1.1.A Legislation, Policy and Guidance

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Contents

1. Introduction

1.1.1 This appendix provides an overview of the key legislation, policy, and guidance relevant to each environmental topic considered in **Volumes 1 – 7** of this Environmental Statement (ES). The overviews are simple summary descriptions and reference needs to be made to the source documents for detail and understanding of how these apply in each instance.

2. General

2.1 Legislation

2.1.1 Legislation relevant to the Project is provided in **Table 3-1**.

Table 2-1 – Relevant general legislation

Legislation	Legislation Context
Town and Country Planning Act 1990 (Ref 2.1)	The Town and Country Planning Act 1990 establishes the framework for regulating land use and development in England and Wales. It sets out the process for applying for planning permission and when planning permission is required. It also outlines procedures for the determination of planning applications, and empowers local planning authorities to create development plans for their areas.
Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (Ref 2.2)	The Regulations govern the environmental impact assessment process for certain development projects in Wales so that significant effects on the environment are considered before granting planning permission.
Electricity Act 1989 (Ref 2.3)	The Act establishes the regulatory framework for the generation, transmission, distribution and supply of electricity in England and Wales. The Act regulates the construction and maintenance of overhead lines across land by electricity companies. It sets out the consenting process for overhead line works and details the methods by which a licence holder can obtain the requisite land rights - either through compulsory acquisition or the acquisition of wayleaves.
The Electricity Works (Environmental Impact Assessment (England and Wales) Regulations 2017 (Ref 2.4)	The Regulations establish the requirements for assessing the environmental impact of applications for consent under Section 37 of The Electricity Act 1989.

2.2 National Policy

2.2.1 National policy relevant to the Project is provided in **Table 3-2**.

Table 2-2 – Relevant general national policy

Policy	Policy Context
Planning Policy Wales (PPW) – Edition 12 (Ref 2.5).	The policy sets out the Welsh Government's national land use and planning policies for Wales. It provides guidance for local authorities and decision-makers in preparing development plans and making planning decisions. The document emphasises sustainable development, aiming to balance economic growth with social and environmental sustainability. It includes policies on issues such as climate change, biodiversity, affordable housing, and infrastructure, promoting high-quality design, protecting natural and cultural heritage, and enhancing public services.
Clean Power 2030 Action Plan (Ref 2.6)	The document sets out the UK Government's targets for the 2030 capacities of key technologies at national and regional level including an ambition to achieve 43-50 gigawatts (GW) of offshore wind by 2030.

3. Landscape and Visual Amenity

3.1 Legislation

3.1.1 Legislation relevant to Landscape and Visual Amenity is provided in **Table 3-1**.

Table 3-1 – Relevant Landscape and Visual Amenity legislation

Legislation	Legislation context
European Landscape Convention (ELC) (Ref 3.1)	This was signed by the UK Government in 2006 and came into effect in March 2007. The ELC recognises landscape in law. It focuses specifically on landscape issues and highlights the importance of integration of landscape into areas of policy, to promote protection, management and planning of all landscapes including the assessment of landscape and analysis of landscape change. The ELC defines landscape as *"an area, as perceived by people, whose character is the result of the action and interaction of natural and/or human factors"*. The ELC considers landscape as a whole (land or marine), from urban to rural areas.
Environment Act 2021 (Ref 3.2)	The Environment Act 2021, Chapter 3 provides guidance on environmental protection. The most relevant parts to a study of landscape and visual matters are: • Part 1: Environmental governance. • Part 6: Nature and biodiversity (noting that the protection of biodiversity is set out in **Chapter 5: Ecology and Nature Conservation**).
Wildlife and Countryside Act 1981 (Ref 3.3)	The Wildlife and Countryside Act 1981, sets out how invasive plants should be controlled when undertaking landscape maintenance operations.

3.2 National Policy

3.2.1 National policy relevant to Landscape and Visual Amenity is provided in **Table 3-2**.

Table 3-2 – Relevant Landscape and Visual Amenity national policy

Policy	Policy context
Future Wales: The National Plan 2040 (Ref 3.4)	Future Wales: The National Plan 2040 is the first national development framework produced for Wales, adopted in February 2021. The National Plan sets out the Welsh Government's priorities for addressing key national priorities through the planning system, including sustaining, and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems, and improving the health and well-being of communities. Future Wales policies respect the functions of National Parks in terms of their statutory purposes. At the regional scale, where National Park Authorities will be considered in the context of a wider spatial region, their statutory duty must inform Strategic Development Plans. Future Wales policies state that the Eryri National Park (referred to in English as Snowdonia National Park) *"should be protected for the enjoyment of future generations and help to provide economic benefits for the region's communities".* Future Wales specifically references Trawsfynydd in Policy 24 – North West Wales and Energy stating *"The Welsh Government supports North West Wales as a location for new energy development and investment. Proposed developments associated with the Isle of Anglesey Energy Island Programme, Wylfa Newydd and Trawsfynydd will be supported in principle as a means to create significant economic benefits for the area as well as generating renewable or low carbon energy."*
PPW – Edition 12 (Ref 2.4)	PPW sets out the Welsh Government's land-use planning policies and should be read alongside the National Plan as part of the national planning policy framework for Wales. The primary objective of PPW is to ensure that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental, and cultural well-being of Wales. PPW, paragraph 3.9, advises that *"special characteristics of an area should be central to the design"* and that *"layout, form, scale and visual appearance of a proposed development and its relationship to its surroundings are important planning considerations".* PPW, paragraph 3.61, acknowledges that adequate and efficient infrastructure, including electricity is *"crucial for economic, social and environmental sustainability"*. Such infrastructure should support decarbonisation but through good design and should be located to avoid exacerbating problems.

Policy	Policy context
	PPW, paragraph 5.7.2, notes that *"significant investment will be needed in energy generation, transmission and distribution infrastructure"* to meet the demand of growing electrification and decarbonisation. PPW, paragraph 6.3.3, advises the importance of *"Considering Landscape at the outset"* and *"ensuring that the value of all landscapes for their distinctive character and special qualities is protected"*. PPW, paragraph 6.3.6, advises that great weight should be given in the planning process "*to the statutory purposes of National Parks, which are to conserve and enhance their natural beauty, wildlife and cultural heritage, and to promote opportunities for public understanding and enjoyment of their special qualities"*.
Technical Advice Notes (TAN)	TAN provide detailed planning advice for projects in Wales. Local planning authorities take them into account when they are preparing development plans and making planning decisions. The following TAN are of relevance to landscape and visual amenity: • TAN 5: Nature Conservation and Planning (Ref 3.5). • TAN 6: Planning for Sustainable Rural and Communities (Ref 3.6). • TAN 12: Design (Ref 3.7).
Welsh National Marine Plan (Ref 3.8)	The Welsh National Marine Plan, paragraph 2, guides *"the sustainable development of our marine area by setting out how proposals will be considered by decision makers"*. The plan, paragraph 131, considers *"landscapes with views of the coast or seas, and coasts and the adjacent marine environment with cultural, historical and archaeological links with each other"* as seascapes, paragraph 134, and *"aims to ensure appropriate consideration of the potential impacts of developments and activities on seascapes"*. The plan acknowledges in paragraph 134 that *"seascapes are of value, providing an important role in terms of both local and visitor perceptions of an area"*. Policy SOC_07 states that *"the impacts and relative value of the altered seascape should be considered as part of decision making."* The plan discusses the Sector Policy – Subsea Cabling noting that the policy applies to both the inshore and offshore plan regions, landfall sites and cabling.

3.3 Regional Policy

3.3.1 Regional policy relevant to Landscape and Visual Amenity is provided in **Table 3-3**.

Table 3-3 – Relevant Landscape and Visual Amenity regional policy

Policy	Policy context
Strategic Development Plan – North Wales (Ref 3.9)	The development plan system in Wales is made up of three tiers with plans prepared at national, regional, and local levels. Strategic Development Plans (SDPs) build on the framework of the National Plan and are prepared by Corporate Joint Committees at a regional level. SDPs offer the ability to ensure that a wider geographical area is considered in a single plan. The preparation of an SDP for North Wales is under preparation by a Corporate Joint Committee comprising Gwynedd Council alongside Conwy County Borough Council, Denbighshire County Council, Flintshire County Council, Isle of Anglesey County Council, Wrexham County Borough Council, and the Eryri National Park Authority.

3.4 Local Policy

3.4.1 Local policy relevant to Landscape and Visual Amenity is provided in **Table 3-4.**

Table 3-4 – Relevant Landscape and Visual Amenity local policy

Policy	Policy context
Anglesey and Gwynedd Joint Local Development Plan 2011 – 2026 (Ref 3.10)	The vision of the joint plan for Anglesey and Gwynedd is to celebrate the *"unique culture, heritage and environment"* Paragraph 4.7). Achieving this includes *"where the unique character of its built and cultural heritage, its countryside and landscape, and its environment is valued, protected and enhanced"* (paragraph 4.7). This is defined in Theme 5: Protect and enhance the natural and built environment with Strategic Objective 17 which advises *"Protect, enhance and manage the natural and heritage assets of the Plan area, including its natural resources, wildlife habitats, and its landscape character and historic environment"*. Policy PCYFF 4: Design and Landscaping provides insight into consideration of Landscape and Visual Amenity. It advises that "All proposals should integrate into their surroundings" with *"due consideration to the Landscape Character Area Assessment or Seascape Character Area Assessment"*. It advises that any proposed development should demonstrate how it *"respects and protects local and strategic views"*

Policy	Policy context
	Policy AMG1: Area of Outstanding Natural Beauty[1] Plans highlights the importance of the adjacent National Landscape in the context of the plan area and that *"the setting and/or significant views into and out of the Area of Outstanding Natural Beauty"* must be considered. Policy AMG 2: Special Landscape Areas states that there should be *"no significant adverse detrimental impact on the landscape"* in SLAs with developments aiming to *"maintain, enhance or restore the recognised character and qualities of the SLA".* The local plan provides supplementary guidance on the accommodation of development types in the Gwynedd Council Supplementary Planning Guidance 'Landscape Character' document.
Gwynedd Council Supplementary Planning Guidance 'Landscape Character' (Ref 3.11)	The Supplementary Planning Guidance reiterates in paragraph 26, the overall objective of the Gwynedd Council *"to maintain and enhance the quality and distinctiveness and amenity of the landscape areas"*. The Supplementary Planning Guidance provides further guidance on protecting open spaces between villages or towns ensuring that development proposals assess the impact of effects on the local landscape as a key factor. The Supplementary Planning Guidance clarifies in paragraph 30, the importance of avoiding adverse effects on the *"qualities and special character of the Snowdonia National Park"* through visual intrusion from development within the Gwynedd area *"near the Park's boundary or on sites that are visible from public vantage points within it"*.
Eryri Local Development Plan 2016 – 2031 (Ref 3.12)	The Trawsfynydd works site is in the Eryri National Park. The Local Development Plan, paragraph 1.16, provides "*a clear statement of the statutory responsibilities. These are:* • *"To conserve and enhance the natural beauty, wildlife, and cultural heritage of the area; and* • *To promote opportunities for the understanding and enjoyment of the 'Special Qualities' of the area, by the public."* *"The diversity of high-quality Landscapes and coastal areas"* are cited amongst the special qualities" of the Eryri National Park. The Local Development Plan objectives include to *"Protect and enhance the natural beauty of the National Park's landscape and geodiversity"*. It seeks to *"understand, value, protect and enhance the area's historic environment including archaeological remains and historical landscapes"* (paragraph 1.41). **Strategic policy A: National Park Purposes and Sustainable Development** advises the following considerations relevant to landscape and visual assessment for new development:

[1] Since November 2023, Area of Outstanding Natural Beauty are known as National Landscapes. The legal protection and designation remain the same and documents relating to them may use either term.

Policy	Policy context
	"i. Give the highest priority to the protection and enhancement of the natural beauty, wildlife and cultural heritage"; and *v. Respecting and enhancing the historic environment."* **Development Policy 1: General Development Principles** advises: *"i. The nature, location and siting, height, form and scale of the development is compatible with the capacity and character of the site and locality within which it is located"*; *"vi The development does not result in the loss of landscape features, including woodland, and Ancient Semi-Natural woodland in particular, healthy trees, hedgerows, dry stone walls or damage any important open space or public view."*; *"x Appropriate services and infrastructure can be provided without compromising the quality and character of the landscape and cultural heritage."*; and *"xiv The development will not have an unacceptable adverse impact on public rights of way, other recreational routes or open country."* **Strategic policy D: Natural Environment** advises that *"The natural resources, biodiversity, geodiversity and 'Special Qualities' of the Snowdonia National Park will be protected from inappropriate development.".* Regarding Areas of Natural Beauty, it advises that development will *"recognise their sensitivity and value and to prove that any development will not adversely affect their character or amenity."* **Development Policy 2: Development and the Landscape** highlights the importance of setting and integration of any new development. The policy cites *"Panoramas visible from significant viewpoints"* as being of particular regard.
Snowdonia National Park Authority Supplementary Planning Guidance - Landscapes and Seascapes of Eryri (Ref 3.13)	This Supplementary Planning Guidance defines the landscape and seascape character areas in Eryri and identifies strategies to protect each individual area *"in order to manage and mitigate against any adverse impacts on the landscape and the seascape"* (paragraph 1.4). The report references the main policy addressing landscape which is **Policy 2: Development and the Landscape**. This policy requires development to respect the landscape setting and character of the area and to protect panoramas visible from significant viewpoints.
Snowdonia National Park Authority Supplementary Planning Guidance – Landscape Sensitivity and Capacity Assessment (Ref 3.14)	This SPG provides baseline information for each Landscape Character Area in the Eryri National Park. These include natural, cultural, perceptual, and aesthetic elements of prominence for each Landscape Character Area. This SPG, paragraph 4.4, provides generic guidance on siting and design including the need to *"take into consideration the effects of development on views to and from Snowdonia National Park."*

Policy	Policy context
	The SPG notes in paragraph 1.4 that this study *"does not replace the need for a landscape and visual impact assessment (LVIA)"*.
The Eryri National Park Partnership Plan 2020 (Ref 3.15)	The Eryri National Park Authority published Cynllun Eryri the Eryri National Park Partnership Plan 2020, a partnership plan to identify and protect Eryri's special qualities for the future in September 2020. The Plan sets out an approach to conserve and enhance the National Park's natural beauty, wildlife and cultural heritage which is a statutory function of National Parks. The plan promotes opportunities for the understanding and enjoyment of the special qualities of National Parks by the public. The Plan discusses the relationship to the Local Development Plan reinforcing the shared vision of the two documents. The Plan, page 21, advises that through implementation, it will help deliver on national priorities including those in the Environment (Wales) Act 2016 (Ref 3.15) including *"Increasing renewable energy and resource efficiency". Delivered by "an integrated evidence base which will play a key role in enabling co-operative action in the region."* The Plan sets out a policy framework which seeks to meet the objectives of the National Park. Those relevant to landscape and visual matters include conserving and enhancing appropriate habitats and species, conserve local distinctiveness, respecting local character and views into and out of the National Park, sustainable design, and biodiversity.

4. Ecology and Nature Conservation

4.1 Legislation

4.1.1 Legislation and treaties relevant to Ecology and Nature Conservation are provided in **Table 4-1**.

Table 4-1 – Relevant Ecology and Nature Conservation legislation and treaties

Legislation or Treaty	Legislation or Treaty context
The Conservation of Habitats and Species Regulations 2017 (as amended) (Ref 4.1).	The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations) transposed the requirements of the EC Habitats Directive (Ref 4.2) and Birds Directive (Ref 4.3) into UK law and provides for the designation and protection of European Sites (and adapt planning and other controls for the protection of these sites). This includes Annex I (habitats) and Annex II (species) for which such European Sites can be designated. The Habitats Regulations provide protection for certain European Protected Species that are listed on Schedule 2 (animals) or Schedule 4 (plants). Provision is made for the granting of licences that permit certain acts as lawful, providing the appropriate authority is satisfied that the permitted activities will be carried out for specified reasons or purposes, that there is no satisfactory alternative, and that the activities will not be detrimental to the maintenance of the species concerned at the favourable conservation status in their natural range. The latest 2019 amendment to the Habitats Regulations (The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019) (Ref 4.4) means that SACs and SPAs in the UK no longer form part of the EU's Natura 2000 ecological network, following the UK's exit from the EU. The 2019 amendments to the Regulations have instead created a UK national site network on land and at sea, including both the inshore and offshore marine areas in the UK. The national site network includes: • Existing SACs and SPAs. • Proposed or new SACs and SPAs designated under these Regulations.
Ramsar Convention (Ref 4.5).	The Ramsar Convention 1971 is an international treaty which includes the designation of wetlands of international importance. Government policy extends the same level of protection to Ramsar wetlands as that afforded to sites that are designated under the Birds Directive (Ref 4.3) and Habitats Directive (Ref 4.2). Internationally designated wetlands Ramsar Sites are protected under the

Legislation or Treaty	Legislation or Treaty context
	Countryside and Rights of Way (CRoW) Act 2000 (Ref 4.6) and are not affected by the exit from the EU.
Convention on Biological Diversity 1992 (Ref 4.7).	Under the United Nations Convention on Biological Diversity 1992, governments undertake to conserve and sustainably use biodiversity. They are required to develop national biodiversity strategies and action plans, and to integrate these into broader national plans for environment and development, particularly, important sectors such as energy.
Wildlife and Countryside Act (WCA)1981 (as amended) (Ref 3.3).	The WCA 1981 (as amended) is a primary piece of UK wildlife legislation, protecting birds, other animals and plants (including vascular plants, bryophytes, lichens and fungi) and providing for the designation of protected areas including Sites of Special Scientific Interest (SSSIs). It is an offence to cause the spread in the wild of any invasive non-native species listed under Schedule 9 of the WCA 1981 (as amended).
The Environment Act 2021 (Ref 3.2).	The Environment Act 2021 provides a post-Brexit legal framework for environmental governance and makes provision for improvements to the natural environment. It requires the Secretary of State to set long-term targets (15-year minimum) for biodiversity, however this is secured elsewhere for Wales.
The Environment (Wales) Act 2016 (Ref 4.8).	The Environment (Wales) Act 2016 puts into place the necessary legislation to enable the planning and management of the natural resources of Wales in a more sustainable, pro-active and joined-up way. Part 1, Section 6 (1) of the Act puts a duty onto public bodies and local authorities to "*maintain and enhance biodiversity*" in a manner consistent with the exercising of their normal roles and functions. Whilst doing this, public authorities are obliged to "*promote the resilience of ecosystems*".
The Countryside and Rights of Way Act 2000 (Ref 4.6).	The CRoW Act 2000 extends powers relating to the protection and management of SSSIs. This includes powers for entering management agreements, placing a duty on public bodies to further the conservation and enhancement of SSSIs, increasing penalties for conviction, and appeal processes for the notification, management and protection of SSSIs. It introduced the offence of reckless disturbance of threatened species.
The Protection of Badgers Act 1992 (Ref 4.9).	The Protection of Badgers Act 1992 provides specific legislation to protect badgers (*Meles meles*) and their setts from harm.
The Hedgerows Regulations 1997 (Ref 4.10).	The Hedgerow Regulations 1997 introduced protection for countryside hedgerows that are defined as Important because they meet specific archaeological, wildlife or landscape criteria.
The Invasive Alien Species (Enforcement	The Invasive Alien Species (Enforcement and Permitting) Order 2019 came into effect on 1 December 2019. This implemented the EU

Legislation or Treaty	Legislation or Treaty context
and Permitting) Order 2019 (as amended) (Ref 4.11).	Invasive Alien Species Regulation 1143/2014 (Ref 4.12) on the prevention and management of invasive alien plant and animal species in England and Wales, including the relevant licences, permits and rules for keeping invasive alien species. If it is not a species of special concern, then the WCA; Section 14, Schedule 9 (Ref 3.3) still applies.
Animal Welfare Act 2006 (Ref 4.13).	The Animal Welfare Act 2006 protects vertebrate animals from harm and extends to domesticated animals and those under the control of people.
Salmon and Freshwater Fisheries Act 1975 (Ref 4.14).	The Salmon and Freshwater Fisheries Act 1975 (as amended) relates to the protection and management of freshwater fish, with a focus on salmon and trout species. It considers mortality, migration barriers, pollution and the degradation of habitats.
Eels (England and Wales) Regulations 2009 (Ref 4.15).	The Eels (England and Wales) Regulations 2009 came into force on 15 January 2010 aiming to halt and reverse the decline in the European eel (*Anguilla Anguilla*) stock and meet mature adult eel biomass escapement targets to sea of 40% relative to that expected in the absence of anthropogenic impacts. It considers safe and unobstructed passage for eel, channel alterations, river crossings and culverting.
The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref 4.16).	The Water Framework Directive (WFD) aims to protect and enhance the quality of the water environment across all European Union (EU) member states. The WFD was transposed into law by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017. The WFD follows a holistic approach to the sustainable management of water by considering the interactions between surface water (including transitional and coastal waters, rivers, streams and lakes), groundwater and water-dependent ecosystems. The WFD Regulations require objectives to be identified and set, to protect, prevent deterioration and improve the status of all waterbodies.
The Convention on Migratory Species (CMS or the Bonn Convention) 1979 (Ref 4.17).	This is the main global treaty for conserving migratory species and their habitats. Contracting Parties work together to conserve migratory species and their habitats by providing strict protection for endangered migratory species (listed in Appendix I of the Convention), concluding multilateral Agreements for the conservation and management of migratory species which require or would benefit from international co-operation (listed in Appendix II), and by undertaking co-operative research activities.
The Trade in Endangered Species of Wild Fauna and Flora (Amendment) (EU Exit)	The Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) protects wild fauna and flora from unsustainable trade. The purpose of this instrument is to ensure that CITES legislation continues to be operable in the UK after the UK has left the EU.

Legislation or Treaty	Legislation or Treaty context
Regulations 2018 (Ref 4.18).	
The Convention on the Conservation of European Wildlife and Natural Habitats (the Bern Convention) 1979 (Ref 4.19).	The principal aims of the Convention are to ensure conservation and protection of wild plant and animal species and their natural habitats (listed in Appendices I and II of the Convention), to increase co-operation between contracting parties, and to regulate the exploitation of migratory species listed in Appendix III. The UK Government ratified the Bern Convention in 1982. The obligations of the Convention are transposed into UK law by the Wildlife and Countryside Act 1981 (as amended). The Environment (Wales) Act 2016 (Ref 4.7) supports the sustainable management of natural resources, aligning with the Bern Convention's goals and introduces a biodiversity duty for public authorities.
Environmental Protection Act 1990 (Ref 4.20)	The Act makes provision for the improved control of pollution to the air, water and land by regulating the management of waste and the control of emissions.
Natural Environment and Rural Communities (NERC) Act 2006 (Ref 4.21)	Lists species and habitats of principal importance for the conservation of biodiversity in Wales, supporting public bodies, landowners, and funders in their conservation duties. Although Section 42 has been replaced in Wales by Section 7 of the Environment (Wales) Act 2016, the NERC Act remains relevant — particularly for aquatic and marine species that may not be fully covered under the Section 7 list. These species continue to inform conservation planning, especially where cross-border or UK-wide biodiversity frameworks apply.
UK Biodiversity Framework 2024 (Ref 4.22)	The UK Biodiversity Framework (UKBF) was published in May 2024. It supersedes the UK Post-2010 Biodiversity Framework. The UKBF is overseen by the Environment Departments of all four governments in the UK, working together through the Four Countries' Biodiversity Group. The UKBF sets out how the four countries collaborate to deliver shared commitments under the Kunming-Montreal Global Biodiversity Framework and demonstrates how they work together for nature
Salmon Act 1986 (Ref 4.23)	The 1986 legislation sought to protect salmon populations in the UK by introducing robust regulations on the practice of salmon fishing and offences related to it.

4.2 National Policy

4.2.1 National policy relevant to Ecology and Nature Conservation is provided in **Table 5-2**.

Table 4-2 – Relevant Ecology and Nature Conservation national policy

Policy	Policy context
PPW – Edition 12 (Ref 2.4)	PPW, adopted Edition 12 in February 2024, sets out how the planning system at a national, regional, and local level can assist in delivering these requirements through SDPs and Local Development Plans. Chapter 6, Recognising the Special Characteristics of Places, outlines the Welsh Government's objectives for the environment, including Biodiversity and Ecological Networks. The policy encourages developments to take a proactive approach to facilitate biodiversity and demonstrate that they have sought to fulfil the duties and requirements of Section 6 of the Environment Act 2021 (Ref 3.6). The PPW states in paragraph 6.4.11 "*Planning authorities must follow a step-wise approach to maintain and enhance biodiversity and build resilient ecological networks by ensuring that any adverse environmental effects are firstly avoided, then minimized, mitigated, and as a last resort compensated for; enhancement must be secured wherever possible*". Edition 12 comprised changes including stronger emphasis on taking a proactive approach to green infrastructure, further clarity on net benefit for biodiversity through the application of the stepwise approach and recognising the importance of strategic collaboration, strengthened approach to the protection of SSSIs, and closer alignment with the stepwise approach for trees and woodlands, along with promoting new planting based on the right tree in the right place.
Future Wales: The National Plan 2040 (Ref 3.4).	Future Wales – the National Plan 2040 is the national development framework, setting the direction for development in Wales to 2040. It is a development plan with a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate-resilience, developing strong ecosystems and improving the health and well-being of communities.
The Nature Recovery Action Plan for Wales 2020 – 2021 (Ref 4.24)	The Nature Recovery Action Plan (NRAP) for Wales was originally published in December 2015 as the Nature Recovery Plan. It serves as the National Biodiversity Strategy and Action Plan for Wales under Aichi Target 17 of the United Nations Environment Programme's Convention on Biological Diversity (CBD). The NRAP sets out how Wales will address the CBD's Strategic Plan for Biodiversity and the associated Aichi Biodiversity Targets for 2011–2020. The NRAP consists of three parts: Part I – Our Strategy for Nature, Part II – Our Action Plan, and Part III – The Nature Recovery Framework. It outlines the ambition to reverse the decline in biodiversity, for its intrinsic value, and to ensure lasting benefits to society, and is structured around six strategic objectives.

Policy	Policy context
	The NRAP complements and supports the implementation of the Environment (Wales) Act 2016 (Ref 4.8), particularly in relation to the biodiversity and ecosystem resilience duties placed on public bodies

4.3 Local Policy

4.3.1 Local policy relevant to Ecology and Nature Conservation is provided in **Table 4-3**.

Table 4-3 – Relevant Ecology and Nature Conservation local policy

Policy	Policy context
Anglesey and Gwynedd Joint Local Development Plan 2011 – 2026 (Ref 3.10).	Anglesey and Gwynedd Joint Local Development Plan 2011 – 2026 (2017) is a land use development strategy focussing on sustainable development for the period. Key relevant policies include Policy PS 19: Conserving and where Appropriate Enhancing the Natural Environment; Policy AMG 5: Local Biodiversity Conservation and Policy AMG 6: Protecting Sites of Regional or Local Significance.
Anglesey and Gwynedd Joint Local Development Plan Review Report (Ref 4.25).	Anglesey and Gwynedd Joint Local Development Plan Review Report, dated March 2022 (Ref 7.30) reviews the adopted plan and identifies the need for any changes as part of the future replacement plan.
Eryri Local Development Plan 2016 – 2031 (Ref 3.12).	The Local Development Plan includes strategic policies and development policies which will deliver the long-term spatial vision for the future of Eryri National Park.
Eryri Local Development Plan Review Report 2023 (Ref 4.26).	This Review Report sets out the findings and conclusions of the Local Planning Authority's review of the Eryri Local Development Plan (2016-2031) which was adopted on 06 February 2019. This Review Report sets out where the Eryri Local Development Plan is delivering and performing well, as well as identifying areas that are not being implemented or delivered as intended.

4.4 Guidance

4.4.1 Guidance relevant to Ecology and Nature Conservation is provided in **Table 4-4**.

Table 4-4 – Relevant Ecology and Nature Conservation guidance

Policy	Guidance context
Environmental Improvement Plan 2023 (Ref 4.27).	In 2023, the UK Government published its Environmental Improvement Plan to set out how the UK Government will work with landowners, communities and businesses to deliver its goals for the natural environment. The plan recognises the wider value of the environment and its contribution, such as food, clean water and air, wildlife, energy, wood, recreation and protection from hazards, and sets interim targets pursuant to the long-term targets set under the Environment Act 2021 (Ref 3.2).
Cyfoeth Naturiol Cymru - Natural Resources Wales (NRW) Protected Species Licensing (Ref 4.28).	Any work that affects a protected species in Wales will require a licence from NRW. This includes: • Disturbing, trapping or handling protected species. • Damaging their habitats. NRW provides advice on when, and when not, a licence is required.
Birds of Conservation Concern (BoCC) (Ref 4.29).	BoCC is an assessment of the conservation status of all regularly occurring British birds. The lists (Red, Amber and Green), that indicate the level of conservation importance for each species, are derived from quantitative assessments from standardised criteria. The assessment is based on the most up-to-date evidence available, and criteria include conservation status at global and European levels and, in the UK: historical decline, trends in population and range, rarity, localised distribution and international importance. The lists are drawn together by the UKs leading bird conservation organisations, including the Royal Society for the Protection of Birds (RSPB) and British Trust for Ornithology (BTO).
Birds of Conservation Concern Wales (BoCCW) (Ref 4.30).	A review of the population status of birds in Wales, BoCCW complements Birds of Conservation Concern 5 in the UK (Ref 4.28). Birds that breed, winter, or regularly migrate through Wales were assessed against standardised criteria, using data from monitoring and surveillance schemes and citizen science initiatives. Each was assigned to Green, Amber, or Red lists, indicating increasing levels of conservation concern.
The International Union for Conservation of Nature Red List of Threatened Species 2025 (Ref 4.31).	Established in 1964, the International Union for Conservation of Nature's (IUCN) Red List of Threatened Species is a source of information on the global extinction risk status of animal, fungus and plant species that is reviewed and updated. The IUCN Red List Categories and Criteria are intended to be an easily and widely understood system for classifying species at high risk of global extinction. It divides species into nine categories: Not Evaluated,

Policy	Guidance context
	Data Deficient, Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered, Extinct in the Wild and Extinct.
UK Biodiversity Framework (JNCC) on behalf of the Four Countries' Biodiversity Group (Ref 4.32).	The UK Biodiversity Framework (UKBF) is overseen by the Environment Departments of all four governments in the UK working together through the Four Countries' Biodiversity Group. The UKBF allows the four countries to communicate what they are doing individually and collectively to meet the UK's international biodiversity commitments.
Natur Gwynedd Biodiversity Action Plan (Ref 4.33).	Natur Gwynedd is the Local Biodiversity Action Plan (LBAP) for Gwynedd outside the Eryri National Park. It has been developed by a wide partnership of organisations and individuals. Natur Gwynedd identifies the actions needed to safeguard and enhance very special local wildlife and habitats. Natur Gwynedd aims to help conserve the biodiversity of Gwynedd and, thereby, contribute to biodiversity conservation in Wales, the UK and the world.
Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for ecological impact assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.3. (Ref 4.34).	The guidance provides a standardised framework for assessing the ecological impacts of projects across diverse environments. The guidelines aim to ensure consistent, transparent, and scientifically robust ecological assessments within the EIA and other relevant processes. It outlines key steps including scoping, baseline data collection, evaluation of ecological features, impact assessment, and mitigation, with emphasis on biodiversity conservation, legal compliance, and integration with planning systems. The guidelines support practitioners in identifying significant ecological effects and proposing appropriate mitigation, compensation, and enhancement measures.
Institute of Air Quality Management (IAQM) Guidance on the assessment of dust from demolition and construction (Ref 4.35).	The IAQM Guidance on the assessment of dust from demolition and construction provides a framework for evaluating and managing the potential impacts of dust generated by demolition and construction activities. The guidance provides methods of assessing potential negative effects of dust and measures to avoid or reduce dust-related nuisance, high levels of soiling that can damage plants and affect the diversity of ecosystems and to protect human health from particulate matter.
Institute of Lighting Professionals Guidance Note 08/23 Bats and Artificial Lighting at Night (Ref 4.36).	The Institute of Lighting Professionals (ILP) Guidance Note 08/23: Bats and Artificial Lighting at Night offers guidance on identifying and mitigating the effects of artificial lighting on bats. Since bats are sensitive to light, it can interfere with their foraging, navigation, and roosting behaviours. The guidance provides methods for assessing potential negative impacts of lighting on bats and suggests measures to reduce the risk of lighting installations harming bat populations.
Institute of Lighting Professionals.	The Institute of Lighting Professionals (ILP) Guidance Note 1 for the Reduction of Obtrusive Light provides recommendations on

Policy	Guidance context
Guidance Note 1 for the reduction of obtrusive light (Ref 4.37).	minimizing light pollution and obtrusive light in outdoor environments. It aims to reduce the negative impacts of artificial lighting on the night sky, human health, and wildlife.
Joint Nature Conservation Committee. Handbook for Phase 1 habitat survey – a technique for environmental audit (Ref 4.38).	The Phase 1 Handbook presents a standardised system for classifying and mapping wildlife habitats in all parts of Great Britain, including urban areas.
Mammal Society. Surveying for Badgers (Ref 4.39)	This document provides comprehensive coverage of badger walk-over survey methods and sett definitions, as used in all subsequent national and regional surveys.
Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition) (Ref 4.40)	The guidance provides updated, science-based guidance on planning and conducting bat surveys in the UK. It outlines best practices for survey methods, timing, effort levels, and impact assessments to support ecologists in complying with legal and conservation requirements.

5. Historic Environment

5.1 Legislation

5.1.1 Legislation relevant to Historic Environment is provided in **Table 5-1**.

Table 5-1 – Relevant Historic Environment legislation

Legislation	Legislation context
Historic Environment (Wales) Act 2023 (Ref 5.1).	This is the primary legislation for protecting heritage assets in Wales. The Act consolidates the historic environment legislation in Wales and covers the protection of monuments, listed buildings and conservation areas. It consolidates the Ancient Monuments and Archaeological Areas Act 1979 (Ref 5.2), the Planning (Listed Buildings and Conservation Areas) Act 1990 (Ref 5.3) and the Historic Environment (Wales) Act 2016 (Ref 5.4) by re-stating this existing legislation. Cadw, the Welsh Government's historic environment service, defines the purpose of the Act as to: • Give more effective protection to listed buildings and scheduled monuments. • Improve the sustainable management of the historic environment. • Introduce greater transparency and accountability into decisions taken on the historic environment. The Ancient Monuments and Archaeological Areas Act, as amended by the Historic Environment (Wales) Act 2016 (Ref 5.4), requires the Welsh Government and Cadw to compile and maintain a Schedule of monuments considered to be of national importance. The statutory consent of Cadw is required before any works are carried out which would have the effect of demolishing, destroying, damaging, removing, repairing, altering, adding to, flooding or covering up a Scheduled Monument. Impacts of development works upon the setting of a Scheduled Monument form an important planning consent consideration. There is a set of criteria laid out in this Act to assist in the decision-making process as to whether an asset is deemed of national importance, and so best managed by scheduling. The criteria list defines the following: survival and/or condition, period, rarity, fragility and/or vulnerability, diversity, documentation, group value and potential. The Planning (Listed Buildings and Conservation Areas) Act 1990 (as amended) is the principal statutory instrument which must be considered in the determination of any application affecting listed buildings and conservation areas. Under this legislation, local planning authorities must have special regard to the desirability of preserving a listed building, its setting, or any features of special

Legislation	Legislation context
	architectural or historic interest that it possesses. It places a duty on local planning authorities to publish proposals for their conservation areas and exercise their planning functions in a manner that gives regard to the desirability of preserving and enhancing the character or appearance of these areas. This Act has been amended by the Historic Environment (Wales) Act 2016 (Ref 5.4). Secondary legislation to the Historic Environment (Wales) Act 2023 (Ref 5.1) includes: • The Historic Environment (Miscellaneous Amendments) (Wales) Regulations 2024 (Ref 5.5) makes minor amendments that correct terminology, update legal references and the clarification of requirements. • The Historic Environment (Wales) Act 2023 (Consequential Provision) (Primary Legislation) Regulations 2024 (Ref 5.6) amends existing UK and Welsh primary legislation to ensure consistency with the consolidated framework established by the 2023 Act. • The Historic Environment (Wales) Act 2023 (Consequential Provision) (Secondary Legislation) Regulations 2024 (Ref 5.7) amends secondary legislation to maintain consistency and clarity within the wider legislative framework.

5.2 National Policy

5.2.1 National policy relevant to Historic Environment is provided in **Table 5-2**.

Table 5-2 – Relevant Historic Environment national policy

Policy	Policy context
PPW – Edition 12 (Ref 2.4).	PPW – Edition 12 ensures that the planning system contributes towards the delivery of sustainable development and improves the social, economic, environmental and cultural well-being of Wales, as required by the Planning (Wales) Act 2015 (Ref 5.8) and the Well-being of Future Generations (Wales) Act 2015 (Ref 5.9). The planning system must take into account the Welsh Government's objectives to protect, conserve, promote and enhance the historic environment as a resource of present and future generations.
Future Wales: The National Plan to 2040 (Ref 3.4).	The National Plan is in line with the Well Being of Future Generations (Wales) Act 2015 (Ref 5.6). Policy 32 – Haven Waterway and Energy states that in determining any applications for energy proposals, consideration should be given to the contribution it will make to decarbonising energy supplies, the impacts on the landscape, seascapes, natural and historic environment and the economic benefits they would bring to the region.

Policy	Policy context
Technical Advice (TAN) 24: The Historic Environment (Ref 5.10).	TAN 24: The Historic Environment (2017) supplements PPW. This provides guidance on considering the historic environment in the planning system, including World Heritage Sites, scheduled monuments, archaeological remains, listed buildings, conservation areas, historic parks and gardens, historic landscapes and historic assets of special local interest. This recommends the use of the Conservation Principles for the Sustainable Management of the Historic Environment in Wales (Ref 5.11) in assessing potential impacts of development upon the historic environment. Cadw has published additional guidance for assessing impacts on designated assets in the form of Heritage Impact Assessment in Wales (Ref 5.12) and Setting of Historic Assets in Wales (Ref 5.13).

