Volume 11, Section 3, Part 7 Noise.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008) Design Manual for Roads and Bridges HA 205/08 Volume 11, Section 2, Part 5. Assessment and Management of Environmental Effects.

Highways Agency, Transport Scotland, Welsh Government, the Department for Regional Development Northern Ireland (2011) Design Manual for Roads and Bridges Volume 11, Section 3, Part 7: HD 213/11. Noise and Vibration.

Monmouthshire County Council (2014) Monmouthshire County Council Adopted Local Development Plan 2011-2021 - adopted 27 February 2014.

Newport City Council (2015) Newport Local Development Plan 2011-2026. Adopted Plan, January 2015.

Welsh Assembly Government (2008) One Wales: Connecting the Nation. The Wales Transport Strategy.

Welsh Government (1997) Technical Advice Note 11: Noise.

Welsh Government (2013) A Noise Action Plan for Wales 2013-2018.

Welsh Government (2014a) M4 Corridor around Newport Motorway to the South of Newport. Design Manual for Roads and Bridges Stage 2 Environmental Assessment: Volume 1 Report. July 2014.

Welsh Government (2014b) M4 Corridor around Newport. The Plan: Consultation Report, Appendix A1: Full Factual Consultation Report.

Welsh Government (2016a) Planning Policy Wales, Edition 8. January 2016.

Welsh Government (2016b) M4 Corridor around Newport Traffic Forecasting Report.

Chapter 14: All Travellers

Legislation

The Active Travel (Wales) Act 2013.

The Transport Act 2000.

The Transport (Wales) Act 2006.

Publications

Arup (2015) Non Motorised User Context Report.

Highways Agency (1993a) Design Manual for Roads and Bridges Volume 11, Section 3, Part 8: Pedestrians, Cyclists, Equestrians and Community Effects.

Highways Agency (1993b) Design Manual for Roads and Bridges Volume 11, Section 3, Part 9: Vehicle Travellers.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008) Design Manual for Roads and Bridges HA 205/08 Volume 11, Section 2, Part 5. Assessment and Management of Environmental Effects.

Highways England (2015), Design Manual for Roads and Bridges Interim Advice Note 125/15 'Environmental Assessment Update'.

Institute of Environmental Management and Assessment (IEMA) (2004) Guidelines for Environmental Impact Assessment.

Monmouthshire County Council (2014) Monmouthshire County Council Adopted Local Development Plan 2011-2021. Adopted 27 February 2014.

Monmouthshire County Council (2015) Local Transport Plan.

Newport City Council (2015a) Newport Local Development Plan 2011-2026. Adopted Plan, January 2015.

Newport City Council (2015b) Lets Walk Newport – Countryside Walks. http://www.newport.gov.uk/en/Lesiure-Tourism/Activities/Walking.aspx. Accessed August 2015.

Newport City Council (2015c) Lets Walk Newport – Healthy Challenge Walks. http://www.newport.gov.uk/en/Lesiure-Tourism/Activities/Walking.aspx. Accessed August 2015.

Newport City Council (2015d) Lets Walk Newport – Healthy Start Walks. http://www.newport.gov.uk/en/Lesiure-Tourism/Activities/Walking.aspx. Accessed August 2015

Newport City Council (2015e) Lets Walk Newport –Small Walks for Small Feet. http://www.newport.gov.uk/en/Lesiure-Tourism/Activities/Walking.aspx. Accessed August 2015.

Newport City Council (2015f) Newport City Council Local Transport Plan, January 2015.

Welsh Assembly Government (2007) Planning Policy Wales Technical Advice Note 18: Transport, March 2007.

Welsh Assembly Government (2008) One Wales: Connecting the Nation. The Wales Transport Strategy.

Welsh Assembly Government (2009) Planning Policy Wales Technical Advice Note 16: Sport, Recreation and Open Space. January 2009.

Welsh Assembly Government (2009) DMRB Interim Advice Note 125/09(W) Supplementary guidance for users of DMRB Volume 11 'Environmental Assessment' (Wales Only).

Welsh Assembly Government (2010) Interim Advice Note 125/09(W) Supplementary Guidance for Users of DMRB Volume 11 'Environmental Assessment' Wales Only.