5.3 Local Policy

5.3.1 Local policy relevant to Historic Environment is provided in **Table 5-3**.

Table 5-3 – Relevant Historic Environment local policy

Policy	Policy context
Anglesey and Gwynedd Joint Local Development Plan 2011 – 2026 (Ref 3.10).	**Section 6.5 – Growth Management and Development – Natural and Built Environment Protecting and enhancing heritage assets** The relevant heritage policies of the Anglesey and Gwynedd Joint Local Development Plan are: **Policy PS 20: Preserving and Where Appropriate Enhancing Heritage Assets** Proposals that will preserve and where appropriate enhance the following heritage assets, their setting and significant views into and out of the building and/or area will be granted. This includes scheduled monuments and other areas of archaeological importance (in line with Policy AT 4), listed buildings and their curtilages, conservation areas (in line with Policy AT 1), World Heritage Sites, registered historic landscapes, parks and gardens (in line with Policy AT 1), and buildings of architectural, historic and/or cultural merit that are not designated or protected (in line with Policy AT 3). **Policy AT 1: Conservation Areas, World Heritage Sites and Registered Historic Landscapes, Parks and Gardens** Proposals in or affecting the setting and/or significant views into and out of Conservation Areas, World Heritage Sites and Registered Historic Landscapes, Parks and Gardens shown on the Constraints Map must, where appropriate, have regard to: • Adopted Conservation Area Character Appraisals, Conservation Area Plans and Delivery Strategies; • World Heritage Site Management Plans; and

Policy	Policy context
	• The Register of Landscape, Parks and Gardens of Special Historic Interest in Wales. Proposals should be supported by a Heritage Impact Assessment, where appropriate. **Policy A2 2: Enabling Development** Enabling development which aims to secure the preservation and / or alternative use of a listed building or a building that makes a significant positive contribution to the character of a conservation area or a Registered Historic Landscape, Park and Garden will be granted provided all the following criteria can be met: • It will not materially harm the heritage values of the heritage asset or its setting; • It avoids detrimental fragmentation of management of the historic asset; • It will secure the long-term future of the heritage asset and, where applicable, it's continued use for a sympathetic purpose; • It is necessary to resolve problems arising from the inherent needs of the heritage asset, rather than the circumstances of the present owner, or the purchase price paid; • Sufficient subsidy is not available from any other source; • It is demonstrated that the amount of enabling development proposed is the minimum necessary to secure the future of the heritage asset, and that it causes minimal harm to other public interests; and • The public benefit of securing the future of the heritage asset through such enabling development decisively outweighs the disbenefits of breaching other public policies. Proposals will be subject to an agreed programme of works. The condition or state of restoration of the building or feature must be in accordance with the programme of works prior to the enabling development's occupation. **Policy AT 3: Locally or Regionally Significant Non-Designated Heritage Assets** Proposals will be required to conserve and seek opportunities to enhance buildings, structures and areas of locally or regionally significant non-designated heritage assets, which create a sense of local character, identity and variation across the Plan area, by: • The sympathetic re-use of redundant and under-used historic buildings and areas that are consistent with their conservation; • Ensuring that all development in the Plan area's historic public realm, including transport and infrastructure work, is sympathetic to the historic environment; and • Appropriate siting, massing, form, height, scale, detail and use of local materials.

Policy	Policy context
	Policy AT 4: Protection of Non-Designated Archaeological Sites and their Setting Proposals which may have a significant adverse impact on sites that are of potential national archaeological importance and their setting, or are of acknowledged local heritage importance, including sites of industrial archaeology that are not scheduled and their settings will: • Be assessed in terms of the intrinsic importance of the 'site' and the potential extent of harm; and • Require, where appropriate, either an archaeological assessments and/or field evaluation by an archaeological body or a professionally qualified archaeologist in order to determine the archaeological impact of the proposed development before the Planning Authority determines the application. A proposal which affects locally important archaeological remains will only be granted if the need for the development overrides the significance of the archaeological remains. Where proposals are acceptable, a condition will be attached to the permission stating that no development should take place until an agreed programme of archaeological work has taken place.
World Heritage Convention (Ref 5.14).	The Convention Concerning the Protection of the World Cultural and Natural Heritage (the World Heritage Convention) is the principal global instrument for the protection of cultural and natural heritage (UNESCO 1972). The World Heritage Convention was adopted by the United Nations Educational, Scientific and Cultural Organisation (UNESCO) in 1972 and came into force in 1975. The UK ratified the Convention on 29 May 1984. By signing the Convention, the UK Government has undertaken to identify, protect, conserve, present and transmit its World Heritage properties to future generations. In Wales, these commitments are fulfilled through the statutory planning system, designation of specific assets in World Heritage properties and the development of WHS Management Plans. The Slate Landscape of Northwest Wales. Nomination as a World Heritage Site. Property Management Plan 2020 – 2030. The Slate Landscape of Northwest Wales Property Management Plan 2019 sets out a framework for the management of the WHS. Its primary purpose is to sustain the Outstanding Universal Value of the WHS. The Management Plan 2019 includes the following aims: **Objective 3: Protect and sustain the Outstanding Universal Value of The Slate Landscape of Northwest Wales for the benefit of people today and in the future.** Principle 3.1: Promote awareness and understanding of the reasons why The Slate Landscape of Northwest Wales needs to be protected and actively managed to sustain its Outstanding Universal Value.

Policy	Policy context
	Principle 3.2: Protect the Outstanding Universal Value, integrity and authenticity of The Slate Landscape of Northwest Wales by employing statutory designation of historic assets that meet the national criteria. Principle 3.3: Protect the Outstanding Universal Value, integrity and authenticity of The Slate Landscape of Northwest Wales by effective use of the spatial planning system. Pre-planning application advice will encourage development of an appropriate scale, and encourage good design sensitive to the character and values of the World Heritage Site. Planning decisions will take account of the need to sustain the Outstanding Universal Value of the World Heritage Site. **Objective 4: The World Heritage Site will be managed to sustain and enhance its proposed Outstanding Universal Value, integrity and authenticity.** Conservation of assets will ensure protection of Outstanding Universal Value. Re-use of historic assets will ensure their long-term viability and will in turn protect the Outstanding Universal Value of the World Heritage Site. **Objective 5: The setting and views into and out of the World Heritage Site will be managed to sustain the proposed Outstanding Universal Value of the property for the benefit of future generations.** Principle 5.1: Existing landscape protection measures and the land use planning framework will be used as a management tool to protect the essential setting and key views into and out of the proposed World Heritage Site. Principle 5.2: New development is to be of a design, scale and mass that preserves and enhances the proposed Outstanding Universal Value of the property, respects significant views and reinforces a sense of arrival.
Eryri Local Development Plan 2016 – 2031 (Ref 3.12).	**Section 4 – Protecting and Enhancing the Cultural and Historic Environment** The relevant heritage policies of the Eryri Local Development Plan are: **Strategic Policy Ff: Historic Environment (Ff)** The historic landscape, heritage assets and cultural heritage of Eryri National Park will be conserved and enhanced, due to their contribution to the character and 'Special Qualities' of the National Park. Particular protection will be given to the following archaeological, architectural, historic or cultural assets and where appropriate, their settings. Development will not be permitted that will adversely affect in any way the following Heritage Assets, or where appropriate their settings and significant views:

Policy	Policy context
	• Conservation Areas • World Heritage Sites • Candidate World Heritage Sites • Scheduled Monuments and other sites of archaeological importance • Historic landscapes, parks and gardens • Listed Buildings • Traditional Buildings **Development Policy 8: Protection of Non Designated Sites (8)** Development which may adversely affect sites that are of archaeological interest or are acknowledged of local heritage importance including sites of industrial archaeology that are not scheduled will: • Be judged in terms of the intrinsic importance of the heritage asset and the potential extent of harm. • Require where appropriate archaeological assessments and field evaluations before applications are determined. Where proposals are acceptable but may have an adverse effect on a site, a condition will be attached to the permission stating that no development should take place until an agreed programme of archaeological work has taken place.

5.4 Guidance

5.4.1 Guidance relevant to Historic Environment is provided in **Table 5-4.**

Table 5-4 – Relevant Historic Environment guidance

Guidance	Guidance context
Conservation Principles for the Sustainable Management of the Historic Environment in Wales (Ref 5.11).	The guidance sets out six principles that, collectively, provide a framework for an integrated approach to the management of the Welsh historic environment. The principles are: • Historic assets will be managed to sustain their value. This principle recognizes that change and decay of heritage assets through natural processes is inevitable, but conservation actions can manage that change. • Understanding the significance of historic assets is vital, and will provide key information to inform its conservation. In order to understand an asset's significance its evidential, historical, aesthetic and communal values must be considered. • The historic environment is a shared resource. Conservation projects recognise the need to promote greater access, understanding and enjoyment of the historic environment for all groups in society and projects, and owners and occupiers need

Guidance	Guidance context
	to recognize and understand the significance of their historic assets, and seek advice and assistance from public sources to help them sustain the heritage in their stewardship. • Everyone will be able to participate in sustaining the historic environment and to contribute their knowledge of the heritage value of different sites, and to participate in decisions about their future, by means that are accessible, inclusive and informed. This will enable decisions about an important historic asset to be undertaken in an open and transparent manner. • Decisions about change (in the historic environment) must be reasonable, transparent and consistent which means that owners and managers of historic assets will be encouraged to seek advice and examples of good practice in preparing their proposals for change. • Documenting and learning from decisions. The information and documentation gathered in understanding and assessing the significance of an historic asset should be retained by the owner and manager of that place, and a copy be placed in a public archive. This will ensure that future generations will benefit from the knowledge gained.
Heritage Impact Assessment in Wales (Ref 5.12).	Heritage Impact Assessment in Wales sets out the general principles to consider when planning changes to historic assets and applying for listed building, conservation area and scheduled monument consent. This best-practice guide is aimed principally at owners, occupiers and agents of historic assets to help them understand why, when and how to use the heritage impact assessment process and the key stages of assessment and information required including: • Explaining the objectives. • Understanding significance. • Identifying proposed change. • Assessing the impact. • Getting the best solution in order to minimise harm to historic assets.
Managing Change to Listed Buildings in Wales (Ref 5.115).	Managing Change to Listed Buildings in Wales sets out general principles to consider when making changes to listed buildings and explains how to apply for listed building consent, including the roles and responsibilities of owners, local planning authorities and Cadw. It provides guidance for understanding the significance of listed buildings and advice on how to manage change.
Managing Change to Registered Historic Parks and Gardens in Wales (Ref 5.16).	Managing Change to Registered Historic Parks and Gardens in Wales sets out the general principles to follow when considering changes that may have an impact on registered historic parks and gardens. It explains the status of the register of historic parks and gardens in Wales and its place in the planning system, including the

Guidance	Guidance context
	roles and responsibilities of owners, local planning authorities, amenity societies and Cadw.
Managing Conservation Areas in Wales (Ref 5.17).	Managing Conservation Areas in Wales sets out the policy context and duties for local planning authorities to designate and manage conservation areas. The guidance identifies key aspects of good practice for their designation and appraisal, including the scope of appraisals and management plans, the importance of the participation of stakeholders, and the development of local policies for positive management and enhancement so that their character and appearance are preserved and enhanced.
Managing Historic Character in Wales (Ref 5.18).	Managing Historic Character in Wales explains why it is important to recognise historic character and use it as an evidence base for conservation, regeneration and planning work. It shows how policies and programmes to manage change can take inspiration from the past to help create and sustain distinctive places for the future.
Managing Lists of Historic Assets of Special Local Interest (Ref 5.19).	This provides guidance on preparing and managing lists of local historic assets and their use in the planning system in Wales. It sets out general principles and good practice for preparing and managing these lists, including criteria, nomination, consultation, validation, appeals and monitoring. Principally for local authorities, the guidance is useful in highlighting the potential value of the local heritage resource and ensuring these assets are recognised in heritage assessments.
Setting of Historic Assets in Wales (Ref 5.20).	The Setting of Historic Assets in Wales explains what setting is, how it contributes to the significance of a historic asset and why it is important. It outlines the principles used to assess the potential impact of development or land management proposals in the settings of World Heritage Sites, ancient monuments (scheduled and unscheduled), listed buildings, registered historic parks and gardens, and conservation areas. These principles are equally applicable to all individual historic assets, irrespective of their designation. The guidance explains setting and advises how this should be assessed. It provides guidance on how to assess the impact of change on the setting and significance of a historic asset, along with options for mitigating and/or offsetting impacts, as well as opportunities for enhancing setting.
Chartered Institute for Archaeologists (CIfA) Standard and guidance for historic environment desk-based assessment (Ref 5.21).	This guidance has been used to establish the baseline conditions for cultural heritage. The guidance defines a standard that must be achieved in a desk-based assessment. The standard advises that a '*Desk-based assessment will determine, as far as is reasonably possible from existing records, the nature, extent and significance of the historic environment in a specified area. Desk-based assessment will be undertaken using appropriate methods and practices that*

Guidance	Guidance context
	satisfy the stated aims of the project, and that comply with the Code of conduct and other relevant regulations of CIfA. In a development context, desk-based assessment will establish the impact of the proposed development on the significance of the historic environment (or will identify the need for further evaluation to do so), and will enable reasoned proposals and decisions to be made on whether to mitigate, offset or accept without further intervention that impact'.

6. Geology, Hydrogeology, Land Use and Agriculture (Soils)

6.1 Legislation

6.1.1 Legislation relevant to Geology, Hydrogeology, Land Use and Agriculture (Soils) is provided in **Table 6-1.**

Table 6-1 – Relevant Geology, Hydrogeology, Land Use and Agriculture (Soils) legislation

Legislation	Legislation context
The Environment Act 2021 (Ref 3.2)	The Act makes provision about binding targets, plans and policies for improving the natural environment; for statements and reports about environmental protection; for the Office for Environmental Protection; about waste and resource efficiency; about air quality; for the recall of products that fail to meet environmental standards; about water; about nature and biodiversity; for conservation covenants; about the regulation of chemicals; and for connected purposes.
Part 2A Environmental Protection Act 1990 (Ref 6.1)	The Act provides a means of dealing with unacceptable risks posed by land contamination to human health and the environment. Enforcing authorities are required to identify and deal with such land.
Water Act 2003 (Ref 6.2)	The Act relates to matters within the responsibilities of holding and issuing licences for water abstractions. The four broad aims of the Act are to ensure sustainable use of water resources, to strengthen the voice of consumers, to increase competition and to promote water conservation.
Environment Act 1995 (Ref 6.3)	This legislation makes provision with respect to contaminated land and abandoned mines.
Water Resources Act 1991 (as amended) (Ref 6.4)	This Act gives Natural Resources Wales powers and duties to prevent or remedy the pollution of controlled waters. Previously under the Act and now under the Environmental Permitting (England and Wales) Regulations 2016 (Ref 6.5) it is a criminal offence for a person to cause or knowingly permit pollution of controlled water.
Land Drainage Act 1991 (as amended) (Ref 6.6)	The Act requires that a watercourse be maintained by its owner in such a condition that the free flow of water is not impeded. The owner must accept the natural flow from upstream but need not carry out work to cater for increased flows resulting from some types of works carried out upstream, for example a new housing development.
The Building Act 1984 and the Building	The Building Act 1984 consolidates previous legislation concerning the construction process, and the design and specifications for

Legislation	Legislation context
(Amendment) Regulations 2016 (Ref 6.7)	buildings and their component parts, and related matters, in England and Wales.
The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref 4.16)	Provides guidance for establishing a framework for community action in the field of water policy. The WFD Regulations require objectives to be identified and set, to protect, prevent deterioration and improve the status of all waterbodies.
Private Water Supplies (Wales) Regulations 2017 (Ref 6.8)	These regulations apply to private water supplies intended for human consumption. The Regulations place a duty on local authorities to monitor private water supplies and to ensure that each sample taken is analysed. It requires the local authority to make and keep records for every private water supply in its area. The Regulations require supplies to be sampled before being brought back into use if decommissioned or if supplies are new.
Environmental Permitting (England and Wales) Regulations 2016 (Ref 6.9)	The Regulations provide the procedural framework for environmental permits required for those carrying out activities that may cause imminent threats of, or actual 'environmental damage', and also outline the authorities responsible for enforcing the Regulations. The regulations cover activities such as waste management and emissions to air and water.
Environmental Damage (Prevention and Remediation) (Wales) Regulations 2015 (Ref 6.10)	These regulations amend the Environmental Damage (Prevention and Remediation) (Wales) Regulations 2009, which implement the environmental damage regime in Wales. The purpose of the Regulations is to prevent and remediate environmental damage and they are based on the "polluter-pays" principle.
Contaminated Land (Wales) Regulations, 2006 (Ref 6.11)	These Regulations were made under Part 2A of the Environmental Protection Act 1990 and provide the framework for the identification and remediation of contaminated land in Wales. The Regulations provide guidance on the risk assessment processes and identification and/or evaluation of remediation options. Additional guidance is provided in the Contaminated Land Statutory Guidance for Wales.
Hazardous Waste (England and Wales) (Amendment) Regulations 2016 (Ref 6.12)	The Hazardous Waste (England and Wales) (Amendment) Regulations 2016 amend the Hazardous Waste (England and Wales) Regulations 2005 to align with updated European Union legislation and improve the management of hazardous waste. Key changes include adjustments to the classification, tracking, and reporting of hazardous waste, as well as updates to waste codes and procedures for consignment notes.
Anti-Pollution Works Regulations 1999 (Ref 6.13)	The Anti-Pollution Works Regulations 1999 set out the requirements for the implementation of anti-pollution works in response to environmental incidents or the risk of pollution. These Regulations were made under the Water Resources Act 1991 and relate to the

Legislation	Legislation context
	pollution of controlled waters. They ensure that appropriate measures are taken to prevent or mitigate the impact of pollution of controlled waters and establish duties for responsible parties to carry out necessary remedial actions.
Control of Asbestos Regulations 2012 (Ref 6.14)	The Control of Asbestos Regulations 2012 set out requirements for the management, handling, and removal of asbestos in order to protect workers and the public from exposure to harmful asbestos fibres. They include duties for employers to assess and manage asbestos risks, ensure safe work practices, and maintain proper training and health monitoring for workers involved in asbestos-related activities.
Construction Design Management (CDM) Regulations 2015 (Ref 6.15)	The CDM Regulations 2015 establish a framework to ensure health, safety, and welfare in construction projects. They outline the responsibilities of clients, designers, contractors, and workers to manage risks throughout the project lifecycle, from planning to completion, focusing on safety and reducing hazards at all stages.
The Confined Spaces Regulations 1997 (Ref 6.16)	The Confined Spaces Regulations 1997 aim to protect workers from risks associated with working in confined spaces. They require employers to avoid entry where possible, assess and control risks, ensure safe systems of work, and provide adequate training and emergency arrangements when entry is unavoidable.

6.2 National Policy

6.2.1 National policy relevant to Geology, Hydrogeology, Land Use and Agriculture is provided in **Table 6-2**.

Table 6-2 – Relevant Geology, Hydrogeology, Land Use and Agriculture national policy

Policy	Policy context
PPW – Edition 12 (Ref 2.4)	The Welsh Government published the PPW. This document sets out policy relevant to the Geology, Hydrogeology, Land Use and Agriculture (Soils) chapter of the Environmental Statement and the importance of conserving the best and most versatile land as a finite resource. Section 3.58 states that "*Agricultural land grades 1,2 and 3a of the Agricultural Land Classification system (ALC) is the best and most versatile and should be conserved as a finite resource for the future*". Section 6.3.1 states that *"Geological features are a key part of our natural environment and protecting geodiversity underpins the wider protection and management of our natural resources, including land availability, renewable energy potential, groundwater supply and flood risk".*

Policy	Policy context
	Section 6.9.16 states that "*Opportunities offered by the planning system to address land contamination should be maximised as part of its preference for the use of PDL. Whenever development or redevelopment potential exists the planning system will be the preferred mans of addressing potential land contamination"*. With regard to safeguarding mineral resources and infrastructure Section 5.14.7 states that *"Planning authorities should consider the long term and the need for preventative action to avoid the creation of problems in the future. Safeguarding does not indicate an acceptance of mineral working, but that the location and quality of the mineral is known and that the environmental constraints associated with extraction, including the potential for extraction of mineral resources prior to undertaking other forms of development, have been considered"*.
Future Wales: The National Plan 2040 (Ref 3.4)	The plan aims to guide development across Wales by addressing key priorities such as sustaining a vibrant economy, supporting town and city centres, achieving decarbonization and enhancing community well-being. The plan provides a spatial strategy for land use and development, ensuring that Wales focuses on sustainable growth and resilience to climate change.

6.3 Local Policy

6.3.1 Local Policy relevant to Geology, Hydrogeology, Land Use and Agriculture (Land Use) is provided in **Table 6-3.**

Table 6-3 - Relevant Geology, Hydrogeology, Land Use and Agriculture local policy

Policy	Policy Context
Anglesey and Gwynedd Joint Local Development Plan 2011 – 2026 (Ref 3.10)	Policies relevant to Geology, Hydrogeology, Land Use and Agriculture (Land Use) are as follows: **Strategic Policy PS19: Conserving and where appropriate enhancing the natural environment** • Safeguard the Plan area's habitats and species, geology, history, the coastline and landscapes. • Protect or where appropriate enhance sites of international, national, regional and local importance and, here appropriate, their settings in line the National Policy. • Have appropriate regard to the relative significance of international, national or local designations in considering the weight to be attached to acknowledge interests, ensuring that any international or national responsibilities and obligations are fully met in accordance with National Policy.

Policy	Policy Context
	• Protect or enhance biodiversity thin the Plan area and enhance and/or restore networks of natural habitats in accordance the Local Biodiversity Action Plans and Policy AMG 5. • Protect or enhance biodiversity through networks of green/blue infrastructure. • Safeguard internationally, nationally and locally protected species. • Protect, retain or enhance the local character and distinctiveness of the individual Landscape Character Areas (in and Seascape Character Areas. • Protect, retain or enhance trees, hedgerows or woodland or visual, ecological, historic cultural or amenity value. **Policy AMG 6: Protecting Sites of Regional or Local Significant** • Proposals that are likely to cause direct or indirect significant harm to Local Nature Reserves, Wildlife Sites or regionally important geological/geomorphologic sites (RIGS) will be refused unless it can be proved that there is an overriding social, environmental and/or economic needs for the development, and that there is not other suitable site that would d avoid having a detrimental impact on sites of local nature conservation value or local geological importance. • When a development is granted, it will be necessary to ensure that there are appropriate mitigation measures in place. It will be possible to use planning conditions and/or obligations in order to safeguard the site's biodiversity and geological importance. **Strategic Policy PS 21: Waste Management** • The Councils will seek to ensure an adequate availability of land in appropriate locations for an integrated network of waste facilities to meet regional and local obligations in accordance with the requirement of the current relevant national/regional policy/guidance. The sites and types of facilities will promote a sustainable approach to waste management based on the waste hierarchy of prevention and reuse, preparation for reuse, recycling, other recovery and the disposal whilst taking into consideration the unique character of the area including the transport links and rural nature. **Strategic Policy PS 22: Minerals** The Councils will contribute to regional and local demand for a continuous supply of minerals in accordance with the key objectives and principles of sustainable development by: • Safeguarding known/potential mineral resources from permanent development that would sterilise them or hinder extraction in accordance with MWYN 1.

Policy	Policy Context
	• Maintaining a minimum 7 years land bank of Sand and Gravel and 10 years land bank of crushed rock aggregate reserves in line with national guidance. • Maximise the use of secondary and recycled materials and mineral wastes. • Providing for the maintenance of the aggregate landbank including adequate provision and productive capacity for higher quality aggregates. • Acknowledge that where the principles of sustainable development can be achieved, the extension of existing quarries and/or new quarries is likely to be appropriate. • Where there is a need for new capacity of minerals, these should come from locations of low environmental constraints and take into account transport implications. • Protect maritime wharf and railhead facilities as a means of encouraging sustainable transport or aggregates. • Ensuring good restoration and aftercare. • Minimising potential conflict between mineral and non-mineral land uses. • All dormant and long-inactive minerals sites identified on the proposals map will be reviewed to assess their potential to contribute to the land bank and the likelihood of their re-opening. Where appropriate, Prohibition Orders will be served.

6.4 Guidance

6.4.1 Guidance relevant to Geology, Hydrogeology, Land Use and Agriculture is provided in **Table 6-4.**

Table 6-4 – Relevant Geology, Hydrogeology, Land Use and Agriculture guidance

Policy	Guidance context
Contaminated Land Statutory Guidance for Wales (Ref 6.17)	The guidance encourages polluters and/or owners of land affected by contamination to deal with problems without the need for Part 2A to be used directly.
Environment Agency's online guidance for the management of land contamination 'Land Contamination Risk Management' (LCRM) (Ref 6.18)	The LCRM provides guidance on how to assess and manage the risks from land contamination using a risk based approach.
National House Building Council (NHBC),	This guidance provides advice on the redevelopment of land affected by contamination. The guidance, whilst written to be relevant to

Policy	Guidance context
Environment Agency, Chartered Institute of Environmental Health (CIEH) report R&D Publication 66 'Guidance for the Safe Development of Housing on Land Affected by Contamination' (Ref 6.19)	housing development on such sites, is generally applicable to other forms of development, to existing developments and to undeveloped land, where such sites are on land affected by contamination
CIRIA C552 'Contaminated Land Risk Assessment - A Guide to Good Practice' (Ref 6.20)	The CIRIA C552 relates to potential pollutant linkages assessment and considers which source pathway receptor pollutant linkages are likely to be plausible and potentially complete, and the potential risk they represent.
Welsh Local Government Association (WLGA), Welsh Land Contamination Working Group: 'The Development of Land Affected by Contamination: A Guide for Developers' (Ref 6.21)	The guidance document has been prepared for developers and their agents and/or advisers who may be involved in assessing and managing land contamination in Wales. It outlines the information required by Local Planning Authorities (LPA) in order for them to determine planning applications and then the subsequent discharge of associated land contamination conditions. This guidance provides an overview of good practice for land contamination management procedures which will help meet the information requirements of the LPA during development of that land
BS 10175 (2011 + A2:2017), 'Investigation of Potentially Contaminated Sites - Code of Practice' (Ref 6.22)	The recommendations and guidance of BS10175 are applicable to the investigation of all potentially contaminated sites and to land with naturally elevated concentrations of potentially harmful substances.
BS 5930 (2015 + A1:2020), 'Code of practice for Site Investigations' (Ref 6.23)	The standard helps to assess the suitability of sites for construction operations and civil engineering works and provides a code of practice for planning execution and interpretation of ground investigations.
BS 8576 (2013), 'Guidance on Investigations for Ground Gas. Permanent Gases and Volatile Organic	BS 8576 provides guidance related to site investigations, specifically covering the monitoring and sampling of various gases. The use of the standard should help reduce the potential risks to people, buildings, and the environment from contaminated land and brownfield sites where toxic gases exist

Policy	Guidance context
Compounds (VOCs)' (Ref 6.24)	
CIRIA C811 (2015), 'Environmental Good Practice On Site Guide'. 5th edition (Ref 6.25)	The guide provides up to date practical guidance on delivering sustainable construction at the site level, which includes ecology, protected species and habitats, historic environments and archaeological remains, land contamination, nuisance (e.g. noise, vibration, lighting, dust, emissions, odours), resources (e.g. energy, materials, water and waste), and traffic and travel arrangements, and vehicle use.
BS 8485 (2015+A1:2019), 'Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings' (Ref 6.26)	The standard describes how to characterise sites and prevent the entry of toxic, asphyxiating or explosive ground gases.
CIRIA C665 (2007), 'Assessing Risks Posed by Hazardous Ground Gases to Buildings' (Ref 6.27)	The guidance consolidates good practice in investigation, the collection of relevant data and monitoring programmes in a risk-based approach to gas contaminated land.
Design Manual for Roads and Bridges (DMRB), 'LA 109 Geology and Soils' (Ref 6.28)	This document provides the assessment and reporting requirements for effects of highway projects on geology and soils. Covering the principles and purpose, assessment methodology and monitoring requirements.
DMRB, 'LA 104 Environmental Assessment and Monitoring' (Ref 6.29).	This document sets out the requirements for environmental assessment of projects, including reporting and monitoring of significant adverse environmental effects.
DMRB, 'LA 113 Road Drainage and the Water Environment' (Ref 6.30)	This document describes the requirements for assessment and management of the impacts that road projects can have on the water environment.
CL:AIRE, 'Definition of Waste: Development Industry Code of Practice' (Ref 6.31)	A code of practice that provides a framework which allows the re-use of excavated materials on site or their transfer between sites, without having to classify the material as waste.
Ministry of Agriculture, Fisheries and Food, Agricultural Land Classification, 1988 (Ref 6.32)	Ministry of Agriculture, Fisheries and Food, Agricultural Land Classification, 1988 provides revised criteria for grading the quality of agricultural land using the Agricultural Land Classification (ALC) of England and Wales. This provides a framework for classifying land

Policy	Guidance context
	according to the extent to which its physical or chemical characteristics impose long-term limitations on agricultural use.
Defra, Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, 2009 (Ref 6.33)	Defra, Construction Code of Practice for the Sustainable Use of Soils on Construction Sites, 2009 was developed to assist anyone involved in the construction sector to better protect the soil resources with which they work through pre-construction planning and soil management during construction.
IEMA, A New Perspective on Land and Soil in EIA, 2022 (Ref 6.34)	IEMA, A New Perspective on Land and Soil in EIA, 2022 is a handbook on the current state of land and soil in EIA. It is part position paper, part educational resource and part methodological guidance it provides a framework rather than rigid approach to assessing soil functions and services.
Institute of Quarrying, Good Practice Guide for Handling Soils in Mineral Workings, 2021 (Ref 6.35)	Institute of Quarrying, Good Practice Guide for Handling Soils in Mineral Workings, 2021 was produced for mineral planners and restoration specialists when using combinations of earth-moving machinery for soil stripping, storage and replacement. The guidance succeeds Defra guidance and is applicable to civil engineering and the wider construction sectors.
Welsh Assembly Government, TAN 6: Planning for Sustainable Rural Communities, 2010 (Ref 6.36)	Welsh Assembly Government, Technical Advice Note (TAN) 6 Planning for Sustainable Rural Communities, 2010 provides practical guidance on the role of the planning system in supporting the delivery of sustainable rural communities, including development involving agricultural land.
Welsh Assembly Government, The Code of Good Agricultural Practice for the Protection of Water, Soil and Air for Wales No. 20, 2011 (Ref 6.37)	Welsh Assembly Government, The Code of Good Agricultural Practice for the Protection of Water, Soil and Air for Wales No. 20, 2011 draws together advice on good agricultural practice to reduce the risk of pollution to air, soil and water
British Society of Soil Science, Guidance Document 3 Working with Soil Guidance Note on Benefitting from Soil Management in Development and Construction, 2022 (Ref 6.38)	British Society of Soil Science, Guidance Document 3 Working with Soil Guidance Note on Benefitting from Soil Management in Development and Construction, 2022 recommends that planning consents for the development of green field sites are conditional on the production and implementation of a comprehensive and site-specific Soil Resource Survey and Soil Management Plan, the results of which are a consideration at the design stage of a development.

7. Water Quality, Resources and Flood Risk

7.1 Legislation

7.1.1 All applicable legislation to Water Quality, Resources and Flood Risk is provided in **Table 7-1**.

Table 7-1 – Relevant Water Quality, Resources and Flood Risk Legislation

Legislation	Legislation Context
Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 (Ref 4.16).	These Regulations transposed the EU Water Framework Directive (2000/60/EC) (WFD) (Ref 7.1). into UK domestic law and replace the original Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 (Ref 7.2). The WFD establishes a legislative framework for the protection of surface waters (including rivers, lakes, transitional waters and coastal waters) and groundwater throughout the EU. A fundamental requirement of the WFD is for each defined water body to attain 'Good' ecological status, or 'Good' ecological potential by December 2027 at the latest and to ensure that any deterioration in status is prevented.
The Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015 (Ref 7.3)	The WFD Directions 2015 set out the environmental standards to be used for the second cycle of river basin plans. Along with the Water Environment (WFD) (England and Wales) Regulations 2003, they transposed Directive 2013/39/EC on environmental quality standards for priority substances.
Flood and Water Management Act 2010 (Ref 7.4).	The Flood and Water Management Act 2010 sets out the Government's proposals to improve flood risk management, water quality and ensure water supplies are more secure. The Act includes consideration and responsibilities for managing flood risk and drainage, including the use of sustainable drainage systems (SuDS).
Water Resources Act 1991 (Ref 6.4) and Water Act 2003 (Ref 6.2).	The Water Resources Act 1991 states that it is an offence to cause or knowingly permit polluting, noxious, poisonous or any solid waste matter to enter controlled waters. The Water Resources Act 1991 was amended by the Water Act 2003, which sets out regulatory controls for water abstraction, water impoundment and protection of water resources.
Land Drainage Act 1991 (Ref 6.6) and Land Drainage Act 1994 (Ref 7.5)	The Land Drainage Act 1991 and 1994 (as subsequently amended), in combination with the Water Resources Act 1991, stipulates that before work on or near an 'Ordinary Watercourse' is carried out an Ordinary Watercourse Consent (OWC) is required. The Flood

Legislation	Legislation Context
	Defence Consent regime for 'Main Rivers', which used to be part of this Act, was replaced by Flood Risk Activity Permits (FRAPs) under the Environmental Permitting (England and Wales) Regulations 2016 (Ref 6.9).
Environmental Protection Act 1990 (Ref 7.6).	The Environmental Protection Act 1990 makes provision for the improved control of pollution arising from certain industrial and other processes. It re-enacts the provisions of the Control of Pollution Act 1974 relating to waste on land, including modifications to the functions of the regulatory and other authorities concerned in the collection and disposal of waste, and makes further provision in relation to such waste.
Control of Pollution Act 1974 (Ref 7.7).	The Control of Pollution Act 1974 makes further provision with respect to waste disposal, water pollution, noise, atmospheric pollution and public health.

7.2 National Policy

7.2.1 All applicable national policy to Water Quality, Resources and Flood Risk is provided in **Table 7-2**.

Table 7-2 – Relevant Water Quality, Resources and Flood Risk National Policy

Policy	Policy Context
PPW – Edition 12 (Ref 2.4).	The PPW aims to protect water bodies from pollution and deterioration in line with the Water Framework Directive (Ref 4.16), encouraging developments to incorporate Sustainable Drainage Systems (SuDS) to manage run-off and prevent contamination. Development proposals must ensure that wastewater infrastructure has sufficient capacity, and particular attention is given to preventing nutrient pollution, including phosphates, especially near protected sites. The PPW advocates for the efficient use of water through design and infrastructure planning, promoting resilience to water scarcity and climate change. The document also reinforces a precautionary, risk-based approach to flood risk management, directing development away from areas at high risk of flooding unless fully justified and safe. Climate change projections must be considered in all planning decisions, and SuDS are mandatory for most new developments to manage surface water sustainably. The guidance is closely tied to TAN 15 (Ref 7.8), ensuring flood risk is properly assessed and mitigated, with support for natural flood management approaches where appropriate.
Future Wales: The National Plan 2040 (Ref 3.4).	The plan supports the protection and enhancement of water quality through sustainable placemaking and requires development to be aligned with the principles of the Water Framework Directive (Ref

Policy	Policy Context
	4.16). It emphasises the need to manage water demand efficiently and promotes integrated water resource planning, particularly in light of climate change. Future Wales recognises the critical role of green infrastructure and natural processes in managing surface water and mitigating pollution. The plan reinforces the need to direct development away from areas at high risk of flooding and supports the implementation of natural flood management solutions. It promotes a strategic approach to flood risk that considers catchment-wide solutions, long-term resilience, and the increasing risks posed by climate change. The plan also requires major developments to integrate SuDS and contribute to the wider resilience of water and drainage infrastructure.
TAN 15: development, flooding and coastal erosion (Ref 7.8).	Provides guidance in relation to development and flooding. TAN15 takes a precautionary approach to flood risk: • In Flood Zone 2 - Planning applications in Zone 2 require careful consideration and must be consistent with the acceptability considerations set out in section 11 (TAN 15). They must be accompanied by a FCA which clearly describes the flood risk and the risks must be acceptable. Applications for new highly vulnerable development on greenfield land are only appropriate where the site has been allocated in adopted Development Plans. • In Flood Zone 3 - Planning applications in Zone 3 require the strongest justification. No new highly vulnerable development on greenfield land should be permitted in zone 3 regardless of the conclusion of any Flood Consequences Assessments and NRW will not consider these conclusions. Welsh Ministers must be notified of any such proposal a planning authority intends to approve.
National Grid Policy Statement (Transmission) 095 - Flood Mitigation Policy (Ref 7.9).	The policy identifies the need for new and existing sites (or equipment) to meet declared flood resilience levels to ensure the site is safe and operational during flooding events with no loss of supply or risk to system stability.

7.3 Local Policy

7.3.1 Applicable national policy to Water Quality, Resources and Flood Risk is provided in **Table 7-3**.

Table 7-3 – Relevant Water Quality, Resources and Flood Risk Local Policy

Policy	Policy Context
West of Wales Shoreline Management Plan (Ref 7.10).	For The Cob at Porthmadog the SMP identifies a policy of 'Holding The Line', i.e. maintaining and where necessary strengthening the existing line of defence. This policy applies in the short term, (0 to 20 years) medium term (20 to 50 years) and long term (50 to 100 years) because of the economic importance of the benefits provided to the protected area and region by The Cob tidal defences. The documents are set to be reviewed on a ten-year cycle although the SMP3 (due in 2022) has not yet been released and policies may change. If coastal change is observed to be progressing at different rates than previously estimated, the associated policy may be adjusted correspondingly
Anglesey and Gwynedd Joint Local Development Plan 2011 – 2026 (Ref 3.8).	Strategic Policy PS6: Alleviating and Adapting to the Effects of Climate Change Proposals will only be permitted where it is demonstrated with appropriate evidence that they have fully taken account of and responded to the following: Implementing sustainable water management measures in line with the objectives of the Western Wales River Basin Management Plan Locating away from flood risk areas, and aim to reduce the overall risk of flooding in the Plan area and areas outside it, taking account of a 100 years and 75 years of flood risk in terms of the lifetime of residential and non-residential development, respectively, unless it can be clearly demonstrated that there is no risk or that the risk can be managed; Aim for the highest possible standard in terms of water efficiency and implement other measures to withstand drought, maintain the flow of water and maintain or improve the quality of water, including using sustainable drainage systems (in line with Policy PCYFF 6). Policy PCYff3: Design and Place Shaping Proposals, including extensions and alterations to existing buildings and structures will only be permitted provided they conform to the following criteria: Drainage systems are designed to limit surface water run-off and flood risk and prevent pollution Policy PCYff6: Water Conservation Proposals should incorporate water conservation measures where practicable, including Sustainable Drainage Systems (SuDS). All proposals should implement flood minimisation or mitigation

	measures where possible, to reduce surface water run-off and minimise its contribution to flood risk elsewhere.