Welsh Government (2013) A Cardiff Capital Region Metro: Impact Study. October 2013. Report to the Minister for Economy, Science and Transport. Jones Lang LaSalle, Powell Dobson Urbanists, M & G Barry Consulting, Capita Symonds and Steer Davies Gleeve.

Welsh Government (2014a) Active Travel Action Plan: Consultation Document, 2014.

Welsh Government (2014c) M4 Corridor around Newport Motorway to the South of Newport. Design Manual for Roads and Bridges Stage 2 Environmental Assessment: Volume 1 Report. July 2014.

Welsh Government (2014d) A Cardiff Capital Region Metro: Update Report, August 2014.

Welsh Government (2016) Planning Policy Wales, Edition 8. January 2016.

Welsh Government (2016) M4 Corridor Around Newport 'Traffic Forecasting Report'.

Chapter 15: Community and Private Assets

Legislation

The Acquisition of Land Act 1981.

The Countryside and Rights of Way Act 2000.

The Highways Act 1980.

Published Guidance

ABP (2015) http://www.abports.co.uk/Our_Locations/South_Wales/Newport/ More about Newport/ Accessed August 2015.

Arup (2015) Non-Motorised Users Context Report.

British Geological Survey Sheet 1:50,000.

Highways Agency (1993) Design Manual for Roads and Bridges Volume 11, Section 3, Part 8 Pedestrians, Cyclists, Equestrians and Community Effects.

Highways Agency, Scottish Executive Development Department, the National Assembly for Wales and the Department for Regional Development Northern Ireland (2001) Design Manual for Roads and Bridges Volume 11, Section 3, Part 6: Land Use.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008) Design Manual for Roads and Bridges HA205/08 Volume 11, Section 2, Part 5. Assessment and Management of Environmental Effects.

Institute of Environmental Management and Assessment (IEMA) (2004) Guidelines for Environmental Impact Assessment.

Islwyn & District Angling Club (2015) http://www.islwynanglers.org.uk/home.

Ministry of Agriculture, Fisheries and Food (1988) Agricultural Land Classification of England and Wales. October 1988.

Monmouthshire County Council (2014) Monmouthshire County Council Adopted Local Development Plan 2011-2021. Adopted 27 February 2014.

Newport City Council (2015) Newport Local Development Plan 2011-2026. Adopted Plan, January 2015.

Office for National Statistics (2015) 2011 Census for England and Wales. http://www.ons.gov.uk/ons/guide-method/census/2011/census-data/index.html

Soil Survey of England and Wales. Soils and Their Uses in Wales. Bulletin 11.

The Inland Waterways Association (2015) Monmouthshire Canal. https://www.waterways.org.uk/waterways/restoration/campaigns/restoration/monmouthshire_canal_monmouthshire_canal_overview.

Welsh Assembly Government (2009) Technical Advice Note 16: Sport, Recreation and Open Space. January 2009.

Welsh Assembly Government (2010a) Technical Advice Note 6: Planning for Sustainable Rural Communities. July 2010.

Welsh Assembly Government (2010b) Interim Advice Note (IAN) 125/09(W) Supplementary Guidance for Users of DMRB Volume 11 'Environmental Assessment' Wales Only.

Welsh Government (2014) M4 Corridor around Newport Motorway to the South of Newport. Design Manual for Roads and Bridges Stage 2 Environmental Assessment: Volume 1 Report. July 2014.

Welsh Government (2016) Planning Policy Wales (Edition 8). January 2016.

Chapter 16: Road Drainage and the Water Environment

Legislation

Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy (Water Framework Directive).

Directive 2006/118/EC of the European Parliament and of the Council of 12 December 2006 on the protection of groundwater against pollution and deterioration (daughter to 2000/60/EC) (Groundwater Daughter Directive).

Directive 2013/39/EU of the European Parliament and of the Council of 12 August 2013, amending Directives 2000/60/EC and 2008/105/EC as regards priority substances in the field of water policy.

Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and wildlife and fauna (the Habitats Directive).

Environment Act (1995).

Environmental Damage (Prevention and Remediation) Regulations (2009).

Environmental Protection Act (1990).

Groundwater (England and Wales) Regulations (2009).

The Environmental Permitting (England and Wales) Regulations 2010 (as amended).

The Water Resources Act (1991).

The Water Resources Act 1991 (Amendment) (England and Wales) Regulations 2009.

The Water Supply (Water Quality) Regulations 2000 (as amended).