8. Traffic and Transport

8.1 Legislation

8.1.1 Legislation relevant to Traffic and Transport is provided in **Table 8-1**.

Table 8-1 – Relevant Traffic and Transport legislation

Legislation	Legislation context
Active Travel (Wales) Act 2013 (Ref 8.1).	The Active Travel (Wales) Act 2013 outlines the Welsh Government's commitment of encouraging more people to adopt active travel methods such as walking and cycling. The Act aims to: • Increase public access to the health benefits of active travel. • Reduce greenhouse gas emissions. • Help address issues of poverty and inequality. • Stimulate sustainable economic growth. The Act mandates that planning authorities are responsible for mapping and promoting 'Active Travel' routes for pedestrians and cyclists. Developers must recognise these local active travel routes and ensure that developments are well-connected to the existing network, providing future residents with safe, clear, and direct pathways from their homes to the broader Active Travel network. As this legislation primarily targets residential developments, its relevance to the Project is limited.

8.2 National Policy

8.2.1 National policy relevant to Traffic and Transport is provided in **Table 8-2**.

Table 8-2 – Relevant Traffic and Transport national policy

Policy	Policy context
PPW – Edition 12 (Ref 2.4).	The Welsh Government, through the PPW, reaffirms its dedication to sustainable development. This commitment encompasses the creation and maintenance of well-designed, cohesive communities that support long-term economic well-being while minimising environmental impacts. The planning system is crucial when achieving these goals, promoting developments that are resource-efficient, resilient to climate change, and aligned with the well-being goals of the nation. A core principle of the PPW is the integration of land use planning with transport to foster sustainable development patterns. The Welsh Government aims to create environments that foster integrated living,

Policy	Policy context
	working, and recreational opportunities to promote both physical and mental well-being. This principle is grounded in the efficient use of resources and the proportion of accessible, inclusive and healthy environments. The integration of land use and transport planning in the PPW aims to: • Promote resource and travel efficient settlement patterns. • Enhance access to sustainable transport. • Prioritise active travel and public transport. • Encourage multi-model and sustainable freight movement. • Promote high-quality, inclusive public spaces. • Safeguard and enhance active travel routes. The PPW emphasises the necessity of planning for long-term sustainability. This includes applying notions such as the proximity principle to ensure that development impacts are managed locally, and the precautionary principle which advocates for cost-effective measures to prevent environmental damage before it occurs. The Welsh Government acknowledges that achieving sustainable development requires a collaborative approach. Communities, business, local authorities and the third sector must work together, integrating their priorities and aligning their actions to create sustainable economic benefits and resilient, inclusive environments.
Future Wales: The National Plan 2040 (Ref 3.4).	Future Wales: The National Plan 2040 is the Welsh Government's long-term spatial strategy that outlines how land across Wales should be used and developed over the next two decades. It sets a national framework for planning decisions, aiming to support sustainable growth, address climate change, and improve well-being. The plan aligns with the Well-being of Future Generations (Wales) Act 2015 (Ref 5.9) and guides regional and local development plans. Transport plays a key role in the plan's vision. It promotes a shift away from car dependency by encouraging public transport, walking, and cycling. The plan supports compact, transit-oriented development where homes, jobs, and services are near transport hubs. It prioritises investment in low-carbon transport infrastructure and aims to improve connectivity between urban and rural areas. These efforts are designed to reduce emissions, support economic growth, and ensure equitable access to services across Wales.
National Transport Delivery Plan (2022-2027) (Red 8.2).	The National Transport Delivery Plan (2022-2027) outlines the Welsh Government's strategic approach to developing a more sustainable and efficient transport network across Wales. The plan emphasises reducing car dependency and promoting accessible transport options. The key priorities of the plan include: • Bringing services closer to people to minimise the need for daily car use.

Policy	Policy context
	• Ensuring that transport services and infrastructure are accessible, sustainable, and efficient. • Encouraging behavioural change to support sustainable travel choices. These priorities reflect a commitment to creating a transport system that supports economic growth, reduces environmental impact and improves the quality of life for residents and visitors.

8.3 Local Policy

8.3.1 Local policy relevant to Traffic and Transport is provided in **Table 8-3**.

Table 8-3 – Relevant Traffic and Transport local policy

Policy	Policy context
Anglesey and Gwynedd Joint Local Development Plan 2011 – 2026 (Ref 3.10).	Gwynedd Council and the Isle of Anglesey County Council have jointly adopted a Local Development Plan (JLDP). The JLDP is composed of Written Statements and Proposals Maps. The policies in the plan are supported by the national planning policies mentioned above. The JLDP serves as a 15-year land-use strategy aimed at promoting sustainable development across Gwynedd and the Isle of Anglesey. The plan seeks to: • Guide the development of housing, retail and employment infrastructure. • Include policies to assist the Local Planning Authority in making planning decisions. • Protect areas to maintain and enhance both the natural and built environments. The JLDP includes strategic policies relevant to the Traffic and Transport impacts of the Project: • Policy ISA1: Infrastructure Provision. – This policy ensures that development proposals will only be granted where there is sufficient infrastructure capacity, or where new infrastructure is delivered in a timely manner. If a development creates a direct need for infrastructure improvements not provided by existing services, the proposal must fund these upgrades. Financial contributions may be required for various purposes, including affordable housing, transport infrastructure, public services, and environmental measures. Proposals for improving utility services will be supported, subject to detailed planning assessments. • Policy TRA1: Transport Network Developments.

Policy	Policy context
	— This policy supports improvements to the existing transport infrastructure, provided that they minimise impacts on the built and natural environments and ensure efficient land use. Key criteria for approval include road safety enhancements, especially for cycleways and roadside services, and consideration of alternative transport solutions before new road developments are approved. The policy encourages the transfer between transport modes, including rail, bus, and water-based transport, as well as strategically located facilities for park-and-ride and freight transfer. Large-scale developments are required to submit Transport Assessments and, if necessary, secure a Transport Implementation Strategy. Land is safeguarded for key transport schemes, including improvements to the A487, Llangefni Link-Road, and A5025 for the Wylfa Newydd project. • Policy TRA4: Managing Transport Impacts. — This policy requires proposals to prioritise sustainable transport modes, following a user hierarchy that places pedestrians, people with mobility impairments, and cyclists at the top. Developments should accommodate public transport and ensure safe vehicular access, car and coach parking, and services. Proposals that negatively affect the safety or efficiency of highways, public transport, pedestrian and cycle routes, or public rights of way will be refused. The local authority will assess the degree of harm caused by such impacts on a case-by-case basis. • Policy PCYFF1: Development Boundaries. — This policy defines Development Boundaries for various settlements, including Sub-regional Centres, Urban Service Centres, Local Service Centres, and Villages. Proposals within these boundaries will be approved if they comply with relevant policies in the plan and national planning guidelines. Development outside these boundaries will generally be resisted unless it aligns with specific policies in the plan or national planning regulations. • Strategic Policy PS2: Infrastructure and Developer Contributions. — This policy defines Development Boundaries for various settlements, including Sub-regional Centres, Urban Service Centres, Local Service Centres, and Villages. Proposals within these boundaries will be approved if they comply with relevant policies in the plan and national planning guidelines. Development outside these boundaries will generally be resisted unless it aligns with specific policies in the plan or national planning regulations.

Policy	Policy context
North Wales Joint Local Transport Plan (NWLTP) (Ref 8.3).	The NWLTP outlines joint objectives aimed at fostering economic growth and sustainable employment tackling poverty and enhancing access for rural communities, among other strategic goals aligned with government priorities. The NWLTP, providing a framework for schemes until 2030, highlights several key transport challenges for North Wales, including: • The capacity of strategic trunk roads and rail corridors to ensure the necessary connectivity for goods, people, and freight to ports across the UK. This is essential for supporting economic growth and employment opportunities. • The vulnerability of road and rail networks to both planned and unplanned disruptions, including extreme weather events. • The importance of providing efficient access to, and between, the three Enterprise Zones in North Wales (Deeside, Anglesey and Snowdonia). • The shortage of viable and affordable alternatives to car travel for reaching key employment sites and other essential services. • The necessity for robust road connections from the trunk road network to rural areas to maintain the viability of local businesses and support the preservation of Welsh language and culture.
Mid Wales Local Transport Plan (MWLTP) (Ref 8.4).	The MWLTP, which provides a framework for schemes until 2030, identifies key transport priorities while highlighting the network cohesion of transportation with broader social, economic and health objectives aligned with strategic government goals. The Project must comply with the requirements outlined in these legislation and policy documents, ensuring that the proposals are designed in line with relevant guidance and standards.
Eryri Local Development Plan 2016 – 2031 (Ref 3.12)	The Eryri Local Development Plan 2016–2031 is the statutory planning framework for Snowdonia National Park (Eryri), guiding land use and development decisions over a 15-year period. It aims to protect the park's natural beauty, cultural heritage, and biodiversity while supporting the needs of local communities. The plan balances conservation with sustainable development, ensuring that any growth aligns with the special qualities of the National Park. The plan promotes sustainable and low-impact travel options. It encourages development in locations that reduce the need for car travel, supporting walking, cycling, and public transport. The plan seeks to improve accessibility for residents and visitors while minimising environmental harm. Transport policies are closely tied to the park's goals of reducing carbon emissions.
Eryri Local Development Plan	The Eryri Local Development Plan Review Report 2023 evaluates the performance of the 2016–2031 plan and identifies areas needing

Policy	Policy context
Review Report 2023 (Ref 4.26)	updates or improvement. It reflects changes in national policy, new evidence, and feedback from stakeholders. The review ensures that the plan remains relevant and effective in guiding sustainable development in Eryri National Park. The review reaffirms the importance of sustainable travel in the park. It highlights the need to reduce car dependency, especially given the environmental sensitivity of the area and the high volume of seasonal visitors. The report supports continued investment in active travel infrastructure and public transport services, aiming to improve accessibility for residents while protecting the park's landscape and biodiversity. It notes the importance of integrating transport planning with tourism and community needs, ensuring that mobility solutions align with conservation goals.

8.4 Guidance

8.4.1 Guidance relevant to Traffic and Transport is provided in **Table 8-4**.

Table 8-4 – Relevant Traffic and Transport guidance

Policy	Guidance context
IEMA Guidelines – Environmental Assessment of Traffic and Movement (Ref 8.5).	The IEMA Guidelines – Environmental Assessment of Traffic and Movement (2023) provide updated best practice for assessing the environmental impacts of traffic and movement in development projects. These guidelines replace earlier versions and reflect over 30 years of evolving practice in EIA. The guidelines emphasise a systematic and proportionate approach to evaluating how traffic and movement affect people, places, and the environment. They cover both direct and indirect impacts, including noise, air quality, severance, safety, and accessibility. A key focus is on identifying sensitive receptors—such as schools, hospitals, and residential areas—and understanding how they may be affected by changes in traffic patterns. Transport assessments under these guidelines are expected to consider cumulative effects, modal shift, and climate impacts, aligning with broader sustainability and decarbonisation goals. The guidelines stress the importance of early engagement, scoping, and mitigation planning, ensuring that traffic-related impacts are addressed from the outset of project design.
DMRB CD 123 Geometric Design of at Grade Priority and Signal-Controlled Junctions (Ref 8.6).	DMRB CD 123 – Geometric Design of At-Grade Priority and Signal-Controlled Junctions is a technical standard in the UK's DMRB. It provides detailed requirements and guidance for the geometric layout of junctions where roads meet at the same level, including priority-controlled and signal-controlled intersections.

Policy	Guidance context
	The document consolidates and updates several older standards, aiming to ensure consistency, safety, and efficiency in junction design. It covers aspects such as junction selection, visibility requirements, lane widths, corner radii, and the design of features like ghost islands, diverge tapers, and auxiliary lanes. The guidance is applicable to a range of road types, including single carriageways, dual carriageways, and WS2+1 roads. A focus is on ensuring safe and efficient traffic movement while accommodating different vehicle types and volumes. The standard supports the integration of junctions into wider road networks, with attention to user needs, including pedestrians and cyclists, where appropriate.

9. Air Quality and Emissions

9.1 Legislation

9.1.1 Legislation relevant to Air Quality and Emissions is provided in **Table 9-1**.

Table 9-1 – Relevant Air Quality and Emissions legislation

Legislation	Legislation context
The Environment Act 1995 (Ref 6.3)	The Environment Act 1995 and subsequent amendments relate to a wide range of environmental issues. The Act covers the control of pollution and lays out the responsibility of the governing bodies in the UK responsible for the enforcement of environmental laws. Part IV of the Environment Act 1995 requires that Local Authorities periodically review air quality in their individual areas. This process of Local Air Quality Management (LAQM) is an integral part of delivering the Government's Air Quality Objectives (AQOs).
The Environment Act 2021 (Ref 3.2)	The Environment Act 2021 is made up of eight parts relating to a wide range of environmental issues including air quality. The Act contains amendments to Part 4 of the Environment Act 1995 and amendments of the Clean Air Act 1993 (Ref 9.1).
The Air Quality Regulations (Wales) 2000 (Ref 9.2)	The Regulations provide AQOs for a range of different pollutants. Unlike Air Quality Standards (AQSs), there is no statutory obligation to meet AQOs; AQOs are policy targets often expressed as a maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedances, over a specified averaging period.
The Air Quality Standards (Wales) Regulations 2010/1433 (Ref 9.3)	The Air Quality Standards Regulations report limit values at differing averaging periods for certain pollutants. There are limits provided for the protection of human health for SO2, NO2, Benzene, CO and Pb. Target values have been set for the concentration of PM2.5. A limit value for the concentration of PM2.5 is provided. All limit values included in these Regulations should not be exceeded. This regulation transposes the European Directive 2008/50/EC (as amended) (Ref 9.4) into UK law.
The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018 (Ref 9.5)	The Non-Road Mobile Machinery (NRMM) Regulations provide the requirements relating to gaseous and particulate pollutant emission limits and type-approval for internal combustion engines for non-road mobile machinery.

Legislation	Legislation context
The Environment (Wales) Act 2016 (Ref 4.8)	The purpose of the Environment (Wales) Act 2016 is to enable the Country's resources to be managed in a more proactive, sustainable and joined-up manner. It sets out the legislative framework necessary to tackle climate change. It focuses on sustainable management of natural resources, which includes air quality, but does not explicitly mandate on air quality explicitly.
Environment (Air Quality and Soundscapes) (Wales) Act 2024 (Ref 9.6)	The Environment (Air Quality and Soundscapes) (Wales) Act 2024 seeks to improve the quality of the environment and reduce the impacts of airborne pollution on human health, nature, the environment and economy. It provides a framework for the Welsh Ministers to set targets in relation to air quality and amends existing air quality legislation in relation to local air quality management and other items previously dealt with under the Environment Act 1995. The 2024 Act creates new duties for the Welsh Ministers to take steps to promote awareness of the risks to human health and the natural environment caused by air pollution, and ways of reducing or limiting air pollution.
Well-being of Future Generations (Wales) Act 2015 (Ref 5.9)	The Act requires public bodies in Wales to improve social, economic, environmental, and cultural well-being with a long-term focus. It promotes sustainable development and encourages action to reduce pollution, support healthier communities, and improve environmental outcomes for future generations through integrated planning and decision-making.

9.2 National Policy

9.2.1 National policy relevant to air quality and emissions is provided in **Table 9-2**.

Table 9-2 – Relevant air quality and emissions national policy

Policy	Policy Context
PPW – Edition 12 (Ref 2.4)	The PPW requires public bodies to proactively manage air quality through measures like active travel planning, vegetation buffers, monitoring potential pollution hotspots, and ensuring developments do not worsen air or noise environments. It is aligned with Well-being of Future Generations Act (Ref 5.9) principles.
Future Wales: The National Plan 2040 (Ref 3.4)	The National Plan 2040 embeds air quality as a key component of long-term sustainable planning by promoting low-emission transport, expanding green infrastructure, and setting legally binding air standards in line with World Health Organisation's guidelines. It directs public bodies to reduce exposure to pollutants, integrate air quality considerations into spatial planning, and support active travel and low-carbon transition through strategic regulatory and infrastructure measures.

Policy	Policy Context
The 2007 Air Quality (England) Strategy England, Scotland, Wales and Northern Ireland (Ref 9.8)	The Environment Act 1995 required the adoption of an Air Quality Strategy containing standards, objectives and measures for improving ambient air quality. The 2007 Air Quality Strategy is designed to meet the requirement in the Environment Act 1995 and so has been included in this table. The Strategy provides a framework for improving air quality at a national and local level and supersedes the previous strategy published in 2000. It imposes obligations on local authorities to manage air quality. Central to the Air Quality Strategy are health-based criteria for certain air pollutants. These criteria are based on medical and scientific reports on how and at what concentration each pollutant affects human health and mirror the AQOs set out in the Air Quality Standards (Wales) Regulations 2000/1433. The AQOs are policy targets often expressed as a maximum ambient concentration not to be exceeded, either without exception or with a permitted number of exceedances, over a specified averaging period.
The Clean Air Plan for Wales: Healthy Air, Healthy Wales 2020 (Ref 9.9)	This is Wales' first national strategy to tackle air pollution, with a primary aim of reducing health risks. It outlines a 10-year pathway focused on active travel and clean transport, exploring Clean Air or Low Emission Zones, expanding air-quality monitoring, cutting emissions from domestic burning, agriculture, industry, and boosting green infrastructure and policy integration.

9.3 Local Policy

9.3.1 Local policy relevant to Air Quality and Emissions is provided in **Table 9-3**.

Table 9-3 – Relevant Air Quality and Emissions local policy

Policy	Policy Context
Anglesey and Gwynedd Joint Local Development Plan 2011 – 2026 (Ref 3.10)	The Plan promotes sustainable development while protecting air quality by encouraging active travel, green infrastructure, and careful site design. It includes policies to reduce exposure to air pollution, particularly near major roads, and requires regular monitoring to ensure compliance with national AQSs.

9.4 Guidance

9.4.1 Guidance relevant to Air Quality and Emissions is provided in **Table 9-4**.

Table 9-4 – Relevant Air Quality and Emissions guidance

Guidance	Guidance context
Institute of Air Quality Management (IAQM) Guidance on the assessment of dust from demolition and construction (Ref 9.10)	Guidance on the assessment of dust from demolition and construction' published by the IAQM is adopted for the assessment of dust impacts and the selection of appropriate good practice control measures. This guidance addresses the potential for statutory nuisance by using a more demanding test based on the risk of significant adverse effects on amenity. The guidance provides an approach to the screening of the need for a detailed assessment, and a methodology for carrying out a qualitative assessment of the risk of dust impacts and provides a list of best-practice mitigation measures suited to the assessed risk.
IAQM and Environmental Protection UK (EPUK) Land-Use Planning & Development Control: Planning For Air Quality (Ref 9.11)	Non-statutory best practice guidance jointly issued by Environmental Protection UK (EPUK) and Institute of Air Quality Management (IAQM) (40) sets out principles of scoping and conducting air quality assessments, and how the significance of the effects arising from air quality impacts may be determined, using an impact matrix. This approach has been followed to assess air quality effects from the operational phase of the Project.

10. Noise and Vibration

10.1 Legislation

10.1.1 Legislation relevant to Noise and Vibration is provided in **Table 10-1**.

Table 10-1 – Relevant Noise and Vibration legislation

Legislation	Legislation context
Control of Pollution Act 1974 (Ref 10.1)	The Control of Pollution Act 1974 requires that Best Practicable Means (BPM), as defined in section 72 of the Control of Pollution Act (CoPA), are adopted to control construction noise on any given site. Sections 60 and 61 of the CoPA provide the main legislation regarding enabling works and construction site noise and vibration. If noise complaints are received, a Section 60 notice may be issued by the Local Authority with instructions to cease work until specific measures to reduce noise have been adopted. Section 61 of the CoPA provides a means to apply for prior consent to carry out noise generating activities during construction. Once prior consent has been agreed under Section 61, a Section 60 notice cannot be served provided the agreed measures are maintained on-site.
Environmental Protection Act 1990 (Ref 10.2)	The Environmental Protection Act 1990 (EPA) prescribes a statutory nuisance as noise (and vibration) emitted from premises (including land) that is prejudicial to health or a nuisance. Local Authorities are required to investigate any public complaints of noise, and if they are satisfied that a statutory nuisance exists, or is likely to occur or recur, they must serve a noise abatement notice. A notice is served on the person responsible for the nuisance. It requires either simply the abatement of the nuisance or works to abate the nuisance to be carried out, or it prohibits or restricts the activity. In determining if a noise complaint amounts to a statutory nuisance the Local Authority can take account of various guidance documents and existing case law as no statutory noise limits currently exist for defining a statutory nuisance. Demonstrating the use of BPM to minimise noise levels is an accepted defence against a noise abatement notice.

10.2 National Policy

10.2.1 National policy relevant to Noise and Vibration is provided in **Table 10-2**.

Table 10-2 – Relevant Noise and Vibration national policy

Policy Reference	Policy context
PPW – Edition 12 (Ref 2.4)	Paragraph 6.7.6 advises: "*In proposing new development, planning authorities and developers must, therefore:* • *Address any implication arising as a result of its association with, or location within, air quality management areas, noise action planning priority areas or areas where there are sensitive receptors;* • *Not create areas of poor air quality or inappropriate soundscape; and* • *Seek to incorporate measures which reduce overall exposure to air and noise pollution and create appropriate soundscapes".* Paragraph 6.7.26 advises: *"Planning authorities must consider the potential for temporary environmental risks, including airborne pollution and surface and subsurface risks, arising during the construction phases of development. Where appropriate planning authorities should require a construction management plan, covering pollution prevention, noisy plant, hours of operation, dust mitigation and details for keeping residents informed about temporary risks".*
Future Wales – the National Plan 2040 (Ref 3.4)	This references the PPW when considering noise from new developments and highlights the importance of reducing noise pollution and making improvements to soundscapes where practicable and feasible to do so.

11. Socio-Economics

11.1 Legislation

11.1.1 Legislation relevant to Socio-Economics is provided in Table **11-1**.

Table 11-1 – Relevant Socio-Economics legislation

Legislation	Legislation context
Environment (Wales) Act 2016 (Ref 4.8)	The Environment (Wales) Act (2016) was introduced by the Welsh Government to manage the natural resources in Wales more sustainably. A policy in the Act is the need to adopt a more integrated approach to managing natural resources to achieve long-term sustainability. The Act placed a duty on Welsh Ministers to set targets for reducing greenhouse emissions and to set carbon budgets, to help transition Wales to a low-carbon economy.
The Planning (Wales) Act 2015 (Ref 5.58	The Planning (Wales) Act (2015) was introduced by the Welsh Government to strengthen the 'plan-led' approach to planning in Wales. The Bill introduces a new legal framework for the Welsh Ministers to prepare a national land use plan, to be known as the National Development Framework (NDF) for Wales. The framework will set out national land use priorities and infrastructure requirements for Wales.
Well-being of Future Generations (Wales) Act 2015 (Ref 5.9)	The Well-being of Future Generations (Wales) Act (2015) was established by the Welsh Government to improve the social, economic, environmental, and cultural well-being of Wales. The Act places a statutory duty on public bodies in relation to sustainable development, based on seven well-being goals. The goals of the Act in the context of the Project are to become ‘prosperous’, ‘resilient’ and ‘globally responsible’.
Health and Well-being Impact Assessment for the Planning (Wales) Bill 2015 (Ref 11.1)	The Health and Well-being Impact Assessment for the Planning (Wales) Bill (2015) is a set of provisions which provide a legislative framework for the operation of the planning system in Wales. The Bill provisions support the Welsh Government’s aims in line with the Programme for Government and reflect how the Welsh Government have put sustainable development at the heart of government. The Bill mentions the following objective in relation to socio-economic impacts: to strengthen the conditions that will enable businesses to create jobs and sustainable economic growth.

11.2 National Policy

11.2.1 National policy relevant to Socio-Economics is provided in **Table 11-2**.

Table 11-2 – Relevant Socio-Economics national policy

Policy	Policy context
PPW – Edition 12 (Ref 2.4)	PPW gives importance to sustainable development and the vision for Wales to become economically, socially and environmentally sustainable. PPW places emphasis on the improvement of well-being in all its aspects as defined by the statutory well-being goals. The policies show a plan for future resilient urban areas and rural communities, embracing technology and innovation, including smart working, anticipating progress to ensure that Wales is proactive in planning decisions.
Future Wales – The National Plan 2040 (Ref 3.4)	Future Wales – The National Plan 2040 (2021) is the National Development Framework (NDF) for Wales up to 2040. It addresses key national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate resilience, and improving the health and well-being of communities.
The UK's Modern Industrial Strategy (Ref 11.2)	The UK's Modern Industrial Strategy sets out the UK Government's long-term plan to drive economic growth through investment in key sectors and infrastructure. It commits to reducing industrial electricity costs, accelerating grid connections, and investing in clean energy. The strategy also refers to renewed partnership with Wales through close collaboration with devolved governments.
Building Better Places (Ref 11.3)	The Building Better Places publication aims to support improvements in placemaking in Wales as a direct response to the COVID-19 pandemic. It sets out the following relevant issues to address: staying local: creating neighbourhoods; changing working practices: future need for employment land; reawakening Wales' tourism and cultural sectors; and green infrastructure, health and well-being and ecological resilience.
Ten Point Plan for a Green Industrial Revolution (Ref 11.4)	The UK Government has set out plans to meet net zero targets by 2050 through their Ten Point Plan. The Ten Point Plan will mobilise £12 billion of government investment, and potentially three times as much from the private sector, to create and support up to 250,000 green jobs.
Stronger, Fairer, Greener Wales - Net Zero Skills Action Plan (Ref 11.5)	The Net Zero Skills Action Plan sets out seven areas of action to support the Welsh economy whilst simultaneously transitioning away from a fossil-fuelled economy. The seven areas are: gain an understanding of the current skills position for each emission sector; build a shared understanding of net zero skills across Wales; grow a skilled workforce to meet net zero commitments; strengthen the skills system; promote opportunities for early years and young people to

Policy	Policy context
	realise their potential; cross-government and partnership approach to meet skills commitment; and just transition. The Welsh Government has outlined 36 actions, for the short, medium and long term to transition to a net zero economy.
Net Zero Wales Carbon Budget 2 (2021-25) (Ref 11.6)	The Welsh Government released the Carbon Budget 2 in 2021 following the declaration of a climate emergency in Wales in 2019. The Plan sets out 123 policies and proposals, alongside commitments and action from every corner of Wales.
Welcome to Wales - Priorities for the Visitor Economy 2020-25 (Ref 11.7)	The Welcome to Wales - Priorities for the Visitor Economy 2020-25 (Welsh Government, 2020) sets out the plan for tourism in Wales to drive sustainable growth and for harnessing the visitor economy for wider gain. The document advises that '*More than 9% of the workforce in Wales is now employed in tourism. It is one of the country's fastest growing sectors and benefits many rural areas as the main driver of the economy and source of employment'*. The policy focuses on economic growth that delivers benefits for people and places, including environmental sustainability, social and cultural enrichment and health benefits.
Welsh Government Economic Resilience and Reconstruction Mission (Ref 11.8)	The Economic Resilience and Reconstruction Mission sets out how Welsh Government will address the socio-economic impact of the coronavirus pandemic, to recover from the economic damage of the pandemic and reconstruct the economy to help its people, businesses, and communities to prosper. The Mission is underpinned by five beacons to help achieve its vision of a well-being economy which drives prosperity, is environmentally sound, and helps everyone realise their potential: strengthening the foundational economy; protecting and enabling skills and employment; accelerating adaptation for recovery and future prosperity; magnetising investment in a green recovery; and fortifying the pursuit of social value.
UK's Integrated National Energy and Climate Plan (Ref 11.9)	To realise the opportunities presented by the transition to net-zero, the UK Government has placed Clean Growth as one of the four 'Grand Challenges' in the Industrial Strategy. The Integrated National Energy and Climate plan (INECP) published by the Department for Business, Energy and Industrial Strategy (now the Department for Energy Security and Net Zero (DESNZ)) in 2020 sets out the Government's targets relative to climate change. Two of the aims are related to socio-economics: Support the growth of the UK low-carbon economy: Between 2015 and 2030, the UK low-carbon economy could grow more than four times faster than the rest of the economy, supporting up to 2 million jobs; and Invest in the UK workforce: ensure people have the right skills to deliver the net-zero transition and thrive in the high-value jobs that it will create. Substantial spending commitments to develop relevant

Policy	Policy context
	skills in STEM, digital and technical industries have been proposed to the education system.

11.3 Regional Policy

11.3.1 Regional policy relevant to Socio-Economics is provided in **Table 11-3.**

Table 11-3 – Relevant Socio-Economic regional policy

Policy	Policy context
North Wales Regional Economic Framework (Ref 11.10)	The North Wales Regional Economic Framework was published in 2022 by the Welsh Government, highlighting plans to improve the lives of people across North Wales and create innovative opportunities, allowing communities to thrive. Many of the priorities are of relevance to socio-economics including skills and workforce; investment in hubs, supply chains, research and development and innovation; balanced support for indigenous and inwards investment; creating a vibrant micro and/or SME base; and improving connectivity (both transport and digital).
A Growth Vision for the Economy of North Wales (Ref 11.11)	The Growth Vision for the Economy of North Wales was produced in 2016 by the North Wales Economic Ambition Board, outlining its vision for economic and employment growth for North Wales. The Vision aims to achieve this through collaboration and partnership, working with a strong private sector involvement. The Vision entails three priorities necessary for its implementation: Priority 1: Improve the infrastructure across the region to facilitate and enable economic investment and unlock the economic potential of North Wales; upgrade digital technology to be a key enabler for productivity, innovation and international trade growth; and improve access to employment sites and reduce traffic congestion. Priority 2: Improve and upgrade the region's skill base and provide employment growth to improve the supply of advanced skills in high-value economic clusters; minimise skill mismatch between employers and employees; retain high-skill workers by providing an attractive employment proposition; and ensure the education system becomes more demand-led and reflects the jobs required by employers. Priority 3: Promote and support business growth and innovation by strengthening supply chains in the region; creating a highly supportive and competitive environment for businesses; allowing businesses to capitalise on major private sector investment schemes; ensuring appropriate research and development resources are available in the region for businesses; and improving market initiatives to attract investment, especially in the high-value economic clusters.

Policy	Policy context
North Wales Energy Strategy (Ref 11.12)	The Welsh Government (with support from the North Wales Economic Ambition Board and regional stakeholders) delivered the North Wales Energy Strategy (2020) to define a pathway identifying key interventions to deliver on the region's ambitions for decarbonising its energy system and ensure the region benefits from the transition. The policy sets out the vision for North Wales of 'Delivering maximum local economic, social, ecological and wellbeing benefits from transitioning to a net zero economy and becoming a net exporter of low carbon electricity through cross-border and regional cooperation'.

11.4 Local Policy

11.4.1 Local policy relevant to Socio-Economics is provided in **Table 11-4**.

Table 11-4 – Relevant Socio-Economics local policy

Policy	Policy context
Anglesey and Gwynedd Joint Local Development Plan 2011 – 2026 (Ref 3.10)	The Anglesey and Gwynedd Joint Local Development Plan (LDP) 2011 – 2026 was adopted by the Gwynedd and Isle of Anglesey County Councils in 2017, setting out the strategy and aims for development and land use in the area covered by the Anglesey and Gwynedd Planning Authorities in the 15-year period. The Plan provides guidance regarding the location of new houses, employment opportunities, leisure and community facilities and aims to principally strengthen communities in Gwynedd and Anglesey. Cyngor Gwynedd and the Isle of Anglesey County Councils decided to cease the joint working agreement on Planning Policy matters on 31st March 2023; a new Gwynedd LDP covering a period between 2024 and 2039 is being developed. The Anglesey and Gwynedd Joint LDP continues to provide the local policy framework for decisions on planning applications, until this Gwynedd LDP is adopted. The Joint LDP has three key objective themes: support and create safe, healthy, distinctive and vibrant communities; support sustainable living ensuring that developments support the principles of sustainable development; and support growth and regeneration that will transform the local economy, building on those elements of its unique economic profile that are identified as being of regional and national significance. The following policies are relevant to socio-economics: Policy ISA2: Community facilities - aims to protect existing community facilities and encourage the development of new facilities where appropriate. Policy ISA4: Safeguarding existing open space - Proposals that will lead to the loss of existing open space which has significant recreational, amenity or wildlife value will be refused unless they

Policy	Policy context
	conform to certain criteria: there is an overall surplus of provision in the community; the long term requirement for the facility has ceased; alternative provision of the same standard can be offered in an area equally accessible to the local community in question; and the redevelopment of only a small part of the site would allow the retention and enhancement of the facility as a recreational resource. Strategic Policy PS4: Sustainable transport, development and accessibility - The Councils will support improvements that maximise accessibility for all modes of transport, but particularly by foot, cycle and public transport. Strategic Policy PS5: Sustainable development - Development will be supported where it is demonstrated that it is consistent with the principles of sustainable development. Proposals should: give priority to effective use of land and infrastructure; protect, support and promote the use of the Welsh language; alleviate the causes of climate change; promote greater self-containment of Centres and Villages by contributing to balanced communities; preserve and enhance the quality of the built and historic environment; protect and improve the quality of the natural environment; reduce the effect on local resources, avoiding pollution and incorporating sustainable building principles; and reduce the amount of water used and wasted. Policy PCYFF 2: Development criteria - sets out the priority criteria, which new development will need to meet, in principle, in achieving sustainable and appropriately located development. Proposals should demonstrate its compliance with relevant policies in the Plan and national planning policy and guidance. Policy PCYFF3: Design and place shaping - proposals are expected to demonstrate high quality design which fully takes into account the natural, historic and built environmental context and contributes to the creation of attractive, sustainable places. Innovative and energy efficient design will be particularly encouraged.
Anglesey and Gwynedd Well-being Plan 2023-28 (Ref 11.13)	The Anglesey and Gwynedd Well-being Plan 2023-28 was produced in 2023, following the completion of local well-being assessments for Anglesey and Gwynedd in 2022. Using the evidence from these assessments, the Plan aims to improve the economic, social, environmental and cultural well-being of Anglesey and Gwynedd in line with the Well-being of Future Generations Act (Wales) 2015. The Plan has three primary objectives: mitigate the effect of poverty on the well-being of local communities; improve the well-being of children and young people to realise their full potential; and work collaboratively to support services and communities in the progress to a net-zero future.
Eryri Local Development Plan 2016 – 2031 (Ref 3.12)	The Eryri Local Development Plan (LDP) 2016 – 2031 was adopted in February 2019 by the Snowdonia National Park Authority and builds on the LDP's predecessor (Eryri LDP 2007 – 2022). The LDP sets out the strategy and aims for development, land use, and

Policy	Policy context
	management of other natural resources. The LDP focuses solely on the area designated as Eryri National Park and is therefore subject to development policies that apply to National Parks in the UK. The LDP is split into five sub-sections, covering the natural environment, the cultural and historic environment, healthy and sustainable communities, the rural economy, and accessibility and inclusion. The following policies are relevant to socio-economics: Strategic Policy B: Major Development (B) - Major development will not be permitted in the National Park other than in exceptional circumstances where there is demonstrated to be an overriding public need. Proposals for major development will be subject to the most rigorous examination, with an assessment including the need for development, the cost and scope for siting the development outside the National Park and the consequences and impact on local communities and the local economy. Development Policy 1: General Development Principles (1) - Considers the need to conserve and enhance the 'special qualities' and purposes of the National Park and sets out all requirements that developments have to follow to be permitted, including not having unacceptable adverse impacts on public rights of way, other recreational routes or open country. Development Policy 5: Open space and Green Wedges (5) - defines both public or private open space in or adjacent to the main built-up area of settlements. It sets out that open spaces that contribute to the amenity of residents will be protected from development.
Eryri Local Development Plan Review Report Spring 2023 (Ref 4.26)	The Eryri Local Development Plan (LDP) Review Report Spring 2023 sets out the findings and conclusions of the Eryri National Park Authority's review of the Eryri LDP (2016-2031). The Review was informed by stakeholder engagement and by changes in national legislation and national, regional, and local policy. The review finds that the relevant Strategic Policy B and Development Policy 5 are functioning effectively. The review finds that whilst Development Policy 1 is functioning effectively, it may need to be reconsidered to reflect updated national policies and guidance and to ensure consistency with other revised policies.

11.5 Guidance

11.5.1 Guidance relevant to Socio-Economics is provided in **Table 11-5**.

Table 11-5 – Relevant Socio-Economics guidance

Legislation	Guidance context
TAN 23: Economic Development (Ref 11.14)	TANs have been produced by the Welsh Government, and are to be read in conjunction with planning policy guidance from the Welsh Government. TAN 23 reflects the intersection of economic development with planning policy guidelines. The TAN, paragraph 2.1.2, advises that '*Where economic development would cause environmental or social harm which cannot be fully mitigated, careful consideration of the economic benefits will be necessary. There will of course be occasions when social and environmental considerations will outweigh economic benefit. The decision in each case will depend on the specific circumstances and the planning authority's priorities'*. Regarding low carbon initiatives, the TAN, paragraph 2.1.13, advises that '*the planning system should particularly support the low-carbon economy, innovative business / technology clusters and social enterprises which are defined as businesses that are particularly important in providing opportunities for social groups disadvantaged in the labour market.'*
Additionality Guide (4th Edition) (Ref 11.15)	The Additionality Guide (4th Edition) explains how to assess the additional impact or additionality of local economic growth and housing interventions. Additionality is the extent to which something happens as a result of an intervention that would not have occurred in the absence of the intervention. The guidance includes best-practice benchmark evidence on the scale of each of the additionality factors, reference to new research, additional information and links to guidance on valuing benefits and further sources of helpful guidance. Although this document was officially withdrawn on 24th May 2022, without a replacement, it continues to serve as a cornerstone of best practice guidance for additionality benchmarks. The guide, while no longer officially endorsed, remains highly regarded in the industry due to its comprehensive framework and established benchmarks for assessing additionality. Its use ensures understanding of additional benefits beyond what would have happened without intervention, thereby maintaining standards of accountability and effectiveness in public and private sector initiatives alike.
The Green Book – Appraisal and Evaluation in Central Government (Ref 11.16)	The HM Treasury Green Book (2022) is the guidance for appraisal and evaluation in Central Government. It sets out the foundations for consistency in economic evaluation on how to appraise policies, programmes and projects. HM Treasury Green Book gives guidance to ensure that policies, programs and projects adopted are the best ways to achieve policy objectives and make the best use of public resources.

12. Climate Change

12.1 Legislation

12.1.1 Legislation relevant to Climate Change is provided in **Table 12-1**.

Table 12-1 – Relevant Climate Change legislation

Legislation	Legislation context
United Nations Framework Convention on Climate Change (UNFCCC) Paris Agreement (Ref 12.1)	The Paris Agreement is an agreement in the UNFCCC requiring all signatories to strengthen their climate change mitigation efforts to keep global warming below 2°C (degrees Celsius) and to pursue efforts to limit global warming to 1.5°C this century.
UK Nationally Determined Contribution (NDC) (Ref 12.2)	In 2020, the UK communicated its new NDC to the UNFCCC pursuant to the Paris Agreement. In its latest NDC, the UK has committed to reducing GHG emissions by at least 68% by 2030 compared to 1990 levels.
Climate Change Act 2008 (as amended) (Ref 12.3)	The Climate Change Act 2008 originally set a legally binding target for the UK to reduce its GHG emissions from 1990 levels by at least 80% by 2050. This target was supported by a system of legally binding five-year 'carbon budgets' and an independent body to monitor progress, the Climate Change Committee (CCC). The Act was amended in 2019 by the Climate Change Act 2008 (2050 Target Amendment) Order 2019 (Ref 12.4) to revise the existing 80% reduction target and legislate for net-zero emissions by 2050. In December 2020, the CCC published its 6th recommended carbon budget of 965 $MtCO_2e$ (million tonnes of carbon dioxide equivalent), denoting a reduction in GHG emissions of 78% by 2035 relative to 1990, reflecting the amended trajectory to net zero by 2050. The sixth carbon budget was ratified in June 2021.
The Climate Change (Interim Emissions Targets) (Wales) (Amendment) Regulations 2021 (Ref 12.5)	In March 2021, Senedd Cymru approved the Climate Change (Interim Emissions Targets) (Wales) (Amendment) Regulations 2021 that enforce a carbon net-zero target for 2050. Based on advice from the CCC, Senedd Cymru has set an interim target of a 63% reduction from the 1990 baseline in GHG emissions for 2030. Following the 2030 target, an interim 2040 target imposes an 89% reduction in GHG emissions from the 1990 baseline.
Environment (Wales) Act 2016 (Ref 4.8)	The Environment (Wales) Act 2016 provides the Welsh Ministers with powers to put in place statutory emission reduction targets, including at least a 100% reduction in GHG emissions by 2050 and carbon budgeting to support their delivery. This sets a clear pathway for decarbonisation in the context of existing UK obligations.

Legislation	Legislation context
Well-being of Future Generations (Wales) Act 2015 (Ref 5.9)	The Well-being of Future Generations (Wales) Act 2015 requires public bodies to consider long-term sustainability in their decisions. It promotes climate resilience through its goal of creating a "Resilient Wales", encouraging adaptation to climate risks, and a "Globally Responsible Wales", focused on reducing GHG emissions. In May 2024, the Welsh Government announced the inclusion of eight additional public sector bodies under the Well-being of Future Generations (Wales) Act 2015. This expansion broadens the scope and impact of Wales's sustainable development agenda, reinforcing its central role in shaping a more sustainable future for Wales.
EIA Directive 2014/52/EU (Ref 12.6)	The EIA Directive 2014/52/EU describes the importance of considering climate change and GHG emissions in EIAs: *"Climate change will continue to cause damage to the environment and compromise economic development. In this regard, it is appropriate to assess the impact of projects on climate (for example greenhouse gas emissions) and their vulnerability to climate change."*

12.2 National Policy

12.2.1 National policy relevant to Climate Change is provided in **Table 12-2**.

Table 12-2 – Relevant Climate Change national policy

Policy	Policy context
Working Together to Reach Net Zero: All-Wales Plan April 2022 Update (Ref 12.7)	The plan outlines Wales's strategy to achieve net-zero GHG emissions by 2050. It provides sector-specific targets for reducing GHG emissions, which are key to assessing a project's alignment with national targets. The plan highlights the importance of building climate resilience, ensuring that projects are designed to withstand future climate impacts like flooding and extreme weather.
PPW – Edition 12 (Ref 2.4**Error! Reference source not found.**)	The PPW sets out policies relevant to climate change. The PPW emphasises improving climate resilience by ensuring infrastructure is designed to cope with future risks, such as flooding and extreme weather. Additionally, the policy aims to reduce GHG emissions by encouraging sustainable construction methods, the use of renewable energy, and the incorporation of sustainable transport into new infrastructure.
Future Wales – the National Plan 2040 (Ref 3.4)	The 'Future Wales – the National Plan 2040' is the Welsh Government's national development framework which sets out the direction for development in Wales up to 2040. It is a development plan with a strategy for addressing key national priorities through the planning system, including sustaining and developing a vibrant economy, achieving decarbonisation and climate resilience,

Policy	Policy context
	developing strong ecosystems and improving the health and well-being of communities.

12.3 Guidance

12.3.1 Guidance relevant to Climate Change is provided in **Table 12-3**.

Table 12-3 – Relevant Climate Change guidance

Guidance	Guidance context
IEMA – Environmental Impact Assessment Guide to: Climate Change Resilience and Adaption (Ref 12.8)	This guidance provides a structured approach for integrating climate adaptation into project planning and design. It outlines practical steps for identifying climate change risks, evaluating their significance, and incorporating appropriate adaptation and mitigation measures in the EIA process. The document encourages the use of credible climate projections, such as those from the UK Climate Projections 2018 (UKCP18), and risk-based assessment methodologies to ensure developments are resilient to future climate conditions.
IEMA - Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance – 2nd Edition (Ref 12.9)	In 2022, IEMA updated its guidance emphasising the importance of all GHG emissions in achieving the UK's net-zero target. The guidance moves away from emission thresholds, highlighting that all emissions, regardless of scale, cumulatively contribute to climate change. It recommends evaluating emissions in national and global decarbonisation contexts. The guidance encourages using climate scenarios aligned with the Paris Agreement. It sets clear criteria for assessing GHG significance, including effective mitigation, alignment with decarbonisation policies, and contribution to the UK's net-zero trajectory.

13. Materials and Waste

13.1 Legislation

13.1.1 Legislation relevant to Materials and Waste is provided in **Table 13-1**.

Table 13-1 – Relevant Materials and Waste legislation

Legislation	Legislation context
Environmental Protection Act 1990 (Ref 10.2)	This Act establishes the fundamental structure and authority for waste management. This includes legal responsibilities for waste collection, removal, and disposal, and Section 34 establishes a duty of care for those involved with waste management.
Hazardous Waste (England and Wales) Regulations 2005 (as amended) (Ref 6.12)	These Regulations set out the regime for the control and tracking of the movement of hazardous waste for the purpose of implementing the Hazardous Waste Directive (Directive 91/689/EC).
Waste (England and Wales) Regulations 2011 (as amended) (ref 13.1)	These provisions regulate the management and disposal of waste in England and Wales. The primary purpose of these Regulations is to promote the efficient use of resources, reduce environmental harm, and encourage recycling and recovery of waste materials.
Environmental Permitting (England and Wales) Regulations 2016 (as amended) (Ref 6.9)	These Regulations provide a consolidated system of environmental permitting in England and Wales including permitting of waste management facilities.
Environment Act 2021 (Ref 3.2).	The Environment Act offers powers to set new binding targets, including for waste reduction and sets out the legal framework for reforms to local authority waste and recycling services.
The Environment (Wales) Act 2016 (Ref 4.8)	This Act gives powers to the Welsh Ministers in relation to waste recycling (including the separate collection of waste) and food waste treatment.
The Waste Separation Requirements (Wales) Regulations 2023 (Ref 13.2)	These Regulations set out waste separation requirements in Wales (for the purposes of section 45AA of the Environmental Protection Act 1990 (c. 43) (the “1990 Act”)) with the aim of ensuring that waste is managed in a manner that promotes high quality recycling.

13.2 National Policy

13.2.1 National policy relevant to Waste and Materials is provided in **Table 13-2.**

Table 13-2 – Relevant Materials and Waste national policy

Policy	Policy context
PPW – Edition 12 (Ref 2.4)	PPW sets out the land use planning policies of the Welsh Government including policy for making best use of material resources and promoting the circular economy.
Future Wales: The National Plan 2040 (Ref 3.4)	The Plan sets requirements for Strategic Development plans to establish a co-ordinated framework for minerals extraction and the circular economy, including waste treatment and disposal.
Beyond Recycling: A Strategy to Make the Circular Economy in Wales a Reality (Ref 13.3)	This presents Welsh Government policy setting out actions to accelerate Wales' journey towards a circular economy.
Towards Zero Waste, One Wales: One Planet – The Overarching Waste Strategy Document for Wales (Ref 13.4)	This overarching waste strategy document for Wales sets out a long term framework for resource efficiency and waste management between now and 2050. It identifies the outcomes the Government wishes to achieve, sets high level targets and lays out the general approach to delivering these targets and other key actions.
Towards Zero Waste, One Wales: One Planet – The Waste Prevention Programme for Wales (Ref 13.5)	The Waste Prevention Programme supports Towards Zero Waste by describing the outcomes, policies, targets and outline work programme to address waste prevention from businesses and households.

13.3 Local Policy

13.3.1 Local policy relevant to Waste and Materials is provided in **Table 13-3.**

Table 13-3 – Relevant Materials and Waste local policy

Policy	Policy context
Anglesey and Gwynedd Joint Local Development Plan 2011 – 2026 (Ref 3.10)	This Plan identifies active and proposed waste and minerals sites, as well as areas safeguarded for potential mineral extraction on Anglesey and in Gwynedd.
Eryri Local Development Plan 2016 – 2031 (Ref 3.12)	Identifies active and proposed waste and minerals sites, as well as areas safeguarded for potential mineral extraction in the Eryri National Park.

13.4 Guidance

13.4.1 Guidance relevant to Waste and Materials is provided in **Table 13-4**.

Table 13-4 – Relevant Materials and Waste guidance

Legislation	Guidance context
IEMA Guide to Materials and Waste in Environmental Impact Assessment, Guidance for a Proportionate Approach (Ref 13.6)	This provides best practice guidance to conducting a materials and waste impact assessment as part of an environmental impact assessment in the UK.
CL:AIRE Definition of Waste: Development Industry Code of Practice (DoW CoP), v2 (2011) (Ref 6.31)	This CoP provides a framework that allows excavated materials (such as soil and aggregates) to be classified as non-waste when used on the same site or a defined development site, provided certain conditions are met. It helps the construction and development industry manage materials sustainably by promoting reuse, minimising waste disposal, and ensuring compliance with environmental regulations.
Waste and Resources Action Programme (WRAP) Designing Out Waste: A Design Team Guide for Civil Engineering (Ref 13.7)	This Guide provides practical strategies for design teams to reduce waste and optimize resource efficiency from the earliest project stages. It encourages integrating waste reduction into design decisions through measures such as material optimisation, modular design, efficient construction methods, and early collaboration across disciplines.
Separate Collection of Waste Materials for Recycling – A Code of Practice for Wales (Ref 13.8)	This mandates that waste collectors separate key recyclables—paper, card, glass, metal, plastic and cartons as distinct streams where doing so is technically, environmentally, and economically practicable. In addition, it ensures these streams remain uncontaminated throughout collection and bans separately collected recyclables from being landfilled or incinerated, promoting high-quality material recycling and compliance with the waste hierarchy and Duty of Care.

14. In-Combination Effects

14.1 Legislation

14.1.1 Legislation relevant to In-Combination Effects is provided in **Table 14-1.**

Table 14-1 – Relevant In-combination Effects legislation

Legislation	Legislation context
Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (Ref 2.3)	Part 1, Paragraph 4, (2)(a-e): *'The environmental impact assessment must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of proposed development on the following –* *(a) Population and human health;* *(b) Biodiversity, with particular attention to species and habitats protected under EU- derived domestic legislation which transposed Directive 92/43/EEC(1) and Directive 2009/147/EC(2);* *(c) Land, soil, water, air and climate;* *(d) Material assets, cultural heritage and the landscape; and* *(e) The interaction between the factors listed in sub-paragraphs (a) to (d).'*
Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2017 (Ref 14.1)	Paragraph 7, (2) (a-e): *The environmental impact assessment must identify, describe and assess in an appropriate manner, in light of each individual case, the direct and indirect significant effects of the development on the following factors—* *(a)population and human health;* *(b)biodiversity (for example, fauna and flora), with particular attention to habitats and species protected under any law of any part of the United Kingdom that implemented the Habitats Directive or the Wild Birds Directive;* *(c)land (for example, land take), soil (for example, organic matter, erosion, compaction, sealing), water (for example, hydromorphological changes, quantity and quality), air and climate (for example, greenhouse gas emissions, impacts relevant to adaptation);* *(d)material assets, cultural heritage (including architectural and archaeological aspect) and the landscape;* *(e)the interaction between the factors referred to in sub-paragraphs (a) to (d).*

14.2 National Policy

14.2.1 National policy relevant to In-Combination Effects is provided in **Table 14-2.**

Table 14-2 – Relevant In-combination Effects national policy

Policy	Policy context
PPW – Edition 12 (Ref 2.4)	The PPW 2024 outlines the Welsh Government's long-term strategy for sustainable development. It emphasises the need for potential cumulative effects to be considered as it will be a consideration in making planning decisions. PPW references 'cumulative effects', and not specifically 'in-combination effects'. However, PPW states that consideration in making planning decisions would be given to the different types of effects on a single receptor. For example, paragraph 6.7.16: *'Relevant considerations in making planning decisions for potentially polluting development are likely to include:* • *effect on biodiversity and ecosystem resilience, including where there may be cumulative impacts on air or water quality which may have adverse consequences for biodiversity and ecosystem resilience;'*
Future Wales: The National Plan 2040 (Ref 3.4)	Whilst 'in-combination' effects are not explicitly mentioned in this document there are policies that require no unacceptable adverse effects to, for example, built heritage assets, national statutory designated sites for nature conservation, shadow flicker, noise, reflected light, air quality, electromagnetic disturbance and transport network. The plan emphasizes the importance of sustainable growth and the protection of natural resources, which inherently involves considering in-combination effects of a development.

15. Cumulative Effects

15.1 Legislation

15.1.1 Legislation relevant to Cumulative Effects is provided in **Table 15-1.**

Table 15-1 – Relevant Cumulative Effects legislation

Legislation	Legislation context
Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (Ref 2.3)	Schedule 4, Paragraph 5(e): *'the cumulation of effects with other existing and/or approved projects, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected or the use of natural resources.'*
Electricity Works (Environmental Impact Assessment) (England and Wales) Regulations 2017 (Ref 14.1)	Schedule 4, Paragraph 5(e): *'the cumulation of effects with other existing and approved developments, taking into account any existing environmental problems relating to areas of particular environmental importance likely to be affected and the use of natural resources.'*

15.2 National Policy

15.2.1 National policy relevant to Cumulative Effects is provided in **Table 15-2.**

Table 15-2 – Relevant Cumulative national policy

Policy	Policy context
PPW – Edition 12 (Ref 2.4)	The PPW 2024 outlines the Welsh Government's long-term strategy for sustainable development. It emphasises the need for potential cumulative effects to be considered as it will be a consideration in making planning decisions.
Future Wales: The National Plan 2040 (Ref 3.4)	The Plan specifically refers to the consideration of cumulative effects for renewable and low carbon energy developments of national significance. Although the Project does not meet the definition of a nationally significant project, cumulative impacts are considered to ensure no unacceptable adverse effects to built heritage assets, national statutory designated sites for nature conservation, shadow flicker, noise, reflected light, air quality, electromagnetic disturbance and transport network. The plan emphasises the importance of sustainable growth and the protection of natural resources, which inherently involves considering cumulative effects with other developments.

15.3 Guidance

15.3.1 Guidance relevant to Cumulative Effects is provided in **Table 15-3**.

Table 15-3 – Relevant Cumulative Effects guidance

Legislation	Guidance context
Planning Inspectorate (2019) Advice Note Seventeen: Cumulative Effects Assessment relevant to Nationally Significant Infrastructure (Ref 15.1)	This Note provides advice on the approach to Cumulative Effects Assessment for Nationally Significant Infrastructure Projects. It is not applicable to the Project or its components but is a useful reference on the general method for the assessment of cumulative effects.

Bibliography

Ref 2.1 – HMSO (1990). *Town and Country Planning Act 1990.* Available at: https://www.legislation.gov.uk/ukpga/1990/8/contents. Accessed November 2024.

Ref 2.2 – Welsh Government (2017). Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017. Available at: https://www.legislation.gov.uk/wsi/2017/567/pdfs/wsi_20170567_mi.pdf. Accessed November 2024.

Ref 2.3 – HMSO (1989). *Electricity Act 1989.* Available at: https://www.legislation.gov.uk/ukpga/1989/29/contents. Accessed November 2024.

Ref 2.4 – HMSO (2017) *The Electricity Works (Environmental Impact Assessment (England and Wales) Regulations https://www.legislation.gov.uk/uksi/2017/580/contents*

Ref 2.5 – Welsh Government (2024). *Planning Policy Wales – Edition 12, February 2024*. Available at: https://gov.wales/planning-policy-wales. Accessed November 2024.

Ref 3.1 – Council of Europe (2022). *Council of Europe Landscape Convention*. Available at https://www.coe.int/en/web/conventions/full-list/-/conventions/treaty/176. Accessed October 2024.

Ref 3.2 – HMSO (2021). *Environment Act 2021*. Available at: https://www.legislation.gov.uk/ukpga/2021/30/enacted. Accessed October 2024.

Ref 3.3 – HMSO (1981). *Wildlife and Countryside Act 1981.* Available at: https://www.legislation.gov.uk/ukpga/1981/69. Accessed June 2025.

Ref 3.4 – Welsh Government (2021). *Future Wales: The National Plan 2040*. Available at: https://www.gov.wales/future-wales-national-plan-2040. Accessed October 2024.

Ref 3.5 – Welsh Government (2023) *Technical Advice Note (TAN) 5: Nature conservation and planning*. Available at: https://www.gov.wales/technical-advice-note-tan-5-nature-conservation-and-planning. Accessed October 2024.

Ref 3.6 – Welsh Government (2023) *Technical Advice Note (TAN) 6: Planning for sustainable rural communities*. Available at: https://www.gov.wales/technical-advice-note-tan-6-planning-sustainable-rural-communities. Accessed October 2024

Ref 3.7 – Welsh Government (2023) *Technical Advice Note (TAN) 12: Design*. Available at: https://www.gov.wales/technical-advice-note-tan-12-design. Accessed October 2024.

Ref 3.8 – Welsh Government (2019). *Welsh National Marine Plan.* Available at: https://www.gov.wales/welsh-national-marine-plan. Accessed October 2024.

Ref 3.9 – Ambition North West. *Strategic Development Plan*. Available at: https://ambitionnorth.wales/north-wales-corporate-joint-committee/strategic-development-plan/. Accessed October 2024.

Ref 3.10 – Gwynedd Council (2017). *Anglesey and Gwynedd Joint Local Development Plan 2011 – 2026*. Available at: https://www.gwynedd.llyw.cymru/en/Council/Documents---Council/Strategies-and-policies/Environment-and-planning/Planning-policy/Anglesey-and-Gwynedd-Joint-Local-Development-Plan-Written-Statement.pdf. Accessed October 2024.

Ref 3.11 – Gwynedd Council (2009). *Supplementary Planning Guidance: Landscape Character*. Available at: https://www.gwynedd.llyw.cymru/en/Council/Documents---Council/Strategies-and-policies/Environment-and-planning/Planning-policy/Unitary-Development-Plan/SPG-Landscape-character.pdf. Accessed October 2024.

Ref 3.12 – Snowdonia National Park Authority (2016). *Eryri Local Development Plan 2016–2031.* Available at: https://eryri.gov.wales/wp-content/uploads/2022/01/Cynllun-Datblygu-Lleol-Saesneg.pdf. Accessed March 2025.

Ref 3.13 – Snowdonia National Park (2014). *Supplementary Planning Guidance: Landscapes and Seascapes of Eryri July 2014.* Available at: https://snowdonia.gov.wales/wp-content/uploads/2022/03/Supplementary-Planning-Guidance-7-%E2%80%93-Landscape-and-Seascapes-of-Eryri.pdf. Accessed October 2024.

Ref 3.14 – Snowdonia National Park (2016). *Supplementary Planning Guidance: Landscape Sensitivity and Capacity Assessment October 2016.* Accessed at: https://snowdonia.gov.wales/wp-content/uploads/2022/03/Supplementary-Planning-Guidance-%E2%80%93-Landscape-Sensitivity-and-Capacity-Assessment.pdf. Accessed October 2024.

Ref 3.15 – Eryri National Park Authority (2020). *The Eryri National Park Partnership Plan 2020.* Available at: https://snowdonia.gov.wales/wp-content/uploads/2020/09/Cynllun-Eryri-English-ER.pdf. Accessed October 2024.

Ref 4.1 – HMSO (2018*). Conservation of Habitats and Species Regulations 2017*. Available at: http://www.legislation.gov.uk/uksi/2017/1012/contents/made. Accessed September 2024.

Ref 4.2 – European Commission (EC) (1992). Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora. EC, Brussels.

Ref. 4.3 – European Commission (EC) (2009). Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds (codified version). EC, Brussels.

Ref 4.4 – HMSO (2019). *The Conservation of Habitats and Species (amendment) (EU Exit) Regulations 2019.* Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111176573. Accessed August 2025.

Ref 4.5 – United Nations Educational, Scientific and Cultural Organization (1971). Ramsar Convention on Wetlands of International Importance especially as Waterfowl Habitat.

Ref 4.6 – HMSO (2000). *Countryside and Rights of Way (CRoW) Act 2000.* Available at: https://www.legislation.gov.uk/ukpga/2000/37. Accessed September 2024.

Ref 4.7 – United Nations (1992). Convention on Biological Diversity. Convention on biological diversity, June 1992. UN Environment Programme.

Ref 4.8 – HMSO (2016). *Environment (Wales) Act 2016.* Available at: https://www.legislation.gov.uk/anaw/2016/3/contents. Accessed June 2025.

Ref 4.9 – HMSO (1992). *Protection of Badgers Act 1992*. Available at: https://www.legislation.gov.uk/ukpga/1992/51. Accessed September 2024.

Ref 4.10 – HMSO (1997). *Hedgerow Regulations 1997*. Available at: https://www.legislation.gov.uk/uksi/1997/1160. Accessed September 2024.

Ref 4.11 – HMSO (2019). *The Invasive Alien Species (Enforcement and Permitting) Order 2019*. Available at: https://www.legislation.gov.uk/uksi/2019/527. Accessed September 2024.

Ref 4.12 – Regulation (EU) 1143/2014 on invasive alien species (the IAS Regulation).

Ref 4.13 – HMSO (2006). *Animal Welfare Act 2006*. Available at: https://www.legislation.gov.uk/ukpga/2006/45. Accessed September 2024.

Ref 4.14 – HMSO (1975). *Salmon and Freshwater Fisheries Act 1975*. Available at: https://www.legislation.gov.uk/ukpga/1975/51. Accessed September 2024.

Ref 4.15 – HMSO (2009). *The Eels (England and Wales) Regulations 2009.* Available at: https://www.legislation.gov.uk/uksi/2009/3344. Accessed September 2024.

Ref 4.16 – HMSO (2017). *The Water Environment (WFD) (England and Wales) Regulations 2017*. Available at: https://www.legislation.gov.uk/uksi/2017/407/contents/made. Accessed September 2024.

Ref 4.17 – The Convention on the Conservation of Migratory Species of Wild Animals (Bonn Convention) (1979).

Ref 4.18 – HMSO (2018). *The Trade in Endangered Species of Wild Fauna and Flora (Amendment) (EU Exit) Regulations 2018.* Available at: https://www.legislation.gov.uk/uksi/2018/1408/made. Accessed June 2025.

Ref 4.19 – Convention on the Conservation of European Wildlife and Natural Habitats (Bern Convention) (1979).

Ref 4.20 – HMSO (1990). *Environmental Protection Act 1990*. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents. Accessed June 2025.

Ref 4.21 – HMSO (2006). *Natural Environment and Rural Communities Act 2006.* Available at: https://www.legislation.gov.uk/ukpga/2006/16/contents. Accessed June 2025.

Ref 4.22 – JNCC (2024). *UK Biodiversity Framework*. Available at: https://data.jncc.gov.uk/data/19a729f6-440e-4ac6-8894-cc72e84cc3bb/uk-biodiversity-framework.pdf. Accessed June 2025.

Ref 4.23 – HMSO (1986). Salmon Act 1986. Available at: https://www.legislation.gov.uk/ukpga/1986/62/contents. Accessed June 2025.

Ref 4.24 – Welsh Government (2020). *The Nature Recovery Action Plan for Wales 2020 to 2021*. Available at: https://www.gov.wales/sites/default/files/publications/2020-10/nature-recovery-action-plan-wales-2020-2021.pdf. Accessed September 2024.

Ref 4.25 – The Isle of Anglesey County Council and Gwynedd Council (2022). *Anglesey and Gwynedd Joint Local Development Plan 2011 – 2026. Review Report March 2022*. Available at: https://www.anglesey.gov.wales/documents/Docs-en/Planning/Planning-policy/Local/LDP-2022/Review-Report-Anglesey-and-Gwynedd-Joint-Local-Development-Plan-March-2022.pdf. Accessed September 2024.

Ref 4.26 – Snowdonia National Park Authority. *Eryri Local Development Plan Review Report (2023)*. Available at: https://snowdonia.gov.wales/wp-content/uploads/2023/07/Eryri-Local-Development-Plan-Review-Report.pdf?_gl=1*w4vufu*_ga*NzMzMjU3MTQwLjE3Mjg4OTk0MTI.*_ga_2SRYFPWD50*MTcyOTA3MTM3NC40LjAuMTcyOTA3MTM3NC4wLjAuMA. Accessed September 2024.

Ref 4.27 – HMSO (2023). *Environmental Improvement Plan 2023.* Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1168372/environmental-improvement-plan-2023.pdf. Accessed September 2024.

Ref 4.28 – Cyfoeth Naturiol Cymru/Natural Resources Wales (NRW). *Apply for a protected species licence*. Available at: https://naturalresources.wales/permits-and-permissions/species-licensing/apply-for-a-protected-species-licence/?lang=en. Accessed September 2024.

Ref 4.29 – Stanbury, A., Eaton, M., Aebischer, N., Balmer, D., Brown, A., Douse, A., Lindley, P., McCulloch, N., Noble, D., and Win I. (2021). Birds of Conservation Concern 5. British Birds 114: 723-747.

Ref 4.30 – Johnstone, I. G., Hughes, J., Balmer, D.E., Brenchley, A., Facey, R.J., Lindley, P.J., Noble, D.G. and Taylor, R.C. Online First. Birds of Conservation Concern Wales 4: the population status of birds in Wales. Milvus: the Journal of the Welsh Ornithological Society.

Ref 4.31 – IUCN (2025). *The IUCN Red List of Threatened Species*. *Version 2025-1.* Available at: https://www.iucnredlist.org/. Accessed May 2025.

Ref 4.32 – Joint Nature Conservation Committee (JNCC) on behalf of the Four Countries' Biodiversity Group (4CBG) (2024). *UK Biodiversity Framework*. Available at: https://data.jncc.gov.uk/data/19a729f6-440e-4ac6-8894-cc72e84cc3bb/uk-biodiversity-framework.pdf. Accessed September 2024.

Ref 4.33 – Cyngor Gwynedd. *Nature Gwynedd Biodiversity Action Plan*. Available at: https://www.gwynedd.llyw.cymru/en/Council/Strategies-and-policies/Environment-and-planning/Natur-Gwynedd-Biodiversity-Action-Plan.aspx#:~:text=Natur%20Gwynedd%20is%20the%20Local%20Biodiversity%20Action%20Plan. Accessed September 2024.

Ref 4.34 – Chartered Institute of Ecology and Environmental Management (2024). *Guidelines for Ecological Impact Assessment in the UK and Ireland: terrestrial, freshwater, coastal and marine.* Available at: https://cieem.net/wp-content/uploads/2018/08/EcIA-Guidelines-v1.3-Sept-2024.pdf. Accessed September 2024.

Ref 4.35 – IAQM (2014). Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management.

Ref 4.36 – Institute of Lighting Professionals (2023). Guidance Note 08/23 Bats and Artificial Lighting at Night.

Ref 4.37 – Institute of Lighting Professionals (2021). Guidance Note 1 for the reduction of obtrusive light 2021.

Ref 4.38 – JNCC (2016). Joint Nature Conservation Committee. Handbook for Phase 1 habitat survey – a technique for environmental audit. Available at: https://data.jncc.gov.uk/data/9578d07b-e018-4c66-9c1b-47110f14df2a/Handbook-Phase1-HabitatSurvey-Revised-2016.pdf. Accessed July 2025.

Ref 4.39 – The Mammal Society (1989). *Mammal Society. Surveying for Badgers.* Available at: https://static1.squarespace.com/static/654a3265fcbd755384b0552f/t/67fe5c7e8bc839559453d248/1744723117151/surveying-badgers-1989. Accessed June 2025.

Ref 4.40 – Bat Conservation Trust (2024). *Bat Surveys for Professional Ecologists: Good Practice Guidelines (4th edition).* Available at:

https://www.bats.org.uk/resources/guidance-for-professionals/bat-surveys-for-professional-ecologists-good-practice-guidelines-4th-edition. Accessed June 2025.

Ref 5.1 – Welsh Government (2023). *Historic Environment (Wales) Act 2023*. Available at: https://www.legislation.gov.uk/asc/2023/3/contents. Accessed December 2024.

Ref 5.2 – UK Government (1979). *The Ancient Monuments and Archaeological Areas Act*. Available at: https://www.legislation.gov.uk/ukpga/1979/46. Accessed September 2024.

Ref 5.3 – UK Government (1990). *Planning (Listed Buildings and Conservation Areas) Act*. Available at: https://www.legislation.gov.uk/ukpga/1990/9/contents. Accessed September 2024.

Ref 5.4 – HMSO (2016). *Historic Environment (Wales) Act 2016 (repealed)*. Available at: https://www.legislation.gov.uk/anaw/2016/4/contents. Accessed August 2025.

Ref 5.5 – HSMO (2024). *The Historic Environment (Miscellaneous Amendments) (Wales) Regulations 2024.* Available at: https://www.legislation.gov.uk/wsi/2024/1258/contents/made. Accessed August 2025.

Ref 5.6 – HMSO (2023). *The Historic Environment (Wales) Act 2023 (Consequential Provision) (Primary Legislation) Regulations 2024*. Available at: https://www.legislation.gov.uk/wsi/2024/1061/contents/made. Accessed August 2025.

Ref 5.7 – HMSO (2023). *The Historic Environment (Wales) Act 2023 (Consequential Provision) (Secondary Legislation) Regulations 2024.* Available at: https://www.legislation.gov.uk/wsi/2024/924/made. Accessed August 2025.

Ref 5.8 – UK Government (2015). *Planning (Wales) Act 2015*. Available at: https://www.legislation.gov.uk/anaw/2015/4/contents. Accessed October 2024.

Ref 5.9 – UK Government (2015). *Well-being of Future Generations (Wales) Act 2015*. Available at: https://www.legislation.gov.uk/anaw/2015/2/contents. Accessed October 2024.

Ref 5.10 – Welsh Government (2017). *Planning Policy Wales. Technical Advice Note (TAN) 24: The Historic Environment.* Available at: https://gov.wales/technical-advice-note-tan-24-historic-environment. Accessed September 2024.

Ref 5.11 – Welsh Government / Cadw (2011). *Conservation Principles for the sustainable management of the historic environment in Wales*. Cardiff: Cadw. Available at: https://cadw.gov.wales/advice-support/historic-assets/conservation-principles. Accessed September 2024.

Ref 5.12 – Welsh Government/Cadw (2017). *Heritage Impact Assessment in Wales*. Cardiff: Cadw. Available at: https://cadw.gov.wales/advice-support/placemaking/heritage-impact-assessment/heritage-impact-assessment. Accessed September 2024.

Ref 5.13 – Welsh Government/Cadw (2017). *Setting of Historic Assets in Wales*. Cardiff: Cadw. Available at: https://cadw.gov.wales/advice-support/placemaking/heritage-impact-assessment/setting-historic-assets. Accessed September 2025.

Ref 5.14 – UNESCO (1972). *Convention Concerning the Protection of the World Cultural and Natural Heritage.* Available at: https://whc.unesco.org/en/conventiontext/. Accessed September 2024.

Ref 5.15 – Welsh Government/Cadw (2017). *Managing Change to Listed Buildings in Wales*. Cardiff: Cadw. Available at: https://cadw.gov.wales/advice-support/historic-

assets/listed-buildings/managing-change-to-listed-buildings. Accessed 19 September 2024.

Ref 5.16 – Welsh Government/Cadw (2017). *Managing Change to Registered Historic Parks and Gardens in Wales*. Cardiff: Cadw. Available at: https://cadw.gov.wales/advice-support/historic-assets/registered-historic-parks-gardens/managing-registered-historic-parks. Accessed September 2024.

Ref 5.17 – Welsh Government/Cadw (2017). *Managing Conservation Areas in Wales*. Cardiff: Cadw. Available at: https://cadw.gov.wales/advice-support/historic-assets/conservation-areas/managing-conservation-areas. Accessed September 2024.

Ref 5.18 – Welsh Government/Cadw (2017). *Managing Historic Character in Wales*. Cardiff: Cadw. Available at https://cadw.gov.wales/advice-support/placemaking/historic-character/managing-historic-character. Accessed September 2024.

Ref 5.19 – Welsh Government/Cadw (2017). *Managing Lists of Historic Assets of Special Local Interest in Wales*. Cardiff: Cadw. Available at: https://cadw.gov.wales/advice-support/historic-assets/other-historic-assets/historic-assets-special-local-interest. Accessed September 2024.

Ref 5.20 – Welsh Government/Cadw (2017). *Setting of Historic Assets in Wales*. Cardiff: Cadw. Available at: https://cadw.gov.wales/advice-support/placemaking/heritage-impact-assessment/setting-historic-assets. Accessed September 2024.

Ref 5.21 – Chartered Institute for Archaeologists (CIfA) (2020). *Standard and guidance for historic environment desk-based assessment*. Reading: Chartered Institute for Archaeologists. Available at: https://www.archaeologists.net/sites/default/files/CIfAS%26GDBA_4.pdf. Accessed September 2024.

Ref 6.1 – UK Government (1990). *The Environmental Protection Act 1990* and *Part IIA (the Contaminated Land Regime).* Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents. Accessed January 2025.

Ref 6.2 – UK Government (2003). *The Water Act 2003*. Available at: https://www.legislation.gov.uk/ukpga/2003/37/contents. Accessed January 2025.

Ref 6.3 – UK Government (1995). *The Environment Act 1995*. Available at: https://www.legislation.gov.uk/ukpga/1995/25/contents. Accessed January 2025.

Ref 6.4 – UK Government (1991). *The Water Resources Act 1991 (as amended).* Available at: https://www.legislation.gov.uk/ukpga/1991/57/contents. Accessed January 2025.

Ref 6.5 – HMSO (2016). *The Environmental Permitting (England and Wales) Regulations 2016.* Available at: https://www.legislation.gov.uk/uksi/2016/1154/contents. Accessed August 2025.

Ref 6.6 – UK Government (1991). *The Land Drainage Act 1991 (as amended).* Available at: https://www.legislation.gov.uk/ukpga/1991/59/contents. Accessed January 2025.

Ref 6.7 – UK Government (1984). *The Building Act 1984 and the Building (Amendment) Regulations 2016*. Available at: https://www.legislation.gov.uk/ukpga/1984/55/contents and https://www.legislation.gov.uk/uksi/2016/490/made. Accessed January 2025.

Ref 6.8 – UK Government (2017). The Private Water Supplies (Wales) Regulations 2017. *The Private Water Supplies (Wales) Regulations 2017*. Available at: https://www.legislation.gov.uk/wsi/2017/1041/contents. Accessed January 2025.

Ref 6.19 – UK Government (2016). *The Environmental Permitting (England and Wales) Regulations 2016.* Available at: https://www.legislation.gov.uk/uksi/2016/1154/contents. Accessed January 2025.

Ref 6.10 – UK Government (2015). *The Environmental Damage (Prevention and Remediation) (Wales) Regulations 2015.* Available at: https://www.legislation.gov.uk/wsi/2015/1394/contents/made. Accessed January 2025.

Ref 6.11 – UK Government (2006). *Contaminated Land (Wales) Regulations 2006.* Available at: https://www.legislation.gov.uk/wsi/2006/2989/contents. Accessed January 2025.

Ref 6.12 – UK Government (2016). *Hazardous Waste (England and Wales) (Amendment) Regulations 2016.* Available at: https://www.legislation.gov.uk/uksi/2016/336. Accessed January 2025.

Ref 6.13 – UK Government (1999). *Anti-Pollution Works Regulations 1999.* Available at: https://www.legislation.gov.uk/uksi/1999/1006/contents/made. Accessed January 2025.

Ref 6.14 – UK Government (2012). *Control of Asbestos Regulations 2012.* Available at: https://www.legislation.gov.uk/uksi/2012/632/contents. Accessed January 2025.

Ref 6.16 – HSE (2015) *Construction Design Management (CDM) Regulations 2015.* Available at: https://www.hse.gov.uk/construction/cdm/2015/index.htm. Accessed January 2025.

Ref 6.16 – HMSO (1997). *The Confined Spaces Regulations 1997.* Available at: https://www.legislation.gov.uk/uksi/1997/1713. Accessed August 2025.

Ref 6.17 – Welsh Government (2012*). Contaminated Land Statutory Guidance for Wales*. Available at: https://www.gov.wales/sites/default/files/publications/2019-08/contaminated-land-statutory-guidance-2012.pdf. Accessed January 2025.

Ref 6.18 – Environment Agency's online guidance for the management of land contamination '*Land Contamination Risk Management*' (LCRM) (2023). Available at: https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm. Accessed January 2025.

Ref 6.19 – National House Building Council (NHBC), Environment Agency (EA), Chartered Institute of Environmental Health (CIEH) report R&D Publication 66. *Guidance for the Safe Development of Housing on Land Affected by Contamination*. Available at: https://www.middevon.gov.uk/media/114550/volume-2-guidance-for-the-safe-development-of-housing-on-land-affected-by-contamination.pdf. Accessed January 2025.

Ref 6.20 – CIRIA C552 (2001). *Contaminated Land Risk Assessment - A Guide to Good Practice*.

Ref 6.21 – Welsh Local Government Association (WLGA) (2017), Welsh Land Contamination Working Group: *The Development of Land Affected by Contamination: A Guide for Developers*. Available at: https://www.srs.wales/Documents/Pollution/Development-of-Land-Affected-By-Contamination-Guide-for-Developers-2017.pdf#:~:text=This%20guidance%20document%20has%20been%20prepared%2

0for%20developers,in%20assessing%20and%20managing%20land%20contamination%20in%20Wales. Accessed January 2025.

Ref 6.22 – BS 10175 (2011 + A2:2017). *Investigation of Potentially Contaminated Sites - Code of Practice*.

Ref 6.23 – BS 5930 (2015 + A1:2020). *Code of Practice for Site Investigations*.

Ref 6.24 – BS 8576 (2013). *Guidance on Investigations for Ground Gas. Permanent Gases and Volatile Organic Compounds (VOCs)*.

Ref 6.25 – CIRIA C811 (2015). *Environmental Good Practice On Site Guide*. 5th edition.

Ref 6.26 – BS 8485 (2015+A1:2019). *Code of Practice for the Design of Protective Measures for Methane and Carbon Dioxide Ground Gases for New Buildings*.

Ref 6.27 – CIRIA C665 (2007). *Assessing Risks Posed by Hazardous Ground Gases to Buildings*.

Ref 6.28 – The Design Manual for Roads and Bridges (DMRB) (2019). *LA 109 Geology and Soils*. Available at: https://www.standardsforhighways.co.uk/tses/attachments/adca4c7d-4037-4907-b633-76eaed30b9c0?inline=true. Accessed January 2025.

Ref 6.29 – DMRB (2020). *LA104 Environmental Assessment and Monitoring*. Available at: https://www.standardsforhighways.co.uk/tses/attachments/0f6e0b6a-d08e-4673-8691-cab564d4a60a?inline=true. Accessed January 2025.

Ref 6.30 – DMRB (2020). *LA113 Road Drainage and the Water Environment*. Available at: https://www.standardsforhighways.co.uk/tses/attachments/d6388f5f-2694-4986-ac46-b17b62c21727?inline=true. Accessed January 2025.

Ref 6.31 – CL:AIRE (2011). CL:AIRE (2011). *Definition of Waste: Development Industry Code of Practice*. Available at: https://claire.co.uk/component/phocadownload/category/7-guidance-bulletins-and-documents?download=241:guidance-bulletin-3-definition-of-waste-development-industry-code-of-practice. Accessed January 2025.

Ref 6.32 – Ministry of Agriculture, Fisheries and Food, *Agricultural Land Classification* 1988.

Ref 6.33 – Department for Environment, Food and Rural Affairs (Defra). *Construction Code of Practice for the Sustainable Use of Soils on Construction Sites 2009*. Available at: https://www.gov.uk/government/publications/code-of-practice-for-the-sustainable-use-of-soils-on-construction-sites. Accessed January 2025.

Ref 6.34 – Institute of Environmental Management and Assessment (IEMA) (2022). *A New Perspective on Land and Soil in Environmental Impact Assessment.* Available at: https://www.iema.net/resources/blogs/2022/02/17/iema-launch-of-new-eia-guidance-on-land-and-soils-february-2022/. Accessed January 2025.

Ref 6.35 – Institute of Quarrying (2021). *Good Practice Guide for Handling Soils in Mineral Workings*. Available at: https://885685.fs1.hubspotusercontent-na1.net/hubfs/885685/Soils%20Guidance/IQ%20Soil%20Guidance%20full%20document%20including%20all%20practitioner%20advice%20updated%20May%202022.pdf. Accessed January 2025.

Ref 6.36 – Welsh Assembly Government (2010). *Technical Advice Note (TAN) 6 Planning for Sustainable Rural Communities*. Available at https://www.gov.wales/sites/default/files/publications/2018-09/tan6-sustainable-rural-communities.pdf. Accessed January 2025.

Ref 6.37 – Welsh Assembly Government (2011). *The Code of Good Agricultural Practice for the Protection of Water, Soil and Air for Wales No. 20*. Available at: https://www.gov.wales/sites/default/files/publications/2019-07/110304code20eng.pdf. Accessed January 2025.

Ref 6.38 – British Society of Soil Science (2022). *Guidance Document 3: Working with Soil Guidance Note on Benefitting from Soil Management in Development and Construction*. Available at: https://soils.org.uk/wp-content/uploads/2022/02/WWS3-Benefitting-from-Soil-Management-in-Development-and-Construction-Jan-2022.pdf. Accessed January 2025.

Ref 7.1 – European Union, (2000). *The EU Water Framework Directive (2000/60/EC).* Available at: https://www.eea.europa.eu/policy-documents/water-framework-directive-wfd-2000. Accessed October 2024.

Ref 7.2 – HMSO (2003). *Water Environment (Water Framework Directive) (England and Wales) Regulations 2003 (revoked).* Available at: https://www.legislation.gov.uk/uksi/2003/3242/contents. Accessed August 2025.

Ref 7.3 – UK Government, (2015). *The Water Framework Directive (Standards and Classification) Directions (England and Wales)*. Available at: https://www.legislation.gov.uk/uksi/2015/1623/resources. Accessed October 2024.

Ref 7.4 – UK Government, (2010). *The Flood and Water Management Act 2010*. Available at: https://www.legislation.gov.uk/ukpga/2010/29/contents. Accessed October 2024.

Ref 7.5 – UK Government, (1994) *Land Drainage Act 1994*. Available at: https://www.legislation.gov.uk/ukpga/1994/25/contents. Accessed October 2024.

Ref 7.6 – HMSO (1990). *Environmental Protection Act 1990.* Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents. Accessed August 2025.

Ref 7.7 - UK Government, (1974). Control of Pollution Act 1974. (Online). Available at: https://www.legislation.gov.uk/ukpga/1974/40. Accessed October 2024.

Ref 7.8 – Welsh Government, (2004). *Technical Advice Note (TAN) 15: development and flood risk*. Available at: https://www.gov.wales/technical-advice-note-tan-15-development-and-flood-risk-2004. Accessed October 2024.

Ref 7.9 – National Grid, (2011*). Internal and Contract Specific Policy Statement (Transmission) (Flood Mitigation Policy (PS(T)_095).*

Ref 7.10 – West of Wales Coastal Group. (2012). *West of Wales Shoreline Management Plan 2*. Available at: https://www.grwparfordirolgorllewincymru.cymru/page/home-page. Accessed October 2024.

Ref 8.1 – Welsh Government (2013). *Active Travel (Wales) Act 2013*. Available at: https://law.gov.wales/active-travel-wales-act-2013. Accessed August 2024.

Ref 8.2 – Welsh Government (2022). *National Transport Delivery Plan 2022 to 2027.* Available at: https://www.gov.wales/national-transport-delivery-plan-2022-2027. Accessed August 2024.

Ref 8.3 – Flintshire County Council (2015). *North Wales Joint Local Transport Plan 2015*. Available at: https://www.flintshire.gov.uk/en/PDFFiles/Planning/LDP-evidence-base/Local/North-Wales-Joint-Local-Transport-Plan-2015.pdf. Accessed August 2024.

Ref 8.4 – Powys, Ceredigion and Gwynedd Councils (2015). *Mid Wales Transport Plan 2015*. TRACC Publications. Available at: https://growingmidwales.co.uk/traccpublications. Accessed August 2024.

Ref 8.5 – Institute of Environmental Management and Assessment (IEMA) (2023). *Environmental Assessment of Traffic and Movement Guidelines*. Available at: https://www.iema.net/resources/blog/2023/07/12/new-iema-guidance-environmental-assessment-of-traffic-and-movement. Accessed August 2024.

Ref 8.6 – Standards for Highways (2021). *Design Manual for Road and Bridges (DMRB) CD 123 Geometric Design of at Grade Priority and Signal-Controlled Junctions*. Available at https://www.standardsforhighways.co.uk/search/962a81c1-abda-4424-96c9-fe4c2287308c. Accessed August 2024.

Ref 9.1 – HMSO (1993). *Clean Air Act 1993.* Available at: http://legislation.gov.uk/ukpga/1993/11/contents. Accessed June 2025.

Ref 9.2 – Parliament of the United Kingdom (2000*). The Air Quality (England) Regulations 2000.* Accessed: Available at: The Air Quality (England) Regulations 2000 (legislation.gov.uk). Accessed September 2024.

Ref 9.3 – HMSO (2010). *The Air Quality Standards Regulations 2010. Available at: https://www.legislation.gov.uk/uksi/2010/1001/contents*. Accessed October 2024.

Ref 9.4 – European Parliament (2008). *Directive 2008/50/EC of the European Parliament and of the Council.* Available at: https://www.legislation.gov.uk/eudr/2008/50/contents. Accessed June 2025.

Ref 9.5 – Parliament of the United Kingdom (2018). *The Non-Road Mobile Machinery (Type-Approval and Emission of Gaseous and Particulate Pollutants) Regulations 2018. Available at: https://www.legislation.gov.uk/uksi/2018/764/contents*. Accessed October 2024.

Ref 9.6 – Welsh Government (2024). *Environment (Air Quality and Soundscapes) (Wales) Act 2024.* Available at: https://law.gov.wales/environment-air-quality-and-soundscapes-wales-act-2024. Accessed June 2025.

Ref 9.7 - Department for Environment, Food and Rural Affairs (Defra) (2023). *Clean Air Strategy 2023.* Available at: https://www.gov.uk/government/publications/the-air-quality-strategy-for-england. Accessed June 2025.

Ref 9.8 - Department for Environment Food and Rural Affairs (Defra) (2007). *The Air Quality Strategy for England, Scotland, Wales and Northern Ireland.* Available at: Air Quality Strategy Vol 1 (publishing.service.gov.uk). Accessed October 2024.

Ref 9.9 – Welsh Government (2020). *The Clean Air Plan for Wales: Healthy Air, Healthy Wales 2020*. Available at: https://www.gov.wales/clean-air-plan-wales-healthy-air-healthy-wales. Accessed June 2025.

Ref 9.10 – Institute of Air Quality Management (2024). *Guidance on the assessment of dust from demolition and construction.* Accessed at: https://iaqm.co.uk/wp-content/uploads/2013/02/Construction-Dust-Guidance-Jan-2024.pdf. Accessed June 2025.

Ref 9.11 - Environmental Protection UK and Institute of Air Quality Management (IAQM) (2017). *Land-Use Planning and Development Control: Planning for Air Quality*. Available at: http://www.iaqm.co.uk/text/guidance/air-quality-planning-guidance.pdf. Accessed October 2024.

Ref 10.1 – His Majesty's Statutory Office, (1974), Control of Pollution *Act*. Available at: https://www.legislation.gov.uk/ukpga/1974/40. Accessed October 2024.

Ref 10.2 – His Majesty's Statutory Office, (1990). *Environmental Protection Act 1990*. Available at: https://www.legislation.gov.uk/ukpga/1990/43/contents. Accessed October 2024.

Ref 10.3 –Ministry of Housing, Communities & Local Government (2021) National Planning Policy Framework. Available at https://assets.publishing.service.gov.uk/media/669a25e9a3c2a28abb50d2b4/NPPF_December_2023.pdf. Accessed October 2024.

Ref 11.1 – Welsh Government (2015). *Planning (Wales) Bill: health and wellbeing impact assessment*. Available at: Planning (Wales) Bill: health and wellbeing impact assessment | GOV.WALES. Accessed October 2024.

Ref 11.2 – UK Government (2025). *The UK's Modern Industrial Strategy.* Available at: The UK's Modern Industrial Strategy 2025 - GOV.UK. Accessed August 2025.

Ref 11.3 – Welsh Government (2020). *Building Better Places*. Available at: https://www.gov.wales/sites/default/files/publications/2020-07/building-better-places-the-planning-system-delivering-resilient-and-brighter-futures.pdf. Accessed October 2024.

Ref 11.4 – UK Government (2020). *Ten Point Plan for a Green Industrial Revolution*. Available at: The ten point plan for a green industrial revolution - GOV.UK (www.gov.uk). Accessed October 2024.

Ref 11.5 – Welsh Government (2023). *Stronger, Fairer, Greener Wales - Net Zero Skills Action Plan*. Available at: https://www.gov.wales/sites/default/files/publications/2023-02/nzs-actions-we-will-deliver-moving-forward.pdf. Accessed October 2024.

Ref 11.6 – Welsh Government (2021). *Net Zero Wales Carbon Budget 2 (2021-25).* Available at: Net Zero Wales Carbon Budget 2 (2021 to 2025) | GOV.WALES. Accessed October 2024.

Ref 11.7 – Welsh Government (2020). *Welcome to Wales - Priorities for the Visitor Economy 2020-25*. Available at: Welcome to Wales: priorities for the visitor economy 2020 to 2025 (gov.wales). Accessed October 2024.

Ref 11.8 – Welsh Government (2021). *Welsh Government Economic Resilience and Reconstruction Mission*. Available at: Economic resilience and reconstruction mission | GOV.WALES. Accessed October 2024.

Ref 11.9 – UK Government (2020). *UK's Integrated National Energy and Climate Plan.* Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/991649/uk-integrated-national-energy-climate-plan-necp-31-january-2020.pdf. Accessed October 2024.

Ref 11.10 – Welsh Government (2022). *North Wales Regional Economic Framework*. Available at: North Wales regional economic framework (gov.wales). Accessed October 2024.

Ref 11.11 – North Wales Economic Ambition Board (2016). *A Growth Vision for the Economy of North Wales*. Available at: GROWTH VISION FOR THE ECONOMY - APPENDIX E (2).pdf. Accessed October 2024.

Ref 11.12 – Welsh Government (2020, updated in 2021). *North Wales Energy Strategy.* Available at: North Wales Energy Strategy (gov.wales). Accessed October 2024.

Ref 11.13 – Gwynedd and Anglesey Public Services Board (2023). *Anglesey and Gwynedd Well-being Plan 2023-28.* Available at: https://www.llesiantgwyneddamon.org/Uploads/Pages/Documents/3-5-3-216-1-Gwynedd-and-Anglesey-Well-being-Plan-2023-2028.pdf. Accessed October 2024.

Ref 11.14 – Welsh Government (2014). *Technical Advice Note (TAN) 23: Economic Development.* Available at: Technical Advice Note 23. Accessed October 2024.

Ref 11.15 – Homes and Communities Agency (2014). *Additionality Guide 4th Edition.* Available at: HCA Policy Covers. Accessed October 2024.

Ref 11.16 – HM Treasury (2022). *The Green Book – Appraisal and Evaluation in Central Government.* Available at: The Green Book (2022) - GOV.UK. Accessed October 2024.

Ref 12.1 – UNFCCC (2015). *Conference of the Parties, Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015. FCCC/CP/2015/10.* Available at: https://unfccc.int/sites/default/files/resource/docs/2015/cop21/eng/10a01.pdf. Accessed September 2024.

Ref 12.2 – UK Government (2020). *United Kingdom of Great Britain and Northern Ireland's Nationally Determined Contribution.* Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/943618/uk-2030-ndc.pdf. Accessed September 2024.

Ref 12.3 – HMSO (2008). The Climate Change Act 2008, c.27. Available at: https://www.legislation.gov.uk/ukpga/2008/27/contents. Accessed September 2024.

Ref 12.4 – UK Government (2019). T*he Climate Change Act 2008 (2050 Target Amendment) Order 2019*. Available at: https://www.legislation.gov.uk/ukdsi/2019/9780111187654. Accessed September 2024.

Ref 12.5 – Senedd Cymru (2021). *The Climate Change (Interim Emissions Targets) (Wales) (Amendment) Regulations 2021.* Available at: https://www.legislation.gov.uk/wsi/2021/338/made. Accessed September 2024.

Ref 12.6 – Department for Energy Security and Net Zero (2023). *National Policy Statement.* Available at: https://www.gov.uk/government/collections/national-policy-statements-for-energy-infrastructure. Accessed September 2024.

Ref 12.7 – Welsh Government (2022). *Working Together to Reach Net Zero: All-Wales Plan April 2022 Update.* Available at: https://gov.wales/working-together-reach-net-zero. Accessed September 2024.

Ref 12.8 – IEMA (2020). *Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation*. Available at: https://www.iema.net/resources/reading-room/2020/06/26/iema-eia-guide-to-climate-change-resilience-and-adaptation-2020. Accessed September 2024.

Ref 12.9 – IEMA (2022). *Environmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance (2nd Edition)*. Available at: https://www.iema.net/resources/blog/2022/02/28/launch-of-the-updated-eia-guidance-on-assessing-ghg-emissions. Accessed September 2024.

Ref 13.1 – HMSO (2011). *The Waste (England and Wales) Regulations 2011 (as amended) (SI 2011/988).* Available at: https://www.legislation.gov.uk/uksi/2011/988/contents/made. Accessed May 2025.

Ref 13.2 – HMSO (2023). *The Waste Separation Requirements (Wales) Regulations 2023.* Available at: https://www.legislation.gov.uk/wsi/2023/1290/contents/made. Accessed May 2025.

Ref 13.3 – Welsh Government (2021). *Beyond Recycling: A strategy to make the circular economy in Wales a reality.* Available at: https://www.gov.wales/sites/default/files/publications/2021-03/beyond-recycling-strategy-document.pdf. Accessed May 2025.

Ref 13.4 – Welsh Government (2010). *Towards Zero Waste One Wales: One Planet – The Overarching Waste Strategy for Wales.* Available at: https://gov.wales/sites/default/files/publications/2019-05/towards-zero-waste-our-waste-strategy.pdf. Accessed May 2025.

Ref 13.5 – Welsh Government (2013). T*owards Zero Waste One Wales: One Planet – The Waste Prevention Programme for Wales*. Available at: https://gov.wales/waste-prevention-programme-wales. Accessed May 2025.

Ref 13.6 – Institute of Environmental Management and Assessment (IEMA), 2020, Guide to: Materials and Waste in Environmental Impact Assessment, Guidance for a Proportionate Approach.

Ref 13.7 – ICE. *Designing out Waste: A design team guide for civil engineering.* Available at: https://build360.ie/wp-content/uploads/2023/01/WRAP_DoW_Civil_Engineering.pdf. Accessed June 2025.

Ref 13.8 – Welsh Government (2024). *Separate Collection of Waste Materials for Recycling – A Code of Practice for Wales*. Available at: https://www.gov.wales/sites/default/files/publications/2024-01/separate-collection-of-waste-materials-for-recycling-a-code-of-practice-for-wales.pdf. Accessed May 2025.

Ref 14.1 – HMSO (2017). *Electricity Works (Environmental Impact Assessment) (England and Wales) 2017*. Available at: https://www.legislation.gov.uk/uksi/2017/580/contents. Accessed August 2025.

Ref 15.1 – Planning Inspectorate (2019) A*dvice Note Seventeen: Cumulative Effects Assessment relevant to National Significant Infrastructure* *https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment*. Accessed May 2025.

1.4.A Topic Assessment Methodology

nationalgrid

Contents

1 Introduction

1.1.1 This appendix describes the technical methods used in **Chapters 4 – 16** of **Volumes 2 – 7 of this Environmental Statement (ES)** to determine the baseline conditions, sensitivity of the receptors, magnitude of effects and the significance criteria.

2 Landscape and Visual Amenity

2.1 Bryncir and Glaslyn Cables

Introduction

2.1.1 This chapter outlines the methods used to assess the Landscape and Visual Amenity effects associated with the Project.

Assessment Methodology

2.1.2 The Landscape and Visual Impact Assessment (LVIA) has been carried out in accordance with the following good practice guidance documents:

- Guidelines for Landscape and Visual Impact Assessment, Third Edition (Ref 2.1).
- Notes and Clarifications on aspects of the 3rd Edition Guidelines on Landscape and Visual Impact Assessment (GLVIA3) (Ref 2.2).
- Visual Representation of Development Proposals. Technical Guidance Note 06/19 (Ref 2.3).
- Assessing landscape value outside national designations. Technical Guidance Note 02/21 (Ref 2.4).

2.1.3 GLVIA3 places a strong emphasis on the importance of professional judgement in identifying and defining the significance of landscape and visual effects. The LVIA has been undertaken by Chartered Landscape Architects who are experienced in undertaking and reporting assessments of similar types of projects. Professional judgement has been used in combination with structured methods and criteria to determine the sensitivity of landscape and visual receptors (informed by their value and susceptibility to change), the magnitude of effects[1] on those receptors (i.e. the nature of the effect), and the significance of effects.

2.1.4 The following section summarises the methodology for the LVIA. For clarity and in accordance with good practice, the assessment of potential effects on landscape character and visual amenity, although closely related, are undertaken separately.

Sensitivity

Landscape Receptors

2.1.5 Landscape receptors are described as components of the landscape that are likely to be affected by the proposed works. These can include overall character and key characteristics, individual elements or features and specific aesthetic or perceptual aspects. It is the interaction between the different components of the proposed works and these landscape receptors which has potential to result in landscape impacts and effects (both adverse and beneficial).

[1] The GLVIA3 methodology uses 'Magnitude of Effect' rather than Magnitude of Impact/Change

2.1.6 The sensitivity of the landscape receptor has been derived by combining the value of the landscape (undertaken as part of the baseline study) and the susceptibility to change of the receptor to the specific type of development being assessed.

2.1.7 Landscape value is frequently addressed by reference to international, national, regional, and local designations. Absence of such a designation does not necessarily imply a lack of quality or value. Factors such as accessibility and local scarcity can render areas of nationally unremarkable quality, highly valuable as a local resource.

2.1.8 The evaluation of landscape value has been informed by Technical Guidance Note 02/21 (Ref 2.4) and undertaken considering the following factors and classified as high, medium, or low with evidence provided as to the basis of the evaluation:

- *"Natural heritage – Landscape with clear evidence of ecological, geological, geomorphological or physiographic interest which contribute positively to the landscape.*
- *Cultural heritage – Landscape with clear evidence of archaeological, historical or cultural interest which contribute positively to the landscape.*
- *Landscape condition – Landscape which is in a good physical state both with regard to individual elements and overall landscape structure.*
- *Associations – Landscape which is connected with notable people, events and the arts.*
- *Distinctiveness – Landscape that has a strong sense of identity.*
- *Recreational – Landscape offering recreational opportunities where experience of landscape is important.*
- *Perceptual (scenic) – Landscape that appeals to the senses, primarily the visual sense.*
- *Perceptual (wildness and tranquillity) – Landscape with a strong perceptual value notably wildness, tranquillity and/or dark skies.*
- *Functional - Landscape which performs a clearly identifiable and valuable function, particularly in the healthy functioning of the landscape."*

2.1.9 Landscape susceptibility relates to the ability of a particular landscape to accommodate the proposed works. It has been appraised through consideration of the baseline characteristics of the landscape, and in particular, the scale or complexity of a given landscape. The evaluation of landscape susceptibility has been defined as very high, high, medium, low or negligible and is supported by a clear explanation based on the analysis of the landscape receptor and the extent to which it is able to accommodate the type of change proposed.

2.1.10 The overall sensitivity assessment of the landscape receptor has been made by employing professional judgement to combine and analyse the identified value and susceptibility with overall levels classified as very high, high, medium, low and negligible. **Table 2-1** below outlines indicators that inform landscape value, susceptibility and sensitivity. The basis of the assessment has been made clear in the evaluation of each landscape receptor.

Table 2-1 – Sensitivity of landscape receptors

	Higher sensitivity	Lower sensitivity
Value	A designated landscape (National Park, National Landscape, National Scenic Area, World Heritage Site) or a landscape in very good condition, exceptional scenic quality and high recreational opportunities or a high degree of rarity.	Landscapes containing few if any notable elements or features, of poor condition or containing several detracting features and limited aesthetic qualities. Landscapes which are not formally designated.
Susceptibility	Attributes that make up the character of the landscape which offer very limited opportunities to accommodate change of the type proposed without fundamentally altering key characteristics.	Attributes that make up the character of the landscape which are tolerant of a large degree of the type of change proposed without fundamentally altering the key characteristics.

Visual Receptors

2.1.11 Sensitivity of visual receptors has been defined through an assessment of the viewing expectation, or value placed on the view as identified in the baseline study, and its susceptibility to change.

2.1.12 Value of the view is an assessment of the value attached to views and is informed by the appearance on Ordnance Survey or tourist maps and in guidebooks, literature and art, or identified in policy. Value can also be indicated by the provision of parking or services and signage and interpretation. The nature and composition of the view and its scenic quality is also an indicator. The value of the view has been classified as very high, high, medium, low and negligible and is supported by evidenced, professional judgements.

2.1.13 The susceptibility of visual receptors to change has been established as a function of the occupation or activity of people experiencing the view, and the extent to which their attention or interest is focussed on the view and the visual amenity they experience. For example, residents in their home, walkers whose interest may tend to be focused on the landscape or a particular view, or visitors at an attraction where views are an important part of the experience, indicate a higher level of susceptibility. Conversely receptors engaged in outdoor sport where views are not important or receptors at their place of work are considered less susceptible to change.

2.1.14 As with landscape susceptibility, judgements about the susceptibility of visual receptors have been described as very high, high, medium, low and negligible using consistent and reasoned judgements.

2.1.15 The overall sensitivity assessment of the visual receptor has been determined by applying professional judgement to combine and analyse the identified value and susceptibility ratings. Overall visual sensitivity has been rated as very high, high, medium, low or negligible. **Table 2-2** below outlines indicators that inform value of the view, susceptibility and sensitivity of visual receptors. The basis of the assessment has been made clear in the evaluation of each visual receptor.

Table 2-2 – Sensitivity of visual receptors

	Higher sensitivity	Lower sensitivity
Value	Views protected by designation, or nationally recognised, or recorded on maps and guidebooks or with cultural associations. Views which may be associated with internationally or nationally designated landscapes. Views that have high scenic qualities relating to the content and composition of the view.	Views which are not documented or protected with minimal or no cultural associations. Views that exhibit low scenic qualities relating to the content and composition of the view.
Susceptibility	Viewers whose attention or interest is focused on their surroundings, including: • Residential properties and settlements where views contribute to the landscape setting enjoyed by residents. • People engaged in outdoor recreation including users of cycle routes, long distance paths, Public Right of Way (PRoW) and visitors to heritage assets where views of the surroundings are an important contributor to experience.	People whose attention or interest is not focused on their surroundings and where the view is incidental to their enjoyment including: • People travelling more rapidly on major roads, rail or transport routes not recognised as scenic routes. • People engaged in outdoor recreation which does not involve or depend on appreciation of views of the landscape. • People at their place of work whose attention is not on their surroundings.

Magnitude of Effect

Landscape Magnitude of Effect

2.1.16 Landscape magnitude of effect refers to the extent to which the proposed works would alter the existing characteristics of the landscape. It is an expression of the size or scale of change to the landscape, the geographical extent of the area influenced, and its duration and reversibility. The variables involved are:

- The extent of existing landscape elements that would be lost, the proportion of the total extent that this represents and the contribution of that element to the character of the landscape.
- The extent to which aesthetic or perceptual aspects of the landscape are altered either by removal of existing components of the landscape or by the addition of new components.
- Whether the change alters the key characteristics of the landscape that are integral to its distinctive character.

- The geographic area over which the change will be experienced (for example in the application boundary, the immediate setting around that boundary, at the local landscape character area scale, or on a larger scale influencing broader areas of landscape character).
- The duration of the change (i.e. short term (0 – 5 years), medium term (5 –10 years), or long term (10 years +)), and its reversibility (i.e. whether it is permanent, temporary, or partially reversible).

2.1.17 Landscape change can be both direct, through alteration of physical components, or indirect, resulting from changes to perceptual aspects of character and how it is experienced.

2.1.18 An overall assessment of the magnitude of landscape change resulting from the proposed works on landscape receptors has been made by combining the above judgements using evidence and professional judgement. The levels of landscape magnitude of change are described as being very high, high, medium, low, very low and none as defined in **Table 2-3** below.

Table 2-3 – Magnitude of effect – landscape receptors

Magnitude	Criteria
Very High	Substantial alteration to the landscape receptor or may impact an extensive area or unique characteristics at a local level. May be longer term, permanent or reversible.
High	Large alteration to the landscape receptor or may impact an extensive area or unique characteristics at a local level. May be longer term, permanent or reversible.
Medium	Partial alteration to the landscape receptor or may impact a wide area or characteristics at a local level. May be medium term, permanent or reversible.
Low	Slight alteration to the landscape receptor or may impact a restricted area and few key characteristics. May be short to medium term, permanent or reversible.
Very Low	Very slight alteration to the landscape receptor or may impact a limited area or no key characteristics. May be short term, permanent or reversible.
None	No change to the landscape receptor.

Visual Magnitude of Effect

2.1.19 Visual magnitude of effect relates to the extent to which the proposed works would alter the existing view and is an expression of the size or scale of change in the view, the geographical extent of the area influenced and its duration and reversibility. The variables involved are described below:

- The scale of the change in the view with respect to the loss or addition of features in the view and changes in its composition, including the proportion of the view occupied by the proposed works.
- The degree of contrast or integration of any new features or changes in the form, scale, composition and focal points of the view.
- The nature of the view of the proposed works in relation to the amount of time over which it will be experienced, and whether views of this will be visible fully, partially or glimpsed.
- The angle of view in relation to the main activity of the receptor, distance of the viewpoint from the proposed works and the extent of the area over which the changes would be visible.
- The duration of the change (i.e. short term (0 – 5 years), medium term (5 –10 years), or long term (10 years +)), and its reversibility (i.e. whether it is permanent, temporary, or partially reversible).

2.1.20 An overall assessment of the magnitude of visual change resulting from the proposed works on the visual receptor has been made combining the above judgements using evidence and professional judgement. The levels of visual magnitude of change are described as being very high, high, medium, low, very low and none as defined in **Table 2-4** below.

Table 2-4 – Magnitude of effect – visual receptors

Magnitude	Criteria
Very High	A substantial change to the composition of the view or change that may be viewed in the foreground or directly. May be longer term, permanent or reversible.
High	A pronounced change to the composition of the view or change that may be viewed in the foreground or directly. May be longer term, permanent or reversible.
Medium	A noticeable change to the composition of the view or change that may be viewed in the middle ground or indirectly. May be medium term, permanent or reversible.
Low	An unobtrusive change in the composition of the view or change that may be viewed in the background or obliquely. May be short to medium term, permanent or reversible.
Very Low	A barely perceptible change in the composition of the view or change that may be viewed in the background and/or very obliquely. May be short term, permanent or reversible.
None	No change to the view.

Significance of Effect

2.1.21 Determination of the significance of Landscape and Visual Amenity effects has been undertaken by employing professional judgement and experience to combine and analyse the magnitude of change against the identified sensitivity of landscape and visual receptors.

2.1.22 The landscape assessment has taken account of direct and indirect changes to existing landscape elements, features, key characteristics and evaluates the extent to which these would be lost or modified, in the context of their importance in determining the existing baseline character.

2.1.23 The visual assessment has taken account of the likely changes to the visual composition, including the extent to which new features would distract or screen existing elements in the view or disrupt the scale, structure, or focus of the existing view.

2.1.24 The significance of landscape and visual effects are described with reference to the criteria presented in **Table 2-5** below.

Table 2-5 – Significance of effect

Significance of effect	Landscape	Visual amenity
Major Beneficial	Alterations that result in a considerable improvement of the existing landscape resource. Valued characteristic features would be restored or reintroduced.	Alterations that typically result in a pronounced improvement in the existing view.
Moderate Beneficial	Alterations that result in a partial improvement of the existing landscape resource. Valued characteristic features would be largely restored or reintroduced.	Alterations that typically result in a noticeable improvement in the existing view.
Minor Beneficial	Alterations that result in a slight improvement of the existing landscape resource. Characteristic features would be partially restored.	Alterations that typically result in a limited improvement in the existing view.
Negligible Beneficial	Alterations that result in a very slight improvement to the existing landscape resource, not uncharacteristic in the receiving landscape.	Alterations that typically result in a barely perceptible improvement in the existing view.
Neutral	No alteration to any of the components that contribute to the existing landscape resource.	No change to the existing view.

Significance of effect	Landscape	Visual amenity
Negligible Adverse	Alterations that result in a very slight deterioration to the existing landscape resource, not uncharacteristic in the receiving landscape.	Alterations that typically result in a barely perceptible deterioration in the existing view.
Minor Adverse	Alterations that result in a slight deterioration of the existing landscape resource. Characteristic features would be partially lost.	Alterations that typically result in a limited deterioration in the existing view.
Moderate Adverse	Alterations that result in a partial deterioration of the existing landscape resource. Valued characteristic features would be largely lost.	Alterations that typically result in a noticeable deterioration in the existing view.
Major Adverse	Alterations that result in a considerable deterioration of the existing landscape resource. Valued characteristic features would be wholly lost.	Alterations that typically result in a pronounced deterioration in the existing view.

Temporal Scope of Assessment

2.1.25 Landscape and Visual Amenity effects can differ from one stage of the development to the next and change over time as mitigation planting establishes and matures. The assessment therefore considers potential effects of the proposed works (as defined in the scope shown in **Chapter 4 Landscape and Visual Amenity** of **Volumes 2 – 6**) of at each of the following stages:

- Construction: temporary effects from the movement of construction plant, vehicle haul routes, excavations, temporary construction compounds, material stockpiles and the removal of vegetation.
- Operational Year 1 (winter): including consideration of potential medium to longer term effects associated with the proposed works following completion of the construction phase and associated reinstatement. This stage is intended to represent the potential worst-case operational effects prior to establishment of mitigation planting.
- Operation Year 15 (summer): including consideration of potential longer-term effects of the proposed works 15 years after becoming operational. This stage is intended to help demonstrate how proposed mitigation planting will influence effects once established.

Zone of Theoretical Visibility

2.1.26 A computer generated Zone of Theoretical Visibility (ZTV) was run for the Glaslyn works site and Bryncir generated using the 5 metre (m) Digital Terrain Model (DTM) from

Ordnance Survey (OS) MasterMap. The ZTV incorporates screening from vegetation based on woodland from the National Forestry Inventory (NFI) using an assumed height of 10 m and screening from existing buildings from OS Open Map Local with an assumed height of 7.5 m and with an observer eye height of 1.6 m. All heights are above ground level.

2.1.27 The ZTV for Glaslyn is based on a grid of points within the Wern and Minffordd CSEC boundaries at a height of 9 m above ordnance datum (AOD), and a height of 16 m above ground level (AGL) (for scaffolding structures used during the construction phase of the proposed works) across the remaining Glaslyn work site. The ZTVs generated for the Study Area is shown on ES **Volume 4: Glaslyn Cables, Figure 4.4.8** and **Figure 4.4.9**.

2.1.28 The ZTV for Bryncir is based on a gid of points in the site at a height of 50 m representing the replacement tower 4ZC067 and 15 m for the height of the proposed new SPEN DB route towers. The ZTV generated for the Study Ara is shown on ES **Volume 3 Bryncir, Figure 3.4.7.**

Viewpoint selection

2.1.29 Viewpoints have been selected to cover a range of receptor locations, taking account of the following assessment assumptions:

- A range of viewpoints from where there are likely to be significant effects.
- Some initial screening of locations has been undertaken using desktop analysis, ZTV analysis, and ground truthing during site walkover. This is to avoid over-provision of viewpoints, particularly those where views are very unlikely to be significant as this can be considered unhelpful and disproportionate.
- Those representative of views in the 3 kilometres (km) LVIA Study Area and from specific viewpoints (including some elevated, distant viewpoints in the Eryri National Park).
- Landscape and visual receptors in the Gwynedd Council local authority area and in the setting of the Eryri National Park.

2.1.30 The viewpoint locations were shared with Gwynedd Council and Eryri National Park Authority. Gwynedd Council agreed to the locations for Pentir, Glaslyn and Bryncir.

Assumptions and Limitations

2.1.31 No technical difficulties or practical problems were encountered in producing the landscape and visual amenity assessment. Fieldwork was undertaken in weather with very good to moderate visibility.

2.1.32 The assessment of construction effects on landscape and visual receptors is based on the available outline phased construction programme, as detailed in **Chapter 2** of **Volumes 2 – 6**.

2.1.33 The ZTV is limited by the detail of the DTM data used and does not take account of local topographic variations.

2.1.34 Some areas of theoretical visibility may comprise woodland (not accounted for in the NFI) or agricultural land, where there is effectively no public access and the likelihood of views being experienced is consequently low.

2.1.35 The ZTV does not take account of the likely orientation of a viewer, such as the direction of travel and there is no allowance for reduction of visibility with distance, weather, or light.

2.1.36 These limitations mean that the ZTV tends to overestimate the extent of visibility, both in terms of the areas from which the proposed works are visible and the extent of the particular site which is visible. Consequently, the ZTV should be considered as a tool to identify areas of potential visibility for further targeted survey and assessment, and not a measure of the visual effect.

2.1.37 The visual assessment is based on a series of representative viewpoints related to key receptor groups. The on-site evaluation of magnitude of impact and significance of effects has been undertaken from the nearest publicly accessible location, and assumptions as to the orientation of the main views from receptor locations have been made. For all locations the evaluation is based on an assumed worst-case location in each receptor group and the significance of effects on individual receptors may differ locally from that stated.

2.1.38 The assessment of potential effects on receptors at these locations is made based on a worst-case approach of a clear bright day in winter as per good practice and professional guidance and to be consistent with the approach for other receptors in this assessment. The assessment of residual effects on these and all other receptors is based on summer at year 15 of operation. This approach is consistent with good practice and professional guidance and allows proposed mitigation planting to be taken into consideration in the assessment of long-term residual impacts.

2.2 Pentir Substation, Trawsfynydd Substation and Wider Works

2.2.1 Not applicable – all receptors scoped out.

3 Ecology and Nature Conservation

3.1 Pentir Substation, Bryncir, Glaslyn Cables, Trawsfynydd Substation and Wider Works

Introduction

3.1.1 This chapter outlines the methods used to establish the baseline ecological conditions and to assess the Ecology and Nature Conservation effects associated with the Project.

Establishment of Baseline Conditions

3.1.2 The establishment of the baseline environment in was informed by existing data sources and ecology field surveys. The Study Areas for each of the Project elements are described in their respective chapters:

- **ES Volume 2: Pentir Substation, Chapter 5: Ecology and Nature Conservation.**
- **ES Volume 3: Bryncir, Chapter 5: Ecology and Nature Conservation.**
- **ES Volume 4: Glaslyn Cables, Chapter 5: Ecology and Nature Conservation.**
- **ES Volume 5: Trawsfynydd Substation, Chapter 5: Ecology and Nature Conservation.**
- **ES Volume 6: Wider Works, Chapter 5: Ecology and Nature Conservation.**

Desk Study

3.1.3 A desk study was carried out to identify sites designated for nature conservation and records of protected or notable habitats and species (ecology features) and invasive non-native species (INNS) that are relevant to the Project. The desk study identified the status of water bodies covered by the Water Framework Directive 2017 (Ref 3.1) to identify those likely to be impacted from an ecological perspective. The desk study method and sources of information used for each element of the Project are detailed **Chapter 5 of Volumes 2 – 6** as listed above and associated appendices.

Field Surveys

3.1.4 The requirement for ecological field surveys for each Project element was informed by the desk study and extended Phase 1 habitat survey (Ref 3.2), in addition to analysis of the proposed works design.

3.1.5 Aquatic habitat scoping surveys were completed to assess the quality of targeted aquatic habitats (watercourses and ditches). This involved conducting habitat appraisal at locations where potential impacts were considered likely, to assess the potential for water bodies to support protected or notable species and inform further survey work.

3.1.6 Ecological field surveys were carried out to characterise the ecological baseline in the relevant Study Areas. The field surveys carried out in relation to the different elements

of the Project are detailed in the appendices associated with **ES Volumes 2 – 6, Chapter 5: Ecology and Nature Conservation**.

Assessment Methodology

3.1.7 The ecological impact assessments provided in **ES Volumes 2 – 6, Chapter 5: Ecology and Nature Conservation** were carried out in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine (Ref 3.3) as summarised below.

3.1.8 The principal steps involved in the CIEEM approach can be summarised as:

- Ecological features that are both present and might be affected by the Project are identified through a combination of targeted desk-based study and field survey work, to determine the relevant baseline conditions.
- The importance of the identified ecological features is evaluated, placing their relative biodiversity and nature conservation value into geographic context, which is then used to define the relevant ecological features that need to be considered further.
- The changes or perturbations predicted to result as a consequence of the Project (i.e. the potential impacts) and which could potentially affect relevant ecological features are identified and their nature described. Established best-practice, legislative requirements, or other incorporated design measures to minimise or avoid impacts, are also described and are taken into account.
- The likely significant effects (beneficial or adverse) on relevant ecological features are then assessed and, where possible, quantified.
- Measures to avoid or reduce any likely significant effects, if possible, are then developed in conjunction with other elements of the design (including mitigation for other environmental disciplines) and, if necessary, measures to compensate for likely significant effects on features of nature conservation importance are also included.
- The residual effects of the Project are reported.
- The potential for delivering ecological enhancements is considered.

Sensitivity or Value of Ecological Feature

3.1.9 The CIEEM guidelines (Ref 3.3) make clear that there is no need to:

"carry out detailed assessment of ecological features that are sufficiently widespread, unthreatened and resilient to project impacts and will remain viable and sustainable".

3.1.10 Therefore, it is not necessary for the assessment to address all habitats and species with potential to occur in the relevant Study Area and the focus is on those that are relevant i.e., ecological features that are important and potentially affected by the Project. This does not mean that efforts will not be made to safeguard wider biodiversity.

3.1.11 There is a need to determine the scale at which the relevant ecological features identified through the desk studies and field surveys undertaken for the Project are of

value. The value of each relevant ecological feature has been defined with reference to the geographical level at which it matters. Informed through relevant planning policy and legislation (**Volume 8, Appendix 1.1.A: Legislation, Policy and Guidance**) which is important in demonstrating how the proposed works will comply with statutory requirements and policy objectives for biodiversity, in accordance with Section 4.3 of the CIEEM Guidelines (Ref 3.3).

3.1.12 The frames of reference used for the assessment, based on Section 4.7 of the CIEEM guidelines (Ref 3.3) are:

- International (Very High) importance and/or value (i.e. Ramsar Sites, Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar Sites) (normally in the geographic area of Europe).
- UK or national (High) importance and/or value (i.e. Great Britain, but considering the potential for certain ecological features to be more notable (of higher value) in Wales, with context relative to Great Britain as a whole).
- Regional (High) importance and/or value (i.e. North Wales).
- County (Medium) importance and/or value (i.e. Gwynedd including Eryri National Park).
- District (Medium) importance and/or value (i.e. town or parish area, e.g. Pentir, Arfon).
- Local (Low) importance and/or value (i.e. ecological features that do not meet criteria for valuation at a District or higher level, but that have sufficient value to merit retention or mitigation).
- Site (Very Low) importance and/or value (i.e. common and widespread ecological features of such low priority that they do not require retention or mitigation at the relevant location to otherwise maintain a favourable nature conservation status).

3.1.13 Species populations are valued on the basis of their size, recognised status (such as Biodiversity Action Plan (BAP) status) and legal protection.

3.1.14 In assigning values to species populations, it is also important to consider other factors such as their distribution, rarity, population trends, and the size of the population that would be affected. For example, whilst great crested newt (*Triturus cristatus*) is afforded European Protected Species (EPS) status under the relevant legislation (Ref 3.4) and conservation of the species is of significance at an international level, this does not mean that every population of great crested newt is internationally important. It is important to consider each population in its context. In assigning values to species, the geographic scale at which they are important has been considered. The assessments of value rely on the professional opinion and judgment of suitably experienced ecologists.

3.1.15 Plant communities have been assessed in terms of their intrinsic value, as habitat for protected and notable species.

3.1.16 Due regard has been paid to the legal protection afforded to species during the development of mitigation and compensation measures to be implemented for the Project. For EPS there is a requirement that the Project should not be detrimental to the maintenance of the population of the species concerned at a favourable conservation status in their natural range.

3.1.17 Assessing the value of features requires consideration of both existing and future predicted baseline conditions. The description and valuation of ecological features take account of any likely changes, such as trends in the population size or distribution of species, likely changes to the extent of habitats, and the effects of other proposed developments or land use changes.

3.1.18 All ecological features of Local value and above, where there is the potential for the Project to impact them directly or indirectly, have been taken forward to impact assessment and are the relevant ecological features for the purposes of the Ecological Impact Assessment (EcIA).

3.1.19 In line with Section 1.21 of the CIEEM guidelines (Ref 3.3), the terminology used in the EcIA draws a clear distinction between the terms impact and effect. For the purposes of the EcIA these terms are defined as follows:

"Impact – actions resulting in changes to an ecological feature. For example, the construction activities of a development removing a hedgerow.

"Effect – outcome to an ecological feature from an impact. For example, the effects on a dormouse population from loss of a hedgerow."

Magnitude of Impact

3.1.20 When describing potential impacts (and where relevant the resultant effects) consideration is given to the following characteristics likely to influence this:

- Positive or negative (beneficial or adverse) – i.e. is the change likely to be in accordance with nature conservation objectives and policy and is that change:
  - Positive (beneficial) – a change that improves the quality of the environment, or halts or slows an existing decline in quality e.g. increasing the extent of a habitat of conservation value.
  - Negative (adverse) – a change that reduces the quality of the environment e.g. destruction of habitat.
- Spatial extent – the spatial or geographical area or distance over which the impact or effect may occur under a suitably representative range of conditions;
  - Magnitude – the size, amount or intensity and volume of an impact – this is described on a quantitative basis where possible.
  - Duration – the time over which an impact is expected to last prior to recovery or replacement of the resource or feature. Consideration has been given to how this duration relates to relevant ecological characteristics such as a species' lifecycle. However, it is not always appropriate to report the duration of impacts in these terms. The duration of an effect may be longer than the duration of an activity or impact.
  - Timing and frequency – i.e. consideration of the point at which the impact occurs in relation to critical life-stages or seasons.
  - Reversibility – i.e. is the impact temporary or permanent. A temporary impact is one from which recovery is possible or for which effective mitigation is both possible and enforceable. A permanent effect is one from which recovery is

either not possible or cannot be achieved in a reasonable timescale (in the context of the feature being assessed).

3.1.21 Combined, these characteristics form the magnitude criteria for effects of the proposed works on important ecological features as summarised in **Table 3-1.**

Table 3-1 – Magnitude criteria for effects

Magnitude	Magnitude criteria
High	Changes to an ecological feature that almost always have an adverse effect on its integrity or conservation status. Such changes are usually long-term and often permanent and/or irreversible.
Medium	Adverse changes on an ecological feature that, in some circumstances, may affect its integrity or conservation status. Although such changes may be long-term, they are potentially reversible.
Low	Adverse changes on an ecological feature that do not usually change its integrity or conservation status. Such changes are often short-term and/or reversible.
Very low	There is no noticeable change on the ecological feature.

Significance of Effects

3.1.22 For each ecological feature only those characteristics relevant to understanding the ecological effect of the Project and determining the significance are described. The determination of the significance of effects has been made based on the predicted effect on the structure and function, or conservation status, of relevant ecological features, as follows:

- Not significant – no effect on structure and function, or conservation status.
- Significant – structure and function, or conservation status is affected.

3.1.23 Section 5.24 of the CIEEM guidelines (Ref 3.3) states that:

"…For the purpose of EcIA, "significant effect" is an effect that either supports or undermines biodiversity conservation objectives for 'important ecological features' (explained in Chapter 4) or for biodiversity in general. Conservation objectives may be specific (e.g. for a designated site) or broad (e.g. national/local nature conservation policy) or more wide-ranging (enhancement of biodiversity). Effects can be considered significant at a wide range of scales from international to local".

3.1.24 *Sections 5.*25 and 5.26 of the CIEEM guidelines (Ref 3.3) state that:

"A significant effect is simply an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. A significant effect is a positive or negative ecological effect that should be given weight in judging whether to authorise a project: it can influence whether permission is given or refused and, if given, whether the effect is important enough to warrant conditions, restrictions or further requirements such as monitoring. A significant effect does not necessarily equate to an effect so

severe that consent for the project should be refused planning permission. For example, many projects with significant negative ecological effects have been lawfully permitted following EIA procedures.

"In broad terms, significant effects encompass impacts on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution)".

3.1.25 Using this information and professional judgment, it is determined whether the effects will be significant or not on the structure and integrity (of site or ecosystems) or conservation status (of habitats and or species) of each ecological feature and the effect significance is determined at the appropriate geographical scale.

3.1.26 There are a range of approaches for determining the significance of effects on ecological features. Whilst the CIEEM guidelines (Ref 3.3) recommends the avoidance of the use of the matrix approach for categorisation (Major, Moderate and Minor), in order to provide consistency of terminology in the ES, the findings of the CIEEM assessment have been translated into the classification of effects scale, as outlined in **Table 3-2** but still remain consistent with the CIEEM guidelines (Ref 3.3). As a rule, Major and Moderate effects are considered to be significant, whilst Minor and Negligible effects are considered to be not significant. However, professional judgement is also applied when concluding whether an effect is significant or not, including taking account of whether the effect is permanent or temporary, its duration and frequency, whether it is reversible, and/or its likelihood of occurrence.

Table 3-2 – Relating CIEEM assessment terms to those used in other EIA chapters

Effect classification terminology used in the ES	Equivalent CIEEM assessment methodology
Major beneficial	Beneficial effect on structure and/or function or conservation status at Regional, National or International level.
Moderate beneficial	Beneficial effect on structure and/or function or conservation status at County and District level.
Minor beneficial	Beneficial effect on structure and/or function or conservation status at Local level.
Neutral and/or Negligible	No effect on structure and/or function or conservation status.
Minor adverse	Adverse effect on structure and/or function or conservation status at Local level.
Moderate adverse	Adverse effect on structure and/or function or conservation status at County and District level.
Major adverse	Adverse effect on structure and/or function or conservation status at Regional, National or International level.

4 Historic Environment

4.1 Bryncir, Glaslyn Cables and Wider Works

Introduction

4.1.1 This chapter outlines the methods used to assess the Historic Environment effects associated with the Project.

Assessment Methodology

4.1.2 This section sets out the methodology for the preliminary assessment of the impacts of the proposed works on terrestrial heritage. The assessment criteria used was based on Cadw guidance on heritage impact assessment in Wales (Ref 4.1) and the setting of historic assets in Wales (Ref 4.2). Historic Environment assets are referred to as 'historic assets' in line with this guidance. Further details of the assessment methodology are set out in **Volume 8, Appendix 3.6.A: Historic Environment Desk-based Assessment (Bryncir), Volume 8, Appendix 4.6.A: Historic Environment Desk-based Assessment (Glaslyn Cables)** and **Volume 8, Appendix 6.6.A: Historic Environment Desk-based Assessment (Wider Works).**

Assessing the Value of a Historic Asset

4.1.3 The value of a historic asset is guided by its designated status, but is derived also from its heritage interest, which may be evidential, historical, aesthetic or communal. The setting of a historic asset can also contribute to its value. Using professional judgment and the results of consultation, assets have been assessed on an individual basis with regional variations and individual qualities considered where applicable.

4.1.4 **Table 4-1** below provides the criteria for assigning heritage value, but in all cases professional judgement has been applied regarding the appropriate category for individual heritage assets, with a justification for this assessment provided.

Table 4-1 – Criteria for determining the value of historic assets

Value	Description
High	World Heritage Sites. Scheduled Monuments. Aircraft crash sites. Grade I and II* Listed Buildings. Registered battlefields. Grade I and II* registered parks and gardens. Conservation areas of demonstrable high value. Non-designated heritage assets (archaeological sites, historic buildings, monuments, parks, gardens, or landscapes) that can be shown to have demonstrable national or international importance.

Value	Description
	Well preserved historic landscape character areas, exhibiting considerable coherence, time-depth, or other critical factor(s).
Medium	Grade II Listed Buildings. Conservation areas. Grade II registered parks and gardens. Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens, or landscapes) that can be shown to have demonstrable regional importance. Averagely preserved historic landscape character areas, exhibiting reasonable coherence, time-depth, or other critical factor(s). Historic townscapes with historic integrity in that the assets that constitute their make-up are clearly legible.
Low	Locally Listed Buildings. Non-designated heritage assets (archaeological sites, historic buildings, monuments, park, gardens, or landscapes) that can be shown to have demonstrable local importance. Assets whose values are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade. Historic landscape character areas whose value is limited by poor preservation and/or poor survival of contextual associations.
Very Low	Assets identified on national or regional databases, but which have no evidential, historical, aesthetic or communal value. Assets whose values are compromised by poor preservation or survival of contextual associations to justify inclusion into a higher grade. Landscape with no or little significant historical merit.

Assessing the Magnitude of Impact

4.1.5 Once the value of the historic asset had been identified, the next stage in the assessment was to identify the level and degree of impact on an asset arising from the proposed works. Impacts may arise during construction and operation phases and could be temporary or permanent, direct or indirect, or positive or negative. Impacts may occur to the physical fabric of an asset or may arise from changes in its setting. The assessment of the level and degree of impact was made in consideration of any Project design mitigation (embedded mitigation). If no impact is likely, it is reported for the purposes of this assessment as ‘no change’. The level and degree of impact (impact rating) has been assigned with reference to a four-point scale as set out in

4.1.6 **Table 4-2**.

Table 4-2 – Magnitude criteria for historic assets

Magnitude	Magnitude criteria
High	Changes to most or all key components of the asset through physical impact, such that it is totally altered or destroyed, resulting in a comprehensive impact on its overall value; and/or Comprehensive alteration, including the total loss or complete restoration, of elements of an asset's setting that cause a fundamental change in our ability to understand and appreciate its heritage interests; thereby resulting in a comprehensive impact on its overall value.
Medium	Changes to many key components of the asset through physical impact, such that it is significantly altered or modified, resulting in a noticeable impact on its overall value; and/or Changes to the setting of an asset which noticeably affect our ability to understand and appreciate its heritage interests, resulting in a noticeable impact on its overall value.
Low	Changes to some key components of the asset through physical impact, such that it is slightly altered, resulting in a slight impact on its overall value; and/or Changes to the setting of an asset that slightly alter our ability to understand and appreciate its heritage interests, resulting in a slight impact on its overall value.
Very Low	Very minor changes to key components of an asset through physical impact, resulting in no real change on its overall value; and/or Changes to the setting of an asset that have little effect on our ability to understand and appreciate its heritage interests, resulting in no real change on its overall value.
No Change	No physical impacts on the asset and/or no alteration or change to the asset's setting.

Significance Criteria

4.1.7 An assessment to classify the likely significance of the effect, having taken into consideration any embedded mitigation, has been determined using the matrix in **Table 4-3**.

4.1.8 The overall effect on the asset, caused by the impact, has been determined by consideration of the value of the historic asset (**Table 4-1**) and the magnitude of the impact (

4.1.9 **Table 4-2**), with a level of professional judgement included in the determination. This is identified by the degree of change that would be experienced by the historic asset and its setting if the proposed works were to be completed as compared with a 'do nothing' situation. Effects can be neutral, adverse or beneficial.

4.1.10 Residual major or moderate effects are deemed to be 'significant' for the purposes of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 (Ref 4.3), in accordance with standard Environmental Impact Assessment (EIA) practice. Minor and negligible effects are deemed to be 'not significant' and may not be important or relevant to the decision-making process, although they may be matters of local concern.

Table 4-3 – Matrix used to determine the likely significance of potential effects

		Magnitude of potential impact			
		High	**Medium**	**Low**	**Very low**
Value of historic asset	**High**	Major	Major	Moderate	Minor
	Medium	Major	Moderate	Minor	Negligible
	Low	Moderate	Minor	Negligible	Negligible
	Very low	Minor	Negligible	Negligible	Negligible

Buried Archaeological Potential

4.1.11 Buried archaeological evidence is often an unknown quantity which can be difficult to fully identify. The likelihood of the presence of unknown archaeological assets has been assessed on known baseline evidence, but the physical nature and extent of any archaeological resource surviving in the site cannot be fully confirmed without further baseline assessment and fieldwork investigation. This is not unique to this project or area. In the Glaslyn cable works area land has been reclaimed from the estuary and archaeological deposits where they survive may be deeply buried.

Limitations and Assumptions

4.1.12 Baseline conditions have been established using data and records provided by third parties, and it has been assumed that this information is accurate and up to date at the time of reporting.

4.2 Pentir Substation and Trawsfynydd Substation

4.2.1 Not applicable – all receptors scoped out.

5 Geology, Hydrogeology, Land Use and Agriculture (Soils)

5.1 Pentir Substation, Bryncir, Glaslyn Cables and Trawsfynydd Substation

Introduction

5.1.1 This chapter outlines the methods used to establish the baseline conditions and to assess the Geology, Hydrogeology, Land Use and Agriculture (Soils) effects associated with the Project.

Assessment Methodology

5.1.2 The baseline and potential effects have been established through desk study and the proposed works. Utilising this information, a qualitative assessment has been undertaken to assess the potential effects of the existing ground conditions on the proposed works, and the potential effects of the proposed works on the Geology, Hydrogeology, Land Use and Agriculture (Soils).

5.1.3 In relation to ground contamination, the risk assessment has been based on the source-pathway-receptor methodology outlined in Land Contamination Risk Management (LCRM) (Ref 5.1) and promoted by Department of Environment, Food and Rural Affairs (Defra) and Natural Resources Wales. For there to be an identifiable risk, there must be contaminants present on the site (source) and there must also be a receptor and a viable pathway which allows the source to impact on the receptor.

5.1.4 Detailed assessments of potential Source-Pathway-Receptor linkages and risk assessments have been used to develop the Conceptual Site Models (CSMs) for Pentir Substation, Bryncir, Glaslyn Cables and Trawsfynydd Substation, which are included in **Volume 8, Appendices 2.7.A, 3.7.A, 4.7.A and 5.7.A: Initial Conceptual Site Model and Risk Assessment**.

5.1.5 The general assessment methodology used for the ES is summarised in **Volume 1, Chapter 4: Environmental Assessment Methodology**. However, the assessment of the significance of the potential effects on Geology, Hydrogeology Land Use and Agriculture (Soils) has been based on guidance in the Design Manual for Roads and Bridges (DMRB) LA 109 Geology and Soils (geology) (Ref 5.2) and LA 113 Road Drainage and the Water Environment (groundwater) (Ref 5.3). There is no specific guidance in relation to electrical power transmission schemes for assessing Geology, Hydrogeology, Land Use and Agriculture (Soils). DMRB has been used as it is the most appropriate methodology for the Geology, Hydrology, Land Use and Agriculture (Soils) assessment of the proposed works because it is designed for assessing effects on linear schemes (including 'point' features), albeit road schemes. It is also a well-established and tested methodology, familiar to the statutory consultees.

5.1.6 The assessment of receptor value (sensitivity) for Geology, Hydrogeology, Land Use and Agriculture (Soils) followed the procedure described in Table 3.11 of the DMRB LA 109 (Ref 5.2). The assessment of receptor value (importance) for groundwater resources followed the procedure described in Table 3.70 of the DMRB LA 113, Road Drainage and the Water Environment (Ref 5.3).

Value and/or Sensitivity of Receptors

5.1.7 The sensitive receptors relevant to this assessment include the following:

- Geology (from physical works):
  - Superficial deposits.
  - Bedrock geology.
  - Sites designated for geodiversity interest.
- Hydrogeology (from physical works and as receptors of land contamination):
  - Aquifers (Principal, Secondary A, B and undifferentiated).
  - Source Protection Zones (SPZ) (1, 2 and 3).
  - Regulated and unregulated abstractions.
- Minerals (from physical works):
  - Mineral Safeguarding Areas (MSA).
  - Preferred areas for minerals.
- Agricultural Soils (from physical works).
- Human Health (as receptors to land contamination):
  - Construction workers.
  - Maintenance workers.
  - Adjacent site users.
- Hydrology (as receptors to land contamination):
  - Surface water features.
- Development Infrastructure (from physical works and as receptors to land contamination):
  - Above and below ground installations.
- Ecological Sites (as receptors for land contamination).

5.1.8 The value (sensitivity or importance) of a resource, ranges from Very High to Negligible (or Low for groundwater) and is dependent on the assessment area or features of importance and conservation value. The criteria for determining the value of a resource and typical examples for geology, soils, minerals, human health and controlled waters is provided in **Table 5-1**.

Table 5-1 – Sensitivity (value) of the Geology, Hydrogeology, Land Use and Agriculture (Soils) attributes (adapted from DMRB LA109 Table 3.11 (Ref 5.2) and DMRB LA113 Table 3.70 (Ref 5.3)

Receptor value (sensitivity importance)	Criteria	Aspect	Typical examples
Very High	Very rare and of international importance with no potential for replacement. Geology meeting international designation citation criteria which is not designated as such.	Geology	United Nations Educational, Scientific and Cultural Organisation (UNESCO) World Heritage Sites, UNESCO Global Geoparks, Sites of Special Scientific Interest (SSSIs) and Geological Conservation Review (GCR) sites where citations indicate features of international importance.
	Soil directly supporting a European Union (EU) designated site.	Soils	SAC, SPA, Ramsar Site. Agricultural Land Classification (ALC) Grades 1 and 2.
	Human health: very high sensitivity land use.	Contamination – human health	Residential or allotments.
	Groundwater: nationally significant attribute of high importance.	Groundwater	Principal aquifer providing a regionally important resource and/or supporting a site designated under European Commission (EC) and United Kingdom (UK) legislation. Groundwater locally supports Groundwater Dependent Terrestrial Ecosystems (GWDTE). SPZ 1.
High	Rare and of national importance with little potential for replacement. Geology meeting national designation citation criteria which is not designated as such.	Geology	Geological SSSIs and National Nature Reserves (NNRs).

Receptor value (sensitivity importance)	Criteria	Aspect	Typical examples
	Soils directly supporting a UK designated site.	Soils	UK designated SSSIs. ALC Grade 3a.
	High sensitivity: in a mineral preferred area.[2]	Minerals	Mineral preferred area.
	Human health: high sensitivity land use.	Contamination – human health	Public open space.
	Groundwater: locally significant attribute of high importance.	Groundwater	Principal aquifer providing locally important resource or supporting a river ecosystem. Groundwater supports a GWDTE. SPZ 2.
Medium	Of regional importance with limited potential for replacement. Geology meeting regional designation citation criteria which is not designated as such.	Geology	Regionally Important Geological Sites (RIGS).
	Soils supporting non-statutory designated sites.	Soils	Local Nature Reserves (LNRs), Local Geological Sites (LGS), Sites of Nature Conservation Importance (SNCIs). ALC Grade 3b.
	Medium sensitivity: in an MSA.[3]	Minerals	MSA.
	Human health: medium sensitivity land use.	Contamination – human health	Commercial or industrial land.
	Groundwater: of moderate quality and rarity.	Groundwater	Aquifer providing water for agricultural or industrial use with limited connection to surface water.

[2] Defined using professional judgement: this is not defined within LA 109 (Ref 5.2).

Receptor value (sensitivity importance)	Criteria	Aspect	Typical examples
			SPZ 3.
Low	Of local importance and/or interest with potential for replacement.	Geology	Non designated geological exposures, former quarries and mining sites.
	Soils supporting non-designated notable or priority habitats.	Soils	ALC Grades 4 and 5.
	Human health: low sensitivity land use.	Contamination – human health	Highways and rail.
	Groundwater: lower quality.	Groundwater	Unproductive strata.
Negligible	No geological exposures, little and/or no local interest.	Geology	Significant depth of Made Ground.
	Soils: previously developed land formerly in 'hard uses' with little potential to return to agriculture	Soils	Industrial land and soils not present.
	Not of identified importance for minerals	Minerals	Not in a Mineral Preferred Area or an MSA.
	Human health: undeveloped surplus land, no sensitive land use proposed.	Contamination – human health	Extensive areas of existing hard standing.
	Groundwater: negligible is not applicable to groundwater under Table 3.7 of LA 113 (Ref 5.3).	Groundwater	NA

Magnitude of Impacts

5.1.9 The magnitude of potential impacts on Geology, Hydrogeology, Land Use and Agriculture (Soils) considers the scale of the predicted change to baseline conditions and where there are potential pathways between an impact source or hazard and identified receptors. This takes into account the spatial scale of the impact, as well as its duration and reversibility (e.g. the impact magnitude may be moderated if the impacts are temporary rather than permanent; or are reversible rather than irreversible).

5.1.10 The magnitude of impact on a receptor (Geology, Hydrogeology, Land Use and Agriculture (Soils)) ranges from Major to No Change, with additional magnitude descriptions of Minor Beneficial, Moderate Beneficial and Major Beneficial prescribed to groundwater receptors in line with DMRB LA 113 (Ref 5.3). The criteria for determining the magnitude of impact on receptors are provided in **Table 5-2**.

Table 5-2 – Magnitude of impact of a resource (adapted from DMRB LA 109 Table 3.12 (Ref 5.2) and DMRB LA 113 Table 3.71 (Ref 5.3)) and IEMA 'A New Perspective on Land and Soil in Environmental Impact Assessment' (Ref 5.4)

Magnitude	Criteria	Aspect	Typical description
Major	Result in loss of resource and/or designation or quality of the resource.	Geology and minerals	Loss of geological feature or designation and/or quality and integrity, severe damage to key characteristics, features or elements.
		Soils	Permanent irreversible loss (including permanent sealing or land quality downgrading) or permanent improvement of one or more soil functions or soil volumes (due to remediation or restoration) over >20 hectares (ha) of agricultural land.
	Human health: significant contamination identified. Contamination levels significantly exceed background levels and relevant screening criteria (e.g. category 4 screening levels – SP1010 (Contaminated Land: Applications in Real Environments (CL:AIRE, 2014)) (Ref 5.5). Potential for significant harm to human health.	Contamination	Contamination heavily restricts future use of land.
	Results in loss of attribute and/or quality and integrity of the attribute.	Groundwater	Loss of, or extensive change to, an aquifer. Loss of regionally important water supply. Calculated risk of pollution from spillages ≥2% annually (Spillage Assessment). Potential high risk of pollution to groundwater from routine runoff – risk score >250 (Groundwater quality and runoff assessment). Loss of, or extensive change to GWDTE or baseflow contribution to protected surface water bodies.

Magnitude	Criteria	Aspect	Typical description
			Reduction in water body Water Framework Directive (WFD) classification. Loss or significant damage to major structure through subsidence or similar effects.
Moderate	Results in partial loss of resource, designation or quality of the resource.	Geology and minerals	Partial loss of geological feature and/or designation, potentially adversely affecting the integrity; partial loss of and/or damage to key characteristics, features or elements.
		Soils	Permanent irreversible loss (including permanent sealing or land quality downgrading) or permanent improvement of one or more soil functions or soil volumes (due to remediation or restoration) over >5 ha <20 ha of agricultural land.
	Human health: contaminant concentrations exceed background levels and are in line with limits of relevant screening criteria (e.g., category 4 screening levels SP1010). Significant contamination can be present.	Contamination	Control and/or remediation measures are required to reduce risks to human health and/or make land suitable for intended use.
	Results in effect on integrity of attribute, or loss of part of attribute.	Groundwater	Partial loss or change to an aquifer. Degradation of regionally important public water supply or loss of significant commercial, industrial and/or agricultural supplies. Potential medium risk of pollution to groundwater from routine runoff – risk score 150 to 250. Calculated risk of pollution from spillages ≥1% annually and <2% annually. Partial loss of the integrity of GWDTE. Contribution to reduction in water body WFD classification.

Magnitude	Criteria	Aspect	Typical description
			Damage to major structures through subsidence or similar effects or loss of minor structures.
Minor	Results in minor measurable change in resource and/or designation.	Geology and minerals	Minor measurable change in geological feature and/or designation attributes, quality or vulnerability; minor loss of, or alteration to, one (may be more) key characteristics, features or elements.
		Soils	Permanent irreversible loss (including permanent sealing or land quality downgrading) or permanent improvement of one or more soil functions or soil volumes (due to remediation or restoration) over <5 ha of agricultural land. Temporary loss and/or reduction of one or more soil function(s) and restriction to current or approved future use (e.g., through degradation, compaction, erosion of soil resource).
	Human health: contaminant concentrations are below relevant screening criteria (e.g. category 4 screening levels SP1010). Significant contamination is unlikely with a low risk to human health.	Contamination	Good practice and professional guidance measures can be required to minimise risks to human health.
	Results in some measurable change in attributes, quality or vulnerability.	Groundwater	Potential low risk of pollution to groundwater from routine runoff – risk score <150. Calculated risk of pollution from spillages ≥0.5% annually and <1% annually. Minor effects on an aquifer, GWDTEs, abstractions and structures.
Negligible	Results in effect on attribute, but of insufficient magnitude to affect the use and integrity.	Geology and minerals	Very minor loss or detrimental alteration to one or more characteristics, features or elements of

Magnitude	Criteria	Aspect	Typical description
			geological feature/designation. Overall integrity of resource not affected.
		Soils	No discernible loss and/or reduction of soil function(s) that restrict current or approved future use.
	Human health: contaminant concentrations substantially below levels outlined in relevant screening criteria (e.g., category 4 screening levels SP1010).	Contamination	No requirement for control measures to reduce risks to human health and/or make land suitable for intended use.
	Results in effect on attribute, but of insufficient magnitude to affect the use and integrity.	Groundwater	No measurable impact on an aquifer and/or groundwater receptors and risk of pollution from spillages <0.5%.
Minor Beneficial	Results in some beneficial effect on attribute or a reduced risk of negative effect occurring.	Groundwater only	Reduction of groundwater hazards to existing structures. Reductions in waterlogging and groundwater flooding.
Moderate Beneficial	Results in moderate improvement of attribute quality.	Groundwater only	Contribution to improvement in water body WFD classification. Improvement in water body catchment abstraction management Strategy (CAMS) (or equivalent) classification. Support to significant improvements in damaged GWDTE.
Major Beneficial	Results in major improvement of attribute quality.	Groundwater only	Removal of existing polluting discharge to an aquifer or removing the likelihood of polluting discharges occurring. Recharge of an aquifer. Improvement in water body WFD classification.

Magnitude	Criteria	Aspect	Typical description
No Change	No temporary or permanent loss in resource of designation.	Geology and minerals	No temporary or permanent loss/disturbance of characteristics features or elements.
		Soils	No loss and/or reduction of soil function(s) that restrict current or approved future use.
	Human health: reported contaminant concentrations below background levels.	Contamination	No intervention required.
	No loss or alteration of characteristics, features or elements.	Groundwater	No observable impact in either direction.

Significance Criteria

5.1.11 Once the value (sensitivity) of each resource and the magnitude of the potential impact has been established, the significance (effect) matrix from Table 3.8.1 DMRB LA 104 (Ref 5.6) has been used to determine the effect significance reproduced in **Table 5-**.

Table 5-5 – Significance of effect

Effect	Significance
Very large, large and moderate	Significant
Slight and neutral	Not significant

5.2 Wider Works

5.2.1 Not applicable – all receptors scoped out.

5.2.2 **Table 5-4** presents the significance of each effect.

Table 5-4 – Significance (Effect) Matrix

		Magnitude of Impact (Degree of Change)				
		No Change	**Negligible**	**Minor**	**Moderate**	**Major**
Receptor value	**Very High**	Neutral	Slight	Moderate or large	Large or very large	Very large
	High	Neutral	Slight	Slight or moderate	Moderate or large	Large or very large
	Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or Slight	Neutral or slight	Slight	Slight or moderate
	Negligible	Neutral	Neutral	Neutral or slight	Neutral or slight	Slight

Table 5-5 – Significance of effect

Effect	Significance
Very large, large and moderate	Significant
Slight and neutral	Not significant

5.3 Wider Works

5.3.1 Not applicable – all receptors scoped out.

6 Water Quality, Resources and Flood Risk

6.1 Bryncir and Glaslyn Cables

Introduction

6.1.1 This chapter outlines the methods used to assess the Water Quality, Resources and Flood Risk effects associated with the Project.

Assessment criteria

6.1.2 Assessment criteria have been defined and applied based on professional judgement, using recognised approaches to classification relevant to the receptor types, including WFD and Technical Advice Note (TAN) 15, all of which represent good practice for water environment assessments in EIAs. The WFD assessment has its own specific assessment methodology set out within Section 1.2 of Appendix 4.8.B.

6.1.3 The significance of an effect resulting from a development will be assessed with reference to the sensitivity (or value) of a given water receptor and the magnitude of the effect. This approach provides a mechanism for identifying areas where mitigation measures may be required and to identify the most appropriate measures to alleviate the risk presented by the proposed works. The residual effects of the proposed works on the water environment have been evaluated assuming that identified mitigation measures are fully implemented.

6.1.4 In terms of the Water Quality, Resources and Flood Risk, the ES has been largely based on professional judgement, based on experience and the use of good practice and professional guidance, such as that published by the NRW, CIRIA and Defra. The key determinants of sensitivity and magnitude will relate to the Aquatic Environment (used here to refer to surface water quality and quantity and hydromorphology aspects), Water Resources and Flood Risk.

Sensitivity of Receptors

6.1.5 **Table 6.1** details the basis for assessing receptor sensitivity.

Table 6-1 – Receptor sensitivity

Sensitivity	Criteria	Receptor type	Examples
Very High	Feature with a high quality and rarity at an international scale, with little potential for substitution	Aquatic environment	Conditions supporting sites with international conservation designations (SACs, SPAs, Ramsar sites), where the designation is based specifically on aquatic features.
		Water resources	Regionally important public water supplies.

Sensitivity	Criteria	Receptor type	Examples
		Flood risk	Land use types considered to be 'Emergency Services' in the 'Highly Vulnerable' classification) in the TAN 15 where risk is greatest.
High	Feature with a high yield and/or quality and rarity at a national scale, with a limited potential for substitution	Aquatic environment	Conditions supporting sites with national conservation designations (i.e. SSSIs, NNRs) where the designation is based specifically on aquatic features. Receptor water body: all relevant WFD supporting elements* at least good status/potential.
		Water resources	Local public water supplies.
		Flood risk	Land use types defined as 'Highly Vulnerable' in the TAN15 flood risk vulnerability classification.
Medium	Feature with a medium yield and/or quality at a regional scale or good quality at a local scale, with some potential for substitution	Aquatic environment	Sites with local conservation designations where the designation is based specifically on aquatic features. Receptor water body: all relevant WFD elements* at least moderate status/potential.
		Water resources	Un-licensed potable water abstractions, e.g. private domestic water supplies.
		Flood risk	Land use types defined as 'Less Vulnerable' in the TAN 15 flood risk vulnerability classification where risk are greater.
Low	Feature with a low yield and/or quality at a local scale, with some potential for substitution	Aquatic environment	Receptor water body: relevant WFD elements* at less than moderate status/potential. Small watercourses not classified as a WFD river water body.
		Water resources	Licensed abstractions which are not public water supply, e.g. industrial process water, spray irrigation.
		Flood risk	Land use types defined as 'Less Vulnerable' in the TAN15 flood risk vulnerability classification.
Very Low	Feature with minimal yield and/or	Aquatic environment	Receptor water body: relevant WFD elements* at poor status/potential.

Sensitivity	Criteria	Receptor type	Examples
	very low quality at a local scale, with a high potential for substitution		Minor water features such as ditches, not classified as a WFD river water body.
		Water resources	Un-licensed non-potable abstractions, e.g. livestock supplies.
		Flood risk	Land use types which are considered to be exceptions or Water Compatible Development under TAN 15 as they are required in a fluvial, tidal or coastal location by virtue of their nature.

*For the purposes of this assessment, 'relevant WFD elements' are taken to mean:
all biological quality elements e.g. fish, invertebrates etc.;
all physico-chemical quality elements e.g. dissolved oxygen, phosphate etc.; and
hydromorphological supporting elements.
The definition of 'relevant WFD elements' (given the lack of potential for the Proposed Scheme to influence these substances) excludes:
Priority Hazardous Substances;
Priority Substances; and
Specific Pollutants.

Magnitude of Impacts

6.1.6 **Table 6-2** details the basis for assessing magnitude of change.

Table 6-2 – Establishing the magnitude of change

Magnitude	Criteria	Receptor type	Examples of negative change
Very High	Results in major change to feature, of sufficient magnitude to affect its use/integrity	Aquatic environment	Deterioration in river flow regime, morphology or water quality, leading to sustained, permanent or long-term breach of relevant Conservation Objectives (COs) or downgrading of WFD status (including downgrading of individual WFD supporting elements).
		Water resources	Complete loss of resource or severely reduced resource availability and/or quality, permanently compromising the ability of water users to exercise licensed rights.
		Flood risk	Change in flood risk resulting in potential loss of life or major damage to property and infrastructure
High	Results in noticeable change to feature, of sufficient magnitude to affect its	Aquatic environment	Deterioration in river flow regime, morphology or water quality, leading to periodic, short-term and reversible breaches

Magnitude	Criteria	Receptor type	Examples of negative change
	use/integrity in some circumstances		of relevant COs, or downgrading of WFD status. (including downgrading of individual WFD supporting elements or ability to achieve future WFD objectives).
		Water resources	Moderate reduction in resource availability and/or quality, which may compromise the ability of water users to exercise licensed rights on a temporary basis or for limited periods.
		Flood risk	Change in flood risk resulting in potential for moderate damage to property and infrastructure.
Medium	Results in minor change to feature, with insufficient magnitude to affect its use/integrity in most circumstances	Aquatic environment	Measurable deterioration in river flow regime, morphology or water quality, but remaining generally in COs, and with no change to WFD status (of overall status or supporting element status).
		Water resources	Minor reduction in resource availability and/or quality, but unlikely to affect the ability of water users to exercise licensed rights.
		Flood risk	Change in flood risk resulting in potential for minor damage to property and infrastructure.
Low	Results in little change to feature, with insufficient magnitude to affect its use/integrity	Aquatic environment	Limited measurable deterioration in river flow regime, morphology or water quality and limited probability of consequences in terms of COs or WFD designations.
		Water resources	Limited measurable change in resource availability or quality and limited probability of changes to the ability of water users to exercise licensed rights.
		Flood risk	Increased frequency of flood flows, but which does not pose an increased risk to people, property and infrastructure.
Very Low	Results in no change to feature, with insufficient magnitude	Aquatic environment	No measurable deterioration in river flow regime, morphology or water quality and no consequences in terms of COs or WFD designations.

Magnitude	Criteria	Receptor type	Examples of negative change
	to affect its use/integrity	Water resources	No measurable change in resource availability or quality and no change in ability of water users to exercise licensed rights.
		Flood risk	No increase in frequency of flood flows, and no increase in risk to people, property and infrastructure.

Significance Criteria

6.1.7 **Table 6.3** provides an indication of how the level of effect has been categorised from the interaction of a receptor's sensitivity to change and the magnitude of change. A level of effect of Moderate or greater is generally of most importance to the decision-maker, and so these effects are considered 'significant'. The significance of effects identified as being 'potentially significant' has been confirmed via professional judgement. Where a level of effect is Minor or below, these are generally considered to be 'not significant'.

6.1.8 Reference is made to:

- Major effects, which will always be determined as being significant.
- Moderate effects can be significant, or nor significant, based on specific scenarios and professional judgement.
- Minor or negligible effects, which will always be deemed as not significant.

6.1.9 Effects can either be positive or negative.

Table 6-3 – Significance evaluation matrix

		Magnitude of change				
		Very high	**High**	**Medium**	**Low**	**Very low**
Sensitivity of receptor	**Very high**	Major (Significant)	Major (Significant)	Major (Significant)	Moderate (Potentially significant)	Minor (Not significant)
	High	Major (Significant)	Major (Significant)	Moderate (Potentially significant)	Minor (Not significant)	Minor (Not significant)
	Medium	Major (Significant)	Moderate (Potentially significant)	Minor (Not significant)	Minor (Not significant)	Negligible (Not significant)
	Low	Moderate (Potentially significant)	Minor (Not significant)	Minor (Not significant)	Negligible (Not significant)	Negligible (Not significant)

	Magnitude of change				
	Very high	**High**	**Medium**	**Low**	**Very low**
Very Low	Minor (Not significant)	Minor (Not significant)	Negligible (Not significant)	Negligible (Not significant)	Negligible (Not significant)

*Note: Significant effects are those identified as 'Major'. 'Moderate' effects may be deemed to be significant depending on the environmental topic and the application of professional judgment. In **Table 6.3** where professional judgement has been used to determine significance, the approach and justification is set out.*

6.2 Pentir Substation, Trawsfynydd Substation and Wider Works

6.2.1 Not applicable – all receptors scoped out.

7 Traffic and Transport

7.1 Pentir Substation, Bryncir, Glaslyn Cables and Trawsfynydd Substation

Introduction

7.1.1 This chapter outlines the methods used to establish the baseline conditions and to assess the Traffic and Transport effects associated with the Project.

Assessment Methodology

7.1.2 This section presents the methodology used to assess the Traffic and Transport effects, including the criteria for determining the sensitivity of receptors and the magnitude of change from the baseline condition for construction phase traffic.

7.1.3 The impact of additional development-generated traffic on the surrounding road network during construction phases is anticipated to be the most significant stage of each site's proposed works, with the operational phase anticipated to create much less traffic.

7.1.4 The methodology for assessing the impact of development-generated traffic is based on that outlined in the IEMA Guidelines (Ref 7.1).

7.1.5 The IEMA Guidelines state that a link on the highway network should be included in each study if one of the following criteria is met:

- **Rule 1 –** Include highway links where traffic flows will increase by more than 30% (or the number of Heavy Goods Vehicles (HGVs) will increase by more than 30%); or
- **Rule 2 –** Include highway links of high sensitivity where traffic flows have increased by 1-% or more.

7.1.6 The IEMA Guidelines (Ref 7.1) recommend that several environmental effects may be important when considering traffic from an individual development. Each Traffic and Transport chapter (**Chapter 9 Traffic and Transport** of **Volumes 2 – 5)** provides an assessment of the following effects:

- Severance of communities.
- Road vehicle driver and passenger delay.
- Non-motorised amenity.
- Fear and intimidation on and by road users.
- Road user and pedestrian safety.
- Hazardous and/or large loads.

7.1.7 The impacts of worker traffic and HGV increases associated with each works site are fundamental to determining the effects in the above categories.

7.1.8 The significance of the effect has been determined though consideration of two elements: the magnitude of the impact and the sensitivity of the receptor. The following sections outline the approach that has been used to determine to what extent an effect is environmentally significant.

7.1.9 The overall effect has been determined by measuring the magnitude of the impact following the introduction of embedded measures (where applicable) against criteria including the predicted increase in traffic; the type and sensitivity of the receptor; and the type of the impact.

7.1.10 To ensure the EIA and the assessment presented in this ES were robust in considering the likely significant effects of each works site, appropriate assessment scenarios and years have been identified and have been discussed below. The scenarios for each assessment are:

- Baseline Year (**2024**) – Daily traffic flows (including total vehicles and total HGVs).
- Peak Construction Year (**2026**) – Daily traffic flows (including total vehicles and total HGVs).

7.1.11 The arrival and departure of construction staff via the local highway network was expected to occur outside of the traditional network peak hours. Therefore, these movements utilised the residual capacity of the local highway network, and a network peak hour assessment was excluded.

7.1.12 A week-long assessment (Monday to Sunday, Tuesday to Monday, Wednesday to Tuesday, etc.) has been conducted to represent typical traffic conditions during both the baseline and peak construction phases. This assessment captures the worst-case scenario in terms of weekly traffic flows. A weekend assessment, including Saturday and Sunday, has not been specifically included, as traffic volumes during weekends are expected to be lower than during the weeklong averages, providing additional capacity in the network to accommodate any construction-related traffic.

Sensitivity of Receptors

7.1.13 As stated above, the methodology for assessing the impact of each works site's generated traffic has been based on that outlined in the IEMA Guidelines (Ref 7.1). The general criteria for defining the importance, or sensitivity, of receptors has been set out in **Table 7-1**, which draws on guidance set out in Sections 1.28 to 1.32 of the IMEA Guidelines (Ref 7.1).

Table 7-1 – Receptor sensitivity criteria (Traffic and Transport)

Receptors	Built environment indicator on highway link	Highway link sensitivity to changes in traffic flow
Residents	Residential properties.	**High**: Where there is a high concentration of properties with direct frontage to the highway link being used as a construction route.
		Medium: Where there are several properties with direct frontage to the highway link being used as a construction route.
		Low: Where there are few properties with direct frontage to the highway link being used as a construction traffic route.
		Very Low: Where there are no properties with direct frontage to the highway link being used as a construction traffic route.
Workers	Offices, industrial units, employment uses.	**High**: Where there is a high concentration of offices or other workplaces with direct frontage to the highway link being used as a construction route.
		Medium: Where there are several offices or other workplaces with direct frontage to the highway link being used as a construction route.
		Low: Where there are few offices or other workplaces with direct frontage to the highway link being used as a construction traffic route.
		Very Low: Where there are no offices or other workplaces with direct frontage to the highway link being used as a construction traffic route.
Sensitive groups (children, elderly and disabled)	Schools, play areas, care and retirement homes, disabled parking bays.	**High**: Where there are multiple indicators of sensitive groups with direct frontage onto the highway link being used as a construction traffic route.
		Medium: Where one indicator of sensitive groups is present with direct frontage onto the highway link being used as a construction traffic route.
		Very Low: Where no indicator of sensitive groups is present.

Receptors	Built environment indicator on highway link	Highway link sensitivity to changes in traffic flow
Sensitive locations (hospitals, places of worship, schools, historic buildings)	Hospitals, places of worship, schools, historic buildings	**High**: Where there are multiple indicators of sensitive locations with direct frontage onto the highway link being used as a construction traffic route.
		Medium: Where one indicator of sensitive locations is present with direct frontage onto the highway link being used as a construction traffic route.
		Very Low: Where no indicator of sensitive locations is present.
People walking	Footways, PRoW, crossings	**High**: Where there are multiple indicators of sensitive locations with direct frontage onto the highway link being used as a construction traffic route.
		Medium: Where one indicator of sensitive locations is present with direct frontage onto the highway link being used as a construction traffic route.
		Very Low: Where no indicator of sensitive locations is present.
People cycling	On and off-road designated cycle routes	**High**: On-road designated cycle routes present along highway link plus other significant cycle infrastructure present.
		Medium: On-road designated cycle routes present along highway link.
		Very Low: Off-road designated cycle routes present along highway link.
Open spaces, recreational sites, shopping areas	Parks, play areas, shops, community centres	**High**: Where there are multiple indicators of sensitive groups with direct frontage onto the highway link being used as a construction traffic route.
		Medium: Where one indicator of sensitive groups is present with direct frontage onto the highway link being used as a construction traffic route.
		Low or Very Low: Where no indicator of sensitive groups is present.
Road users	Roads, junctions, road classification, baseline traffic volumes, signage	Sensitivity is determined by other receptors, together with professional judgement to assess the implications of local circumstances or factors which may elevate or lessen risks of accidents, e.g., junction conflicts.

Link Sensitivity

7.1.14 The road link sensitivity has been based on the worst-case sensitivity of whole links considering the criteria outlined in **Table 7-1**. The links are represented by the ATC locations outlined for each works site which are referenced in **Chapter 9: Traffic and Transport** in **Volumes 2 – 5.**

7.1.15 The link sensitivities outlined in **Chapter 9: Traffic and Transport** in **Volumes 2 – 5** have been used to assess the significance of the impact of each works site by combining the magnitude of change.

Magnitude

7.1.16 The general criteria for defining the magnitude of an impact has been set out in **Table 7-2**. Key factors that influence this magnitude include:

- The physical or geographical scale of the impact.
- The duration of the impact – will it be short term (lasting for a few days or weeks), medium-term (lasting months) or long term (lasting for several years).
- The frequency of the impact – will it occur hourly, daily, monthly or will it be permanent, lasting for the duration of the proposed works.
- The reversibility of the effect – can it be reversed following the completion of construction of the proposed works?

7.1.17 The IEMA Guidelines (Ref 7.1) set out several criteria by which the magnitude of impact can be measured, outlined below. Many of the criteria do not provide specific thresholds by which such impacts can be measured and have been measured qualitatively where appropriate, with professional judgment being used when necessary. These are described below and summarised in **Table 7-2**:

- 'Severance' is defined in the IEMA Guidelines (Ref 7.1) as the "*…perceived division that can occur with a community when it becomes separated by major traffic infrastructure*". The term is used to describe a complex series of factors that separate people from places and other people. Severance may result from the difficulty of crossing a heavily trafficked road or a physical barrier created by infrastructure. IEMA Guidelines suggest that a change in the traffic flow of 30%, 60% and 90% are regarded as producing 'slight', 'moderate' and 'substantial' changes in severance respectively. However, caution needs to be observed when applying these thresholds as very low baseline flows are unlikely to experience severance impacts even with high percentage changes in traffic.
- 'Non-motorised user (NMU) Amenity' is defined in the IEMA Guidelines (Ref 7.1) as "*…the relative pleasantness of a journey and is considered to be affected by traffic flow, traffic composition and pavement width/separation from traffic*". The guidance suggests that a tentative threshold for judging the significance of changes in pedestrian and cycle amenities would be where the traffic flow (or HGV component) is halved or doubled.
- The 'Driver Delay' assessment approach is set out in the IEMA Guidelines (Ref 7.1) states that delays are only likely to be significant when the traffic on the network surrounding the development is already at, or close to, the capacity of the system. The capacity of a road or a particular junction can be determined by establishing the

ratio of flow to capacity. For this assessment, criteria from the IEMA Guidelines has been used to assess the effects on traffic levels and driver delay, which states the need for assessment where changes in traffic flows exceed 30%.

- 'Fear and Intimidation' is defined in the IEMA Guidelines (Ref 7.1) as "…*dependent on the total volume of traffic, HGV composition, the speed vehicles are passing, the proximity of traffic to people and/or the feeling of the inherent lack of protection created by factors such as a narrow pavement median, a narrow path or a constraint (such as a wall or fence) preventing people stepping further away from moving vehicles*".
- A detailed assessment of 'Accidents and Safety' will be undertaken in **Chapter 9: Traffic and Transport** in **Volumes 2 – 5** by examining road traffic accident data for the most recent seven-year period available. This analysis is undertaken to highlight if there any existing safety issues on the local road network which may be exacerbated by the proposed works.

7.1.18 Information provided in **Table 7-2** shows further details of the individual aspects of the assessment and the thresholds to be applied for each, considering the increase in traffic.

Table 7-2 – Impact magnitude criteria (Traffic and Transport)

Magnitude	Description	Illustrative criteria
High[3]	Construction Traffic	High number of construction vehicles using roads over a protracted period: • More than a 40% increase for more than 6 months.
	NMU Amenity	Increase in total traffic flows of 100% or above.
	Severance of Communities	Increase in total traffic flows or HGV flows of 90% and above.
	Road Vehicle Driver and Passenger Delay	Change in total traffic or HGV flows over 90%.
	Road User and Pedestrian Safety	All links estimated to experience increases in total traffic flows above 30% or increases in HGV flows above 10% are analysed further on a case-by-case basis.
	Fear and Intimidation	Two-step changes in level, e.g. if the level of fear and intimidation rises from small to great, extreme or moderate to extreme.
Medium	Construction Traffic	Moderate number of construction vehicles using roads over a protracted time: • 16-39% increase for more than 6 months; or • More than 40% increase for 3-6 months.
	NMU Amenity	Increase in total traffic flows of 70-99%.
	Severance of Communities	Increase in total traffic flows of 60-89% (or increase in HGV flows of 40-89%).
	Road Vehicle Driver and Passenger Delay	Change in total traffic or HGV flows of 60-89%.

[3] Professional judgement will be applied where baseline traffic flows are low, and a traffic percentage change criterion is not appropriate. Therefore, where a high magnitude of impacts is apparent based on low baseline traffic flows, the overall magnitude will be reduced to medium.

Magnitude	Description	Illustrative criteria
	Road User and Pedestrian Safety	All links estimated to experience increases in total traffic flows above 30% or increases in HGV flows above 10% are analysed further on a case-by-case basis.
	Fear and Intimidation	One step change in level (e.g. small to moderate), but with >400 vehicle increase in average 18 hr two-way all vehicle flow; and/or >500 HGV increase in total 18 hr HGV flow.
Low	Construction Traffic	Small number of construction vehicles using roads over a short period: • 6-15% increase for more than 6 months; or • 16-39% for 3-6 months; or • More than 40% increase for less than 3 months.
	NMU Amenity	Increase in total traffic flows of 50-69%.
	Severance of Communities	Increase in total traffic flows of 30-59% (or increase in HGV flows of 20-39%).
	Road Vehicle Driver and Passenger Delay	Change in total traffic or HGV flows of 30-59%.
	Road User and Pedestrian Safety	All links estimated to experience increases in total traffic flows above 30% or increases in HGV flows above 10% are analysed further on a case-by-case basis.
	Fear and Intimidation	One step change in level (e.g. small to moderate), with <400 vehicle increase in average 18 hr two-way all vehicle flow; and/or <500 HGV increase in total 18 hr HGV flow.
Very Low	Construction Traffic	Occasional construction vehicles using roads over a short period: • Less than 5% Increase for more than 6 months; or • Between 6-30% increase for 3 - 6 months; or • Between 31-40% for less than 3 months.
	NMU Amenity	Increase in total traffic flows of 49% or under.

Magnitude	Description	Illustrative criteria
	Severance of Communities	Increase in total traffic flows of 29% or under (or increase in HGV flows under 10%).
	Road Vehicle Driver and Passenger Delay	Change in total traffic or HGV flows of 29% or under.
	Road User and Pedestrian Safety	Increase in total traffic flows of 30% or under (or increase in HGV flows under 10%).
	Fear and Intimidation	No step changes.

7.1.19 As noted in **Table 7-2,** professional judgement has been applied where baseline traffic flows are low, and a percentage change criterion is not appropriate. In such instances, it is possible for a high percentage change to be associated with a low number of trips that can be easily accommodated in the road network, where the magnitude should not be considered 'High'.

Significance Criteria

7.1.20 The general approach adopted for evaluating the significance of effects, considering the sensitivity of the receptor and the magnitude of impact, outlined in **Table 7-3**. Effects are defined as 'beneficial' or 'adverse'.

Table 7-3 – Significance of effects matrix

		Magnitude			
		High	**Medium**	**Low**	**Very Low**
Receptor sensitivity	**High**	Major (S)	Major (S)	Moderate (S)	Minor (NS)
	Medium	Major (S)	Moderate (S)	Minor (NS)	Negligible (NS)
	Low	Moderate (S)	Minor (NS)	Negligible (NS)	Negligible (NS)
	Very Low	Minor (NS)	Negligible (NS)	Negligible (NS)	Negligible (NS)

S = Significant; NS = Not Significant

7.1.21 Effects predicted to be 'major' or 'moderate' are considered 'significant', whilst effects predicted to be 'minor' or 'negligible' are considered 'not significant'.

7.2 Wider Works

7.2.1 Due to the geographical scale of the Wider Works area, a detailed quantitative analysis similar to that performed in the other four site-specific volumes was not feasible. Instead, the approach adopted for the Wider Works leverages existing data and outcomes from the site-specific assessments to provide an overarching understanding of potential Traffic and Transport effects, outlined in **Volume 6, Chapter 9: Traffic and Transport.**

7.2.2 Baseline conditions across the Wider Works area are based on ATCs previously collected in the site-specific areas. These ATCs provide average annual daily traffic (AADT) flows, forming the basis for identifying the baseline traffic environment. As the Wider Works transport chapter (**Volume 6, Chapter 9: Traffic and Transport**) does not introduce new data collection, the existing information is used to provide context for the qualitative assessment.

7.2.3 Unlike the site-specific chapters (**Chapter 9: Traffic and Transport** of **Volumes 2 – 5)**, the assessment did not include quantitative modelling or projections due to the impracticality of applying such methods over the extensive geographical scale of the Wider Works. Instead, the analysis relied on qualitative interpretation and assumptions drawn from the detailed assessments performed for the other four chapters (**Chapter 9: Traffic and Transport** of **Volumes 2 – 5)**.

7.2.4 To maintain consistency with the other site-specific assessments, an average value of worker trips and HGV trips per day was considered for each 4ZC site. This uniform assumption, derived from the professional judgement, acts as a proxy for estimating the potential traffic impact across the broader area. Potential traffic and transport impacts at 4ZC sites were then assessed qualitatively.

7.2.5 The assessment in **Volumes 2 – 5, Chapter 9: Traffic and Transport** followed the principles outlined in the IEMA guidelines. These guidelines provided thresholds for identifying significant traffic effects, such as a 30% increase in traffic flows or a 10% increase in high-sensitivity areas. Where applicable, the analysis considers key effects, including severance, driver delay, non-motorised user amenity, fear and intimidation, and road safety.

7.2.6 The results of the site-specific chapters (**Volumes 2 – 5, Chapter 9: Traffic and Transport)**, are inferred to inform the Wider Works chapter (**Volume 6, Chapter 9: Traffic and Transport**). This ensures that the assessment reflected the broader potential impacts while maintaining alignment with the more detailed analyses conducted for specific sites.

7.2.7 While no direct mitigation measures have been proposed in the Wider Works Chapter (**Volume 6, Chapter 9: Traffic and Transport**), potential measures identified in the site-specific Volumes are referenced where applicable to demonstrate how traffic impacts might be managed across the Wider Works area.

7.2.8 This approach provided a high-level understanding of potential traffic and transport impacts while recognising the limitations inherent to assessing an area of this scale. The reliance on qualitative methods and proxy data ensures that significant impacts are captured in a meaningful way without overextending the scope of the assessment.

8 Air Quality and Emissions

8.1 Pentir Substation, Bryncir, Glaslyn Cables, Trawsfynydd Substation and Wider WorksIntroduction

8.1.1 This section describes the technical methodology by which the air quality impact of the proposed works from construction phase particulate emissions has been considered.

Step 1: Screen the requirement for a detailed assessment

8.1.2 Sensitive receptors have been identified and the distance to the works site and construction routes have been determined according to the examples of sensitivity shown in **Table 8-1**. According to the Institute of Air Quality Management (IAQM) (Ref 8.1), an assessment will normally be required where there are sensitive receptors within 250 m of the boundary of a site and/or within 50 m of route(s) used by construction vehicles on the public highway, up to 250 m from the site entrance.

8.1.3 A human receptor, as considered in the IAQM guidance, is any location where a person or property may experience:

- The annoyance effects of airborne dust or dust soiling e.g. dwellings, industrial or commercial premises such as a vehicle showroom, food manufacturers, electronics manufacturers, amenity areas and horticultural operations; or
- Exposure to particulate matter less than ten micrometres in diameter (PM_{10}) over a period relevant to the air quality objectives.

8.1.4 Ecological receptors within 50 m of the boundary of the works site or routes used by construction vehicles on the public highway, up to 250 m from the site entrance, also need to be identified.

Table 8-1 – Definition of significance of fugitive dust and PM_{10} effects

Sensitivity	Dust soiling	Human health	Ecological
High	• Dwellings. • Museum and other culturally important collections. • Medium- and long-term car parks. • Car showrooms.	• Residential properties. • Hospitals. • Schools. • Residential care homes.	Locations with an international or national designation (e.g. SAC) and the designated features may be affected by dust soiling.
Medium	• Parks. • Places of work.	Office and shop workers but will generally not include workers occupationally exposed to PM_{10}, as protection is covered by	Locations with a national designation (e.g. SSSI) where the features may be affected by dust deposition.

Sensitivity	Dust soiling	Human health	Ecological
		Health and Safety at Work legislation.	
Low	• Playing fields. • Farmland (unless commercially sensitive horticulture). • Footpaths. • Short term car parks. • Roads.	• Public footpaths. • Playing fields. • Parks. • Shopping streets.	Locations with a local designation where the features may be affected by dust deposition, such as a Local Wildlife Site (LWS) with dust sensitive features.

Step 2: Assess the Risk of Dust Impacts

8.1.5 The risk of dust arising in sufficient quantities to cause annoyance and/or health effects was determined for each activity (demolition, earthworks, construction works and track out), taking account of:

- The scale and nature of the works, which determines the potential dust emission magnitude (small, medium or large) (Step 2A); and
- The sensitivity of the area (low, medium or high) (Step 2B).

8.1.6 These factors were then combined to give the risk of dust effects with no mitigation applied, as Negligible, Low, Medium or High.

8.1.7 It should be noted that where detailed information was not available to inform the risk category, professional judgement and experience was used and a cautious approach adopted, in accordance with the guidance.

Step 2A: Determine the Dust Emissions Magnitude

Demolition

8.1.8 Example definitions for demolition have been presented in **Table 8-2**. Alternative screening values may be used where this is justified based on a particular scheme.

Table 8-2 – Potential demolition works dust emission classification

Emission class	Criteria
Large	• Total building volume >75,000 metres cubed (m^3). • Potentially dusty construction material (e.g. concrete). • On-site crushing and screening. • Demolition activities >12 m above ground level.
Medium	• Total building volume 12,000 m^3 – 75,000 m^3. • Potentially dusty construction material. • Demolition activities 6 – 12 m above ground level.

Emission class	Criteria
Small	• Total building volume <12,000 m^3. • Construction material with low potential for dust release (e.g. metal cladding or timber). • Demolition activities 6 m above ground. • Demolition during wetter months.

Earthworks

8.1.9 Earthworks will primarily involve excavating material, haulage, tipping and stockpiling. This may also involve levelling the site and landscaping. The classifications in **Table 8-3** are based on examples of suitable criteria.

Table 8-3 – Potential earthworks dust emission classification

Emission class	Criteria
Large	• Total site area: >110,000 metres squared (m^2). • Potentially dusty soil type (e.g. clay). • >10 heavy earth moving vehicle active at any one time. • Formation of bunds >6 m in height.
Medium	• Total site area: 18,000 - 110,000 m^2. • Moderately dusty soil type (e.g. silt). • 5 -10 heavy earth moving vehicle active at any one time. • Formation of bunds 3 - 6 m in height.
Small	• Total site area: <18,000 m^2. • Soil type with large grain size (e.g. sand). • < 5 heavy earth moving vehicle active at any one time. • Formation of bunds < 3 m in height.

Construction

8.1.10 The issues considered when determining the potential dust emissions magnitude during the construction phase are the size of the building(s) and/or infrastructure, method of construction, construction materials and duration of build. The classifications in

8.1.11 **Table 8-4** are based on examples of suitable criteria. Factors such as seasonality, building type, duration and scale were also taken into consideration, where possible.

Table 8-4 – Potential construction dust emission classification

Emission class	Criteria
Large	• Total building volume >75,000 m^3. • Onsite concrete batching. • Sandblasting.
Medium	• Total building volume 12,000 m^3 – 75,000 m^3. • Potentially dusty construction material (e.g. concrete). • Onsite concrete batching.
Small	• Total building volume <12,000 m^3 construction. • Material with low potential for dust release (e.g. metal cladding or timber).

Track-out

8.1.12 Track-out is the transportation of dust and dirt from the construction and demolition sites onto the public road network, where it may be deposited and then re-suspended by vehicles using the local road network. The classifications in **Table 8-5** have been based on examples of suitable criteria. Factors such as vehicle size, speed, numbers, geology and duration were also taken into consideration, where possible.

Table 8-5 – Potential track-out dust emission classification

Emission Class	Criteria
Large	• >50 Heavy Duty Vehicles (HDV) (>3.5 tonnes (t)) outward movements in any one day. • Potentially dusty surface material. • Unpaved road length >100 m.
Medium	• 20 – 50 HDV (>3.5t) outward movements in any one day. • Moderately dusty surface material. • Unpaved road length 50 – 100 m.
Small	• <20 HDV (>3.5t) outward movements in any one day. • Surface material with low potential for dust release. • Unpaved road length < 50 m.

Step 2B: Define the Sensitivity of the Area

8.1.13 The sensitivity of the area takes account of:

- The specific sensitivities of receptors in the area.
- The proximity and number of those receptors.
- In the case of PM_{10}, the local background concentrations; and
- Site specific factors, such as whether there are natural shelters, such as trees to reduce the risk of wind-blown dust

8.1.14 The sensitivity of the area has been determined separately for dust soiling impacts on people and properties (**Table 8-6**), human health impacts (**Table 8-7**) and ecology impacts (**Table 8-8**).

Table 8-6 – Sensitivity of the area to dust soiling effects on people and property

Receptor Sensitivity	Number of Receptors	Distance from Source			
		<20 m	<50 m	<100 m	<250 m
High	>100	High	High	Medium	Low
	10 – 100	High	Medium	Low	Low
	1 – 10	Medium	Low	Low	Low
Medium	≥1	Medium	Low	Low	Low
Low	≥1	Low	Low	Low	Low

Table 8-7 – Sensitivity of the area to human health impacts

Receptor Sensitivity	Annual Mean PM_{10} Concentrations	Number of Receptors	Distance from Source			
			<20 m	<50 m	<100 m	<350 m
High	>32 micrograms per metre cubed ($\mu g/m^3$)	>100	High	High	High	Medium
		10 – 100	High	High	Medium	Low
		1 – 10	High	Medium	Low	Low
	28 – 32 $\mu g/m^3$	>100	High	High	Medium	Low
		10 – 100	High	Medium	Low	Low
		1 – 10	High	Medium	Low	Low
	24 – 28 $\mu g/m^3$	>100	High	Medium	Low	Low
		10 – 100	High	Medium	Low	Low
		1 – 10	Medium	Low	Low	Low
	<24 $\mu g/m^3$	>100	Medium	Low	Low	Low
		10 – 100	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low
Medium	>32 $\mu g/m^3$	>10	High	Medium	Low	Low
		1 – 10	Medium	Low	Low	Low
	28 – 32 $\mu g/m^3$	>10	Medium	Low	Low	Low
		1 – 10	Low	Low	Low	Low
		>10	Low	Low	Low	Low

Receptor Sensitivity	Annual Mean PM_{10} Concentrations	Number of Receptors	Distance from Source			
			<20 m	<50 m	<100 m	<350 m
	24 – 28 µg/m^3	1 – 10	Low	Low	Low	Low
	<24 µg/m^3	>10	Low	Low	Low	Low
		1 – 10	Low	Low	Low	Low
Low	-	≥1	Low	Low	Low	Low

Table 8-8 – Sensitivity of the area to ecological impacts

Receptor Sensitivity	Distance from Source	
	<20 m	<50 m
High	High	Medium
Medium	Medium	Low
Low	Low	Low

Step 2C: Define the Risk of Impacts

8.1.15 The dust emission magnitude determined at Step 2A should be combined with the sensitivity of the area determined at Step 2B to determine the risk of effects with no mitigation applied (**Table 8-9**). This step has been undertaken for each activity undertaken on site.

Table 8-9 – Dust risk without mitigation

Activity	Sensitivity of Area	Dust Emissions Classification		
		Large	Medium	Small
Demolition	High	High	Medium	Medium
	Medium	High	Medium	Low
	Low	Medium	Low	Negligible
Earthworks	High	High	Medium	Low
	Medium	Medium	Medium	Low
	Low	Low	Low	Negligible
Construction	High	High	Medium	Low
	Medium	Medium	Medium	Low
	Low	Low	Low	Negligible
Track-out	High	High	Medium	Low
	Medium	Medium	Medium	Low

	Low	Low	Low	Negligible
	High	High	Medium	Low

Step 3: Identify the need for Site-Specific Mitigation

8.1.16 Based on the risk of effects determined in Step 2C for each activity, appropriate site-specific mitigation measures have been recommended. Appropriate mitigation measures are set out in the IAQM guidance.

Step 4: Define Impacts and Their Significance

8.1.17 Finally, the significance of the potential residual dust impacts, i.e. after mitigation, was determined.

9 Noise and Vibration

9.1 Pentir Substation, Bryncir, Glaslyn Cables, Trawsfynydd Substation and Wider Works

Introduction

9.1.1 This chapter outlines the methods used to assess the Noise and Vibration effects associated with the Project.

Acoustic Terminology

9.1.2 A summary of acoustic terminology used in the assessment are presented in **Table 9-1.**

Table 9-1 – Acoustic terminology

Term	Definition
Decibel (dB)	The range of audible sound pressures is approximately 2 x 10-5 pascals (Pa) to 200 Pa. Using decibel notation presents this range in a more manageable form, 0 dB to 140 dB. Mathematically Sound Pressure level = 20 log {p(t)/p0} Where P0 = 2 x 10-5 Pa.
“A” Weighting dB(A)	The human ear does not respond uniformly to different frequencies. “A” weighting is commonly used to simulate the frequency response of the ear.
‘Fast’ time weighting	A sound level meter setting with a 125-millisecond response time. Provides a better resolution for very short noise events that may be missed by a ‘slow’ response time.
Frequency Spectrum	The relative contributions of different frequencies that make up a sound.
Ambient Sound	Totally encompassing sound in a given situation at a given time usually composed of sound from many sources near and far. The ambient sound comprises the residual sound and the specific sound when present.
Background Sound Level $L_{A90,T}$	A-weighted sound pressure level that is exceeded at the assessment location for 90% of a given time interval, T, measured using time weighting F.
Equivalent Continuous A-weighted Sound Pressure Level LAeq,T	Value of the A-weighted sound pressure level in decibels of continuous steady sound that, in a specified time interval, T = t2 – t1, has the same mean-squared sound pressure as a sound that varies with time, and is given by the following equation: LAeq,T = 10 × log {(1 T) ∫ (PA 2 (*t*) Po 2) dt *t*2 *t*1 }

Term	Definition
	Where p0 is the reference sound pressure (20μPA); and PA(t) is the instantaneous A-weighted sound pressure level at time
Peak Particle Velocity	The peak speed of particle movement in the ground due to vibration and used to assess impacts from construction activity induced vibration. The Peak Particle Velocity is defined as millimetres per second (mm/s).

Assessment Methodology

Sensitive Receptors

9.1.3 Potential sensitive receptors (i.e. buildings whose occupants may be disturbed by adverse noise and vibration levels) have been identified and taken into consideration when assessing the effects associated with noise and vibration levels from the construction phases of the proposed works.

9.1.4 The sensitivity of receptors to noise and vibration has been defined in **Table 9-2.**

Table 9-2 – Sensitivity of receptors

Sensitivity	Description	Examples of receptor usage
High	Receptors where noise will significantly affect the function of a receptor.	• Auditoria and/or studios. • Specialist medical and/or teaching centres.
Medium	Receptors where people or operations are particularly susceptible to noise.	• Residential and student accommodation. • Hotels. • Places of worship. • Conference facilities. • Schools. • Hospitals and/or residential care homes. • Libraries.
Low	Receptors of low sensitivity to noise, where it may cause some distraction or disturbance.	• Offices. • Restaurants. • Public houses. • Sports grounds or facilities where noise is not a normal part of the event and where quiet conditions are necessary (e.g. tennis, golf).
Very Low	Receptors where distraction or disturbance from noise is minimal.	• Residences and other buildings not occupied during working hours. • Factories and industrial working environments with existing high noise levels. • Sports grounds or facilities where noise is a normal part of the event.

Construction Noise

9.1.5 The potential construction impacts from the proposed works has been assessed with the criteria presented in Annex E of British Standard (BS) 5228-1 (Ref 9.1). The 'ABC Method' has been adopted for the purposes of this assessment, as it takes into consideration the context of existing noise levels experienced at a residential property. The ABC method for defining construction noise limits has been outlined in **Table 9-3**.

Table 9-3 – BS 5228-1:2009+A1:2014 ABC Method

Assessment category and threshold value period	Threshold Value, in decibels (dB) ($L_{Aeq,T}$ [A])		
	Category A [A)]	Category B [B)]	Category C [C)]
Night-time (23.00−07.00)	45	50	55
Evenings and weekends)	55	60	65
Daytime (07.00−19.00) and Saturdays (07.00−13.00)	65	70	75

[A)] The A-weighted equivalent continuous sound pressure level over the measurement period T, representative of the 'average' sound pressure level over a given period

[B)] Category A: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are less than these values.

[C)] Category B: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are the same as category A values.

[D)] Category C: threshold values to use when ambient noise levels (when rounded to the nearest 5 dB) are higher than category A values.

[E)] 19.00–23.00 weekdays, 13.00–23.00 Saturdays and 07.00–23.00 Sundays.

9.1.6 For the appropriate period (day, evening, night, weekend etc.), the ambient noise level has been determined and rounded to the nearest 5 dB and the appropriate Threshold Value was then derived. The predicted construction noise level was then compared with this Threshold Value. The criterion adopted in this assessment for the onset of potentially significant effects was the exceedance of the LAeq,T threshold level for the category appropriate to the ambient noise level at each receptor. Other project-specific factors have also been considered by the assessor when determining if there is a potentially significant effect, such as the number of receptors affected and the duration and character of the impact.

9.1.7 Based on the identification of the nearest sensitive receptor in a quiet rural location, construction noise criteria have based on Category A, which is the lowest criteria applicable.

9.1.8 **Table 9-4** presents the construction noise magnitude of impact criteria at residential receptors during core construction work hours.

Table 9-4 – Construction noise magnitude of impact criteria

Magnitude of impact	Construction Noise Level LAeq,T (dB)
High	Exceedance of ABC Category Threshold Value by ≥5 dB
Medium	Exceedance of ABC Category Threshold Value by up to 5 dB
Low	Equal to or below the ABC Category Threshold Value by up to 5 dB
Negligible	Below the ABC Category Threshold Value by ≥5 dB

Construction Vibration

9.1.9 BS 5228-2 (Ref 9.2) provides further guidance on the perception of vibration in occupied buildings. This provided a simple method of determining annoyance alongside evaluation of cosmetic damage associated with construction and decommissioning induced vibration. **Table 9-5** details Peak Particle Velocity (PPV) levels (a standard measure of vibration effects), their potential effect on humans and the approximate distance where these effects may occur.

Table 9-5 – Construction vibration magnitude of impact criteria

Magnitude of impact	Peak particle velocity level (millimetres per second (mm/s)	Description
High	>=10	Vibration is likely to be intolerable for any more than a very brief exposure to this level.
Medium	1.0 to <10	It is likely that vibration of this level in residential environments will cause complaint, but can be tolerated if prior warning and explanation has been given to residents.
Low	0.3 to <1.0	Vibration might be just perceptible in residential environments
Negligible	0.14 to <0.3	Vibration might be just perceptible in the most sensitive situations for most vibration frequencies associated with construction. At lower frequencies, people are less sensitive to vibration.

9.1.10 In addition to human annoyance, building structures may be damaged by high levels of vibration. The levels of vibration that may cause building damage are far in excess of those that may cause annoyance. Consequently, if vibration levels are controlled to those specified by annoyance, then it is highly unlikely that buildings will be damaged by demolition and construction vibration.

Construction Traffic Noise

9.1.11 Construction traffic noise impacts due to increases in traffic flows on existing roads have been estimated based on the Construction Road Traffic Noise (CRTN) (Ref 9.3) methodology for the calculation of the Basic Noise Level (BNL) at a reference distance

of 10 m from the nearside carriageway. Predictions have been undertaken for both the "with" and "without" construction traffic scenarios.

9.1.12 The criteria for the assessment of traffic noise level changes have been taken from Table 3.54a of DMRB LA111 (Ref 9.4) and are provided in **Table 9-6.**

Table 9-6 – Construction traffic noise magnitude of impact criteria

Magnitude of impact	Change in road traffic noise level $L_{A10,18h}$ (dB)
High	≥ 5
Medium	3 to <5
Low	1 to <3
Negligible	<1

Methodology for determining operational effects

9.1.13 Operational noise from fixed plant has been assessed following guidance in BS 4142:2014+A1:2019 'Methods for rating and assessing industrial and commercial sound' (Ref 9.5), whereby the rating level of noise emissions from activities are compared against the background level of the pre-development noise climate. The relevant parameters in this instance are as follows:

- Background sound level – $L_{A90,T}$ – defined in the Standard as the 'A' weighted sound pressure level that is exceeded by the residual sound at the assessment location for 90% of a given time interval, T, measured using time weighting F and quoted to the nearest whole number of dB.
- Specific sound level – $L_{Aeq,Tr}$ – the equivalent continuous 'A' weighted sound pressure level produced by the specific sound source at the assessment location over a given reference time interval, Tr.
- Rating level – $L_{Ar,Tr}$ – the specific sound level plus any adjustment made for the characteristic features of the noise.

9.1.14 BS 4142 (Ref 9.5) allows for, as an absolute worst case, a cumulative +15 dB correction to be applied to the specific sound level based on the presence or expected presence of the following:

- Tonality - up to +6 dB penalty.
- Impulsivity - up to +9 dB penalty (this can be summed with tonality penalty).
- Other sound characteristics (neither tonal nor impulsive but still distinctive) - +3 dB penalty.

9.1.15 BS 4142 (Ref 9.5) states the following regarding the assessment of impacts, comparing the rating level of the new noise source with the existing background level:

- *"Typically, the greater this difference, the greater the magnitude of the impact;*
- *A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context;*

- *A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context; and*
- *The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context."*

9.1.16 The context of a BS 4142 (Ref 9.5) assessment should be considered and can vary the overall significance of effects. BS 4142 advises that any consideration of the significance of effect should also take into account other contextual factors including:

- The absolute level of the sound.
- The character and level of the residual sound compared to the character and level of the specific sound.
- The sensitivity of the receptor.

9.1.17 BS 4142 (Ref 9.5) advises that where rating levels and background levels are low, which is the case in rural areas surrounding the work sites, the assessment of operational noise should take into context the absolute noise level. BS 8233:2014 'Guidance on sound insulation and noise reduction for buildings' (Ref 9.6) provides guidance levels for internal noise in dwellings and external noise levels in gardens. For gardens, a precautionary approach has been taken when defining the threshold for an adverse effect by applying a minimum level of 35 dB $L_{Aeq,T}$, which is applicable for relaxation in a property.

9.1.18 A similar approach has been taken for night-time noise when defining the minimum threshold for adverse noise of 30 dB $L_{Aeq,T}$. However, at night, residents are likely to be inside their properties. Based on example assessments provided in Annex A of BS 4142 (Ref 9.5), a building envelope with a partially open window is assumed to attenuate noise by 10 dB. Consequently, any external rating noise levels at night below 40 dB $L_{Ar,Tr}$ are considered to be a 'low' impact.

9.1.19 The criteria for determining the magnitude of operational noise impacts at receptors, based on guidance in BS 4142 (Ref 9.5), has been presented in **Table 9-7.**

Table 9-7 – Operational noise magnitude of impact criteria

Magnitude of impact	**Rating level (external) at receptor, dB $L_{Ar,Tr}$**	
	Daytime (07:00-19:00) and evening (19:00-23:00)	**Night-time (23:00-07:00)**
High	Greater than 10 dB above the background noise level – minimum of 45 dB $L_{Ar,Tr}$	Greater than 10 dB above the background noise level – minimum of 45 dB $L_{Ar,Tr}$
Medium	Greater than 5 dB and up to 10 dB above the background noise level – minimum of 40-45 dB $L_{Ar,Tr}$	Greater than 5 dB and up to 10 dB above the background noise level – minimum of 40-45 dB $L_{Ar,Tr}$

Magnitude of impact	Rating level (external) at receptor, dB $L_{Ar,Tr}$	
	Daytime (07:00-19:00) and evening (19:00-23:00)	**Night-time (23:00-07:00)**
Low	Greater than and up to 5 dB above the background noise level – minimum of 35-40 dB $L_{Ar,Tr}$	Greater than and up to 5 dB above the background noise level – minimum of 30-40 dB $L_{Ar,Tr}$
Negligible	Less than or equal to the typical background level ($L_{A90,T}$) – minimum of 35 dB $L_{Ar,Tr}$	Less than or equal to the typical background level ($L_{A90,T}$) – minimum of 30 dB $L_{Ar,Tr}$

Effect and Significance Terminology Overview

9.1.20 The following terminology has been used to define noise and vibration effects:

- Adverse – detrimental or negative effects to an environmental resource or receptor.
- Negligible – imperceptible effects to an environmental resource or receptor.
- Beneficial – advantageous or positive effects to an environmental resource or receptor.

9.1.21 Where adverse or beneficial noise and vibration effects have been identified, these are described using the following scale:

- Minor – slight, very short or highly localised effect.
- Moderate – limited effect (by extent, duration or magnitude), which may be important at a local scale.
- Major – considerable effect (by extent, duration or magnitude) of more than local significance or in breach of recognised acceptability, legislation, policy or standards.

9.1.22 The duration of noise and vibration effects is defined as follows:

- Temporary – noise and vibration effects during the construction phase.
- Permanent – noise effects during the operational phase.

9.1.23 **Table 9-8** provides a matrix showing the significance of effects depending on the sensitivity of receptors and magnitude of impact.

Table 9-8 – Significance criteria

Sensitivity of Receptor	Magnitude of Impact			
	High	**Medium**	**Low**	**Negligible**
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	Negligible
Low	Moderate	Minor	Negligible	Negligible

Sensitivity of Receptor	Magnitude of Impact			
	High	**Medium**	**Low**	**Negligible**
Negligible	Minor	Negligible	Negligible	Negligible

9.1.24 Generally, effects classed from negligible to minor are considered to be not significant, whereas effects classed from moderate to major adverse are considered to be significant. However, final determination of whether effects are likely to be significant has been made following the classification of effects and using professional judgment. These include consideration of the duration, frequency and likelihood of noise and vibration effects and whether they are temporary or permanent and the area and number of receptors affected.

10 Socio-Economics

10.1 Bryncir, Glaslyn Cables and Wider Works

Introduction

10.1.1 This chapter outlines the methods used to assess the Noise and Vibration effects associated with the Project.

Assessment Methodology

10.1.2 There is currently no statutory guidance on the methodology for undertaking assessments of Socio-Economics. The assessment followed good practice and professional guidance methodology and professional judgement applied to assessments undertaken for comparable energy infrastructure developments.

10.1.3 The proposed works have the potential to have a range of temporary and permanent effects. Based on professional judgement and experience, as well as national planning policy, due consideration has been given to the proposed works in terms of effects on the following:

- Employment generation during construction (direct, indirect and induced impacts).
- Gross Value Added (GVA) generation from the construction workforce.
- Skills and training impacts through upskilling during construction.
- Local accommodation facilities during construction.
- PRoW.
- Private and community assets (residential properties, business premises, community facilities, visitor attractions, open space, agricultural land holdings, and development land).

Significance Criteria and Definitions of Receptor Sensitivity and Impact Magnitude

10.1.4 Where possible, Socio-Economic impacts have been appraised against relevant national standards, such as those provided by the Homes and Communities Agency (HCA) in relation to additionality (now separated into Homes England and the Regulator of Social Housing) (Ref 10.1). Guidance followed from these sources follow principles outlined in UK-wide (including Wales) regulations and direction. Where relevant standards do not exist, professional experience and expert judgement have been used to assess the scale and nature of the effects of the proposed works against baseline conditions.

10.1.5 The assessment aims to be objective and quantify effects as far as possible. However, some effects can only be evaluated on a qualitative basis using professional judgement. Effects are defined as follows:

- **Beneficial** – an advantageous effect on an area, which may be minor, moderate, or major in effect.
- **Negligible** – imperceptible effects on an area.
- **Adverse** – a disadvantageous effect on an area, which may be minor, moderate, or major in effect.
- **No effect** – no effects on an area.

10.1.6 The duration of effect has also been considered, with more weight given to long-term and permanent changes than to temporary ones. Permanent effects are those which cannot be reversed following proposed works decommissioning. For the purposes of the assessment, short-term effects are typically of one year or less, medium-term effects of one to five years, and long-term effects for over five years.

10.1.7 For the Socio-Economics assessment, there is no accepted definition of what constitutes a likely significant (or not significant) Socio-Economic effect. It is, however, recognised that effects are classified based on the relationship between the scale (or magnitude) of an impact and the sensitivity (or value) of the affected resource or receptor. Socio-Economic effects have been assessed using professional judgment and experience, considering:

- **Sensitivity of resources and/or receptors**: specific values in terms of sensitivity are not attributed to Socio-Economic resources and/or receptors due to their diverse nature and scale; however, the assessment takes account of the qualitative (rather than quantitative) 'sensitivity' of each receptor and, in particular, their ability to respond to change based on recent rates of change and turnover (if appropriate).
- **Magnitude of impact**: this entails consideration of the size of the impact on people or business in the context of the area in which impacts would be experienced.

10.1.8 Criteria for receptor sensitivity and impact magnitude has been set out below (noting that specific sensitivity values are not attributed to Socio-Economics receptors as explained above), which have been grouped as follows: economic impacts, local amenities, land use impacts and PRoW. The significance of effect matrix has then been provided in **Table 10-9**.

Economic Impacts

10.1.9 The following criteria have been used to assess the effects of the proposed works on Socio-Economic receptors in relation to employment, GVA, skills and training and local accommodation facilities which have been grouped together as economic impacts.

10.1.10

10.1.11 **Table 10-1** identifies the sensitivity criteria that have been used to inform the assessment on Socio-Economic receptors relating to economic impacts.

Table 10-1 – Economic impact sensitivity criteria

Sensitivity	Description
High	Businesses, workers or residents who have little or no capacity to experience the impact without incurring an economic loss, or have substantial capacity to experience an economic gain.
Medium	Businesses, workers or residents that have some capacity to experience the impact without incurring a change on their economic well-being.
Low	Businesses, workers or residents that generally have good capacity to experience impacts without incurring an economic loss, or are unlikely to experience an economic gain.
Very low	Businesses, workers or residents that are resilient to, or unlikely to experience, impacts on their economic well-being.

10.1.12 **Table 10-2** identifies the magnitude of impact criteria which have been used to inform the assessment on Socio-Economic receptors relating to economic impacts.

Table 10-2 – Economic impact magnitude criteria

Magnitude	Description
High	A considerable impact that will typically affect large numbers of businesses, workers or residents.
Medium	A noticeable impact that will typically affect a moderate number of businesses, workers or residents, and will lead to a noticeable change to the Study Area's baseline Socio-Economic conditions.
Low	An impact that is expected to affect a small number of businesses, workers or residents, or an impact that may affect a larger number of receptors but does not materially alter the Study Area's baseline Socio-Economic conditions.
Very Low	An impact which results in very little change from baseline conditions where the change is barely distinguishable.

Public Rights of Way

10.1.13 The following criteria have been set to assess the effects on users of PRoW focusing on the impact of disruption to existing routes and the resulting changes in journey lengths and times.

10.1.14

10.1.15 **Table 10-3** identifies the sensitivity criteria that have been used to inform the assessment on PRoW.

Table 10-3 – PRoW impact sensitivity criteria

Sensitivity	Description
High	PRoW is of high importance with limited potential to substitute with other route options to access with the wider network or community infrastructure.
Medium	PRoW is of medium importance with good potential to substitute with other route options to access with the wider network or community infrastructure; or PRoW is of high importance with alternative routes available; or PRoW is of low importance with limited potential to substitute with other route options to access with the wider network or community infrastructure.
Low	PRoW is of minor importance and with alternative routes available; or PRoW is of very low importance with moderate potential to substitute with other route options to access with the wider network or community infrastructure.
Very Low	PRoW is of negligible importance and/or with alternative routes easily available.

10.1.16 **Table 10-4** identifies the magnitude of impact criteria which have been used to assess the proposed works impacts on PRoW.

Table 10-4 – PRoW impact magnitude criteria

Magnitude	Description
High	Substantial increase or decrease in journey length and/or travel patterns and increased or decreased opportunities for users to access the wider network and/or community infrastructure.
Medium	Noticeable increase/decrease in journey length and/or travel patterns and increased or decreased opportunities for users to access the wider network and/or community infrastructure.
Low	Slight increase or decrease in journey length and/or travel patterns and increased or decreased opportunities for users to access the wider network and/or community infrastructure.
Very Low	A negligible increase/decrease in journey length and/or travel patterns and no increase or decrease in opportunities for users to access the wider network and/or community infrastructure.

Private and Community Assets

10.1.17 The following criteria has been set to assess the effects from direct land take and severance on private and community assets which comprise residential properties, business premises, community facilities, visitor attractions, agricultural land holdings and open spaces. **Table 10-5** identifies the sensitivity criteria which have been used to assess the proposed works' impacts on private and community assets.

Table 10-5 – Private and community assets sensitivity criteria

Sensitivity	Description
High	Receptor is of high importance and rarity with limited potential for substitution or access to alternatives.
Medium	Receptor is of medium importance and rarity with moderate potential for substitution or access to alternatives.
Low	Receptor is of low importance and rarity with alternatives available.
Very Low	Receptor is of very low importance and rarity with alternatives available.

10.1.18 **Table 10-6** identifies the magnitude of impact criteria which have been used to assess the proposed works' impacts on private and community assets.

Table 10-6 – Private and community assets magnitude criteria

Magnitude	Description
High	An impact that substantially reduces the integrity and utility of a receptor; or an impact that considerably enhances the value and quality of a receptor.
Medium	An impact that somewhat negatively affects the integrity and utility of a receptor, or which somewhat improves key characteristics and features of the receptor.
Low	A slightly negative impact on the integrity and utility of a receptor; or an impact that has a slightly beneficial impact on the attributes of the receptor.
Very Low	An impact which is a very minor loss or benefit from baseline conditions where the change is barely distinguishable.

Development Land

10.1.19 **Table 10-7** – identifies the sensitivity criteria which have been used to assess the proposed works' effects on development land.

Table 10-7 – Development land sensitivity criteria

Sensitivity	Description
High	Asset or land use is of high importance and rarity with limited potential for substitution or access to alternatives.
Medium	Asset or land use is of medium importance and rarity with moderate potential for substitution or access to alternatives.
Low	Asset or land use is of low importance and rarity with alternatives available.
Very Low	Asset or land use is of very low importance and rarity with alternatives available.

10.1.20 **Table 10-8** identifies the magnitude of impact criteria which have been used to assess the proposed works' impacts on development land.

Table 10-8 – Development land magnitude criteria

Magnitude	Description
High	An impact that permanently affects the integrity and value of a development land resource; or an impact that considerably enhances the value and quality of such a resource.
Medium	An impact that negatively affects the value of a development land resource; or an impact that improves key characteristics and features of such a resource.
Low	A slightly negative impact on the value of a development land resource; or a slightly beneficial impact that on the attributes of such a resource.
Very-low	An impact which is a very minor loss or benefit from baseline conditions where the change is barely distinguishable.

Significance of Effects

10.1.21 Socio-Economic effects reflect the relationship between the sensitivity of the affected receptor and the magnitude of the impact. **Table 10-9** illustrates how the significance of Socio-Economic effects has been determined.

Table 10-9 – Impact assessment matrix

Magnitude of impact	Sensitivity of receptor			
	Very low	**Low**	**Medium**	**High**
High	Minor	Moderate	Major	Major
Medium	Negligible	Minor	Moderate	Major
Low	Negligible	Minor	Minor	Moderate
Very low	Negligible	Negligible	Negligible	Minor

10.1.22 In accordance with good practice and professional guidance, the following criteria is applied:

- 'Moderate' or 'major' effects are classed as 'significant'.
- 'Minor' effects are classed as 'not significant' although they may be a matter of local concern.
- 'Negligible' effects are classed as 'not significant'.

Assumptions and Limitations

Methodology for Determining Construction Employment Effects

10.1.23 The economic impact of the proposed works was considered relative to a 60-minute travel time (car) to the proposed works. This was considered a reasonable timeframe in

which workers would commute to the proposed works and therefore represents the principal labour market catchment area.

10.1.24 Additionality has been calculated by considering the overall impact of job gains to the area, taking into account the level of leakage, number of displaced jobs and multiplier effects (such as supply chain and worker spending-related jobs). These assumptions have been informed by the HCA Additionality Guidance (Ref 10.1)[4].

10.1.25 **Table 10-10** outlines the values that have been allocated in the construction and decommissioning phases' additionality formula, enabling the tailored calculation of the net additional employment and economic impacts. Justifications for the values have been considered and are summarised in the right-hand column of the table.

Table 10-10 – Calculation of employment generation assumptions

Additionality factor	Value	Justification
Leakage (% of jobs that benefit those residents outside the proposed works' identified target area)	75%	Relating to employment from outside the target area – this is the proportion of jobs taken by people who live outside of the Study Area as described as a 60-minute travel area. 75% is in accordance with the 'high' level of leakage set in the HCA guidance.
Displacement (% of jobs that account for a reduction in related jobs in the proposed work's identified target areas)	25%	For the purpose of this assessment, a low level of displacement (25%) has been assumed, in line with the HCA Additionality Guidance (Ref 10.1).
Multiplier (further economic activity associated with the additional local income, supplier purchase and longer-term development effects)	1.3	The multiplier is a composite figure which takes into account both the indirect jobs created across the Study Area based on supply chain activity but also the induced employment created through increased spending across the Study Area. The HCA Additionality Guidance (Ref 10.1) provides a 'ready reckoner' of composite multipliers. The Study Area is likely to have 'average' supply linkages and induced effects based on the scale of its economy. Therefore, a 'low' multiplier of 1.3 is determined from the HCA guidance to be the most appropriate measure.

10.2 Pentir Substation and Trawsfynydd Substation

10.2.1 Not applicable – all receptors scoped out.

[4] Although this document was officially withdrawn on 24th May 2022, without a replacement, it continues to serve as a cornerstone of best practice guidance for additionality benchmarks. The guide, while no longer officially endorsed, remains highly regarded within the industry due to its comprehensive framework and established benchmarks for assessing additionality. Its use ensures understanding of additional benefits beyond what would have happened without intervention, thereby maintaining standards of accountability and effectiveness in public and private sector initiatives alike.

11 Climate Change

11.1 Pentir Substation, Bryncir, Glaslyn Cables, Trawsfynydd Substation and Wider Works

Introduction

11.1.1 This chapter outlines the methods used to assess the Climate Change effects associated with the Project.

Assessment Methodology

11.1.2 This section provides a summary of the assessment methodology for the Greenhouse Gas (GHG) Assessment and the Climate Change Risk Assessment (CCRA). The scope of the assessment has considered the impacts and resultant effects of the proposed works.

GHG Assessment

General Approach

11.1.3 The aim of the GHG Assessment was to understand the impacts of the proposed works on the climate over its lifetime.

11.1.4 The assessment adopted a project life cycle approach to consider GHG emissions at each life cycle stage and identified 'hot spots' likely to generate the most significant levels of GHG emissions. This has determined priority areas for mitigation to be identified. This approach is consistent with the principles set out in the IEMA GHG Assessment guidance (Ref 11.1).

11.1.5 Typically, GHG impact is reported in mass of carbon dioxide equivalent (CO_2e) and will consider the seven Kyoto Protocol gases:

- Carbon dioxide (CO_2).
- Methane (CH_4).
- Nitrous oxide (N_2O).
- Sulphur hexafluoride (SF_6).
- Hydrofluorocarbons (HFCs).
- Perfluorocarbons (PFCs).
- Nitrogen Trifluoride (NF_3).

11.1.6 GHG activity data was not available to inform the GHG Assessment, therefore a qualitative approach to considering GHG emissions has been undertaken.

11.1.7 The qualitative lifecycle GHG assessment has been undertaken by estimating a percentage breakdown of GHG emissions associated with each of the life cycle stages as outlined in the PAS2080:2023 Guidance (Ref 11.2). This assessment leverages

previous project data compiled by AECOM to pinpoint potential 'hot spots' where GHG emissions were expected to be highest relative to other areas.

11.1.8 The resulting GHG Assessment was qualitatively compared to the existing baseline conditions to identify the impact of the proposed works.

Sensitivity

11.1.9 The global climate was the receptor for the purposes of the GHG assessment. The sensitivity of the climate to GHG emissions was 'high'. The rationale was as follows:

- GHG emission impacts could compromise the UK's Carbon Budget Delivery Plan (Ref 11.3) disrupting the projected net-zero pathway for the power sector.
- Any additional GHG impacts could compromise Wales's and the wider UK's ability to reduce its GHG emissions and, therefore, the ability to meet its future legally binding carbon budgets.
- The extreme importance of limiting global warming to below 2 degrees centigrade (°C) above industrial levels, while pursuing efforts to limit such warming to 1.5°C as set out in the Paris Agreement (Ref 11.4) and a recent report by the Intergovernmental Panel on Climate Change (IPCC) highlighted the importance of limiting global warming below 1.5°C.
- Disruption to global climate already has diverse and wide-ranging impacts on the environment, society, economic and natural resources. Known effects of climate change include increased frequency and duration of extreme weather events, temperature changes, rainfall and flooding, and sea level rise and ocean acidification. These effects are largely accepted to be negative, profound, global, likely, long-term to permanent, and are transboundary and cumulative from many global actions.

Magnitude of Impact

11.1.10 In line with IEMA GHG Assessment guidance (Ref 11.1), the significance of the impact on the climate as a result of GHG emissions from the proposed works has been assessed by contextualising GHG emissions against UK and Welsh carbon budgets and trajectories to net zero.

11.1.11 As a qualitative GHG Assessment has been undertaken, the UK and Welsh Carbon Budgets were not used to quantitively determine the magnitude of GHG emissions emitted due to the proposed works. Instead, the carbon budgets were used to provide context as to whether the proposed works align with UK and Welsh net-zero targets.

11.1.12 The UK carbon budgets are in place to restrict the amount of GHG emissions the UK can legally emit in a five-year period. As detailed in **Table 11-1** below the 4th and 5th carbon budgets reflect the previous target for an 80% reduction by 2050. The 6th Carbon Budget is the first to align with the legislated UK Government 2050 net-zero commitment. The 7th Carbon Budget is currently being developed by the Climate Change Committee (CCC) and is expected to be presented to the UK Government in early 2025.

11.1.13 The CCC's balanced net-zero pathway (Ref 11.3) is used post-2037 to illustrate the proposed works trajectory towards net zero as no legally binding carbon budgets exist beyond the 6th Carbon Budget. Beyond 2050, the UK is expected to remain at net zero.

11.1.14 The CCC's balanced net-zero pathway is divided into 5-year periods post-2037 to align with the existing UK national carbon budget time periods. The proposed carbon budget periods derived from the net-zero pathway encompass the 7th, 8th, and 9th indicative budget periods up to 2050 in line with the UK's 1.5-degree trajectory as detailed in **Table 11-1**.

11.1.15 The supplementary carbon budgets beyond 2037 have not been formally adopted by the UK government or ratified by parliament and can only be used as an indicative measure to contextualise the proposed works progress toward the national net-zero trajectory.

Table 11-1 – UK carbon budgets and indicative carbon budgets based on the CCC balanced net-zero pathway

Carbon budget	Power budget based on the carbon budget delivery plan mega tonnes of carbon dioxide equivalent ($MtCO_2e$)	UK carbon budget ($MtCO_2e$)	Indicative carbon budgets based on the CCC's balanced net-zero pathway ($MtCO_2e$)
4th (2023-2027)	143	1,950	-
5th (2028-2032)	63	1,752	-
6th (2033-2037)	42	965	-
7th (2038-2042)	23	-	526
8th (2043-2047)	12.4	-	195
9th (2048-2050)	4	-	17

11.1.16 Senedd Cymru has developed legally binding carbon budgets specific to Wales (Ref 11.5). **Table 11-2** below shows Welsh carbon budgets for each 5-yearly period to 2050.

Table 11-2 – Welsh Carbon Budget

Carbon budget period	Welsh carbon budget ($MtCO_2e$)
2021-2025	175
2026-2030	117
2031-2035	81
2036-2040	45
2041-2045	21
2046-2050	6

Significance of Effects

11.1.17 The IEMA GHG Assessment guidance (Ref 11.1) states that there are currently no agreed methods to evaluate quantified levels of GHG significance. **Table 11-3** presents the IEMA significance criteria that have been applied to the proposed works.

11.1.18 IEMA GHG Assessment guidance (Ref 11.1) states mitigation should be considered from the outset and throughout the project's lifetime whilst also helping to deliver proportionate EIAs. Once the magnitude of GHG emissions is determined, mitigation measures should be proposed. Any mitigation measures committed to in the proposed works must be included in the assessment.

11.1.19 A project's impact can shift from significant adverse to non-significant effects by incorporating mitigation measures that substantially improve on business-as-usual and meet or exceed the science-based emissions trajectory of ongoing but declining GHG emissions towards net zero.

Table 11-3 – Definition of levels of significance

Effects	Significance level	Description	Example in the guidance
Major adverse	Significant	A project that follows a 'business-as-usual' or 'do minimum' approach and is not compatible with the UK and Wales Net-Zero trajectory or accepted aligned practice or area-based transition targets. It is down to the practitioner to differentiate between the 'level' of significant adverse effects e.g. 'moderate' or 'major' adverse effects.	The project's GHG impacts are not mitigated or are only compliant with do-minimum standards set through regulation, and do not provide further reductions required by existing local and national policy for projects of this type. A project with major adverse effects is locking in emissions and does not make a meaningful contribution to the UK and Wales's trajectory towards net zero.
Moderate adverse			The project's GHG impacts are partially mitigated and may partially meet the applicable existing and emerging policy requirements but would not fully contribute to decarbonisation in line with local and national policy goals for projects of this type. A project with moderate adverse effects falls short of fully contributing to the UK and Wales's trajectory towards net zero.
Minor adverse	Not significant	A project that is compatible with the budgeted, science based 1.5°C trajectory (in terms of rate of emissions reduction) and which complies with up-to-date	The project's GHG impacts would be fully consistent with applicable existing and emerging policy requirements and good practice design standards for projects of this type. A project with minor adverse

Effects	Significance level	Description	Example in the guidance
		policy and 'good practice' reduction measures to achieve that. Although it may still have some residual emissions, it is making sufficient progress to align with and contribute to the relevant transition scenario, helping Wales and the UK stay on track to achieve net zero by 2050, respectively.	effects is fully in line with measures necessary to achieve the UK and Wales trajectory towards net zero.
Negligible		A project that achieves emissions mitigation that goes substantially beyond the reduction trajectory, or substantially beyond existing and emerging policy compatible with that trajectory and has minimal residual emissions. This project is playing a part in achieving the rate of transition required by nationally set policy commitments.	The project's GHG impacts would be reduced through measures that go well beyond existing and emerging policy and design standards for projects of this type, such that radical decarbonisation or net-zero is achieved well before 2050. A project with negligible effects provides GHG performance that is well 'ahead of the curve' for the trajectory towards net zero and has minimal residual emissions.
Beneficial	Significant	A project that causes GHG emissions to be avoided or removed from the atmosphere. Only projects that actively reverse (rather than only reduce) the risk of severe climate change can be judged as having a beneficial effect.	The project's net GHG impacts are below zero and it causes a reduction in atmospheric GHG concentration, whether directly or indirectly, compared to the without-project baseline. A project with beneficial effects substantially exceeds net-zero requirements with a positive climate impact.

Climate Change Risk Assessment

General Approach

11.1.20 The CCRA assessed the proposed works resilience to climate change, following the IEMA guidance on climate change resilience and adaptation (Ref 11.6). The CCRA was completed by considering the UKCP18 projections (Ref 11.7) for the geographical location and timeframe of the proposed works (including during the construction and operation phases).

Sensitivity

11.1.21 The CCRA's receptor was the proposed works itself, including workers, infrastructure, and visitors. The receptor was sensitive to the impacts of climate change.

Assessment Approach

11.1.22 The CCRA considered the impact of future climate change on the proposed works. The assessment uses UKCP18 projections (Ref 11.7) to identify potential climate hazards impacting the construction and operation phases of the proposed works over an 80-year period from 2020 to 2100.

11.1.23 Climate parameters to be considered in the CCRA included the following:

- Extreme weather events.
- Flood risk.
- Sea level rise.
- Wild fires.
- Droughts.
- Temperature change.
- Precipitation change.

11.1.24 The CCRA identified potential climate change impacts and considered the likelihood of their occurrence and the potential consequence of their impact, taking account of the measures incorporated into the design of the proposed works.

11.1.25 The following key terms and definitions relating to the CCRA will be used:

- Climate hazard – a weather or climate-related event which has the potential to do harm to environmental or community receptors or assets, for example, increased winter precipitation.
- Climate change impact – an impact from a climate hazard which affects the ability of the receptor or asset to maintain its function or purpose.
- Consequence – any effect on the receptor or asset resulting from the climate hazard having an impact.

11.1.26 The criteria used to determine the likelihood of a climate change hazard occurring has been detailed in **Table 11-4**. The hazard has been defined as an impact on the proposed works caused by the climate event (such as overheating electrical equipment).

Table 11-4 – Criteria for assessing the likelihood of a climate hazard

Level of likelihood of climate hazard	Criteria
Almost Certain	The event is expected to recur frequently, with evidence strongly indicating a transition away from business as usual. The anticipated impact is substantial, and the probability of the event occurring is 100%.
Likely	The event is likely to occur occasionally, with infrequent recurrence. Evidence suggests a transition from business as usual, with major impacts anticipated. The probability of the event occurring is between 50% and 99%.

Level of likelihood of climate hazard	Criteria
Moderate	The event is unlikely but possible, with rare occurrences. Evidence suggests a potential transition from business as usual, though the impacts are anticipated to be minimal. The probability of the event occurring is between 25% and 50%.
Unlikely	The event is very unlikely to occur, with no known previous occurrences. There is minimal evidence or indication of a transition taking place. The probability of the event occurring is less than 25%.
Rare	It is almost inconceivable that the event or transition will occur. The probability of the event occurring is 0%.

11.1.27 The CCRA is qualitative and provided commentary on how the proposed works will be resilient to climate change in the context of current and predicted future climate conditions.

11.1.28 The likelihood of a climate impact occurring was based on the likelihood of the hazard occurring combined with the vulnerability of the proposed works, using professional judgement and in discussion with the design team. Embedded mitigation measures have also been considered, and a likelihood rating has been assigned as described in **Table 11-4**.

11.1.29 After identifying climate hazards, the likelihood and consequences were assessed according to **Table 11-4** and **Table 11-5** respectively. The categories and descriptions provided below are based on the IEMA guidance on climate change resilience and adaptation (Ref 11.6) and EU Technical Guidance on Climate Proofing Infrastructure (Ref 11.8).

Table 11-5 – Description of consequences

Risk areas	Insignificant	Minor	Moderate	Major	Catastrophic
Asset damage, Engineering, Operational Risks	Impact can be absorbed through normal activity.	An adverse event that can be absorbed by taking business continuity actions.	A serious event that requires additional emergency business. continuity actions	A critical event that requires extraordinary and/or emergency business continuity actions.	Disaster with the potential to lead to shut down or collapse or loss of the asset and/or network.
Safety and Health Risks	First aid case.	Minor injury, medical treatment.	Serious injury or lost work.	Major or multiple injuries, permanent injury, or disability.	Single or multiple fatalities.
Environmental Risks	No impact on baseline environment.	Localised in site boundaries.	Moderate harm with possible wider	Significant harm with local effect.	Significant harm with widespread

Risk areas	Insignificant	Minor	Moderate	Major	Catastrophic
	Localised in the source area. No recovery required.	Recovery measurable in one month of impact.	effect. Recovery in one year.	Recovery longer than one year. Failure to comply with environmental regulations/ consent.	effect. Recovery longer than one year. Limited prospect of full recovery.
Social Risks	No negative social impact.	Localised, temporary social impacts.	Localised, long-term social impacts.	Failure to protect poor or vulnerable groups (1). National, long-term social impacts.	Loss of social licence to operate. Community protests.
Financial Risk (for single extreme event or annual average impact) (**)	x % IRR (***) < 2 % of turnover.	x % IRR 2-10 % of Turnover.	x % IRR 10-25 % of turnover.	x % IRR 25-50 % of Turnover.	x % IRR > 50 % of Turnover.
Reputation Risk	Localised, temporary impact on public opinion.	Localised, short-term impact on public opinion.	Local, long-term impact on public opinion with adverse local media coverage.	National, short- term impact on public opinion; negative national media coverage.	National, long-term impact with potential to affect the stability of the Government.
Cultural Heritage and Cultural Premises Risks	Insignificant impact.	Short term impact. Recovery or repair.	Serious damage with wider impact to tourism industry.	Significant damage with national and international impact.	Permanent loss with resulting impact on society.

(1) Including groups that depend on natural resources for their income and/or livelihoods and cultural heritage (even if not considered poor) and groups considered poor and vulnerable (and often that have less capacity to adapt) as well as persons with disabilities and older persons.

(*) The ratings and values suggested here are illustrative. The project promoter and climate-proofing manager may choose to modify them.

(**) Example indicators – other indicators that may be used including costs of immediate/long-term emergency measures; restoration of assets; environmental restoration; indirect costs on the economy, indirect social costs.

(***) Internal Rate of Return (IRR).

Significance of Effects

11.1.30 To assess the significance of effects, the likelihood of the climate impact occurring is combined with the level of consequence of an impact. The risk assessment matrix in **Table 11-6** was used to identify the level of significance. Effects that are deemed Extreme or High are considered significant. The assessment has considered confirmed design and mitigation measures. Significant is denoted by (S) and Not Significant by (NS).

Table 11-6 – Significance of effect matrix (CCRA)[5]

		Consequence				
		Insignificant	**Minor**	**Moderate**	**Major**	**Catastrophic**
Likelihood	**Rare**	Low (NS)	Low (NS)	Medium (NS)	High (S)	Extreme (S)
	Unlikely	Low (NS)	Low (NS)	Medium (NS)	High (S)	Extreme (S)
	Moderate	Low (NS)	Medium (NS)	High (S)	Extreme (S)	Extreme (S)
	Likely	Medium (NS)	High (S)	High (S)	Extreme (S)	Extreme (S)
	Almost certain	High (S)	High (S)	Extreme (S)	Extreme (S)	Extreme (S)

[5] 'S' is Significant and 'NS' is Not Significant

12 Materials and Waste

12.1 Glaslyn Cables

Introduction

12.1.1 This section outlines the methodology used for assessing the likely significant effects associated with Materials and Waste. The criteria used for Materials and Waste align with topic specific criteria in the IEMA Guidance (Ref 12.10).

Assessment Methodology

12.1.2 The IEMA Guidance (Ref 12.1) outlines two assessment methods for Materials and Waste; these include Method W1 – Void Capacity and Method W2 – Landfill Diversion. Method W1 has been selected for this assessment because it encompasses a more detailed methodology making it the most appropriate assessment methodology for larger and more complex projects