Water Act (2003).

Water Environment (Water Framework Directive) (England and Wales) Regulations 2003.

Water Industry Act (1991) (as amended).

Water Industry Act (1991) (Amendment) (England and Wales) Regulations (2009).

Published Guidance

Arup & Partners Ltd. (2008) Hydrogeological Assessment.

Arup (2014) Welsh Government M4 Corridor Around Newport Preliminary Sources Study Report 14/9197, July 2014.

CIRIA (2006) Technical Guidance C648: Control of Water Pollution from Linear Construction Projects.

Environment Agency (1999) Methodology for the Derivation of Remedial Targets for Soil and Groundwater to Protect Water Resources (R and D Publication 20).

Environment Agency (2006) Remedial Targets Methodology: Hydrogeological Risk Assessment for Land Contamination.

Environment Agency (2011) Adapting to Climate Change: Advice for Flood and Coastal Erosion Risk Management Authorities.

Environment Agency (2013) Groundwater Protection: Principles and Practice (GP13). August 2013, Version 1.1.

Environment Agency (2014a) Severn Estuary Flood Risk Management Strategy: Strategy Appraisal Report.

Environment Agency (2014b) H1 Environmental Risk Assessment Framework. Annex D1: Assessment of Hazardous Pollutants within Surface Water Discharges.

Environment Agency and Defra (2004) Model Procedures for the Management of Land Contamination (CLR11).

Environment Agency, Environment and Heritage Service (Northern Ireland) and Scottish Environmental Protection Agency (2007) Pollution Prevention Guidelines: Works and Maintenance In or Near Water. PPG5.

Environment Agency, Northern Ireland Environment Agency and Scottish Environmental Protection Agency (2012) Pollution Prevention Guidelines: Working at Construction and Demolition Sites. PPG6, Second Edition.

Environment Agency, Northern Ireland Environment Agency and Scottish Environmental Protection Agency (2013) Pollution Prevention Guidelines: Understanding Your Environmental Responsibilities – Good Environmental Practices. PPG1.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008) Design Manual for Roads and Bridges HA 205/08 Volume 11, Section 2, Part 5. Assessment and Management of Environmental Effects.

Highways Agency, Transport Scotland, Welsh Assembly Government, Department for Regional Development Northern Ireland (2009) Design Manual for Roads and Bridges HD 45/09 Volume 11, Section 3, Part 10. Road Drainage and the Water Environment.

Monmouthshire County Council (2014) Monmouthshire County Council Adopted Local Development Plan 2011-2021. Adopted 27 February 2014.

Newport City Council (2015) Newport Local Development Plan 2011-2026. Adopted Plan, January 2015.

Titan Environmental Surveys Limited (TESL) (2008) New M4 Magor to Castleton Baseline Surface Water Quality Final Report. Report Number: HS0442/F1/2. November 2008.

TRL Limited (2006). A Study of Water Movement in Road Pavements. Published Project Report PPR082.

Welsh Assembly Government (2004) Technical Advice Note 15 (TAN 15): Development and Flood Risk.

Welsh Assembly Government (2009) Planning Policy Wales Technical Advice Note 5: Nature Conservation and Planning. September 2009.

Welsh Government (2012) A climate change risk assessment for Wales. January 2012.

Welsh Government (2016) Planning Policy Wales, Edition 8. January 2016.

Chapter 17: Assessment of Cumulative Effects and Interrelationships

Cardiff City Council (2013) Cardiff Local Development Plan 2006-2026. Deposit Plan.

Highways Agency, Scottish Government, Welsh Assembly Government, Department for Regional Development Northern Ireland (2008) Design Manual for Roads and Bridges HA 205/08 Volume 11, Section 2, Part 5. Assessment and Management of Environmental Effects.

Newport City Council (2015) Newport Local Development Plan 2011-2016.

Monmouthshire County Council (2014) Monmouthshire Local Development Plan 2011 – 2021.

The Planning Inspectorate (2015) Advice Note 17: Cumulative effects assessment relevant to nationally significant infrastructure projects.

The Planning Inspectorate (2012) Advice Note Nine: Rochdale Envelope.

Chapter 18: Environmental Management

BSI (2015) ISO:14001 - Environmental Management Systems. Requirements with Guidance for Use.

Chapter 19: Conclusions

No references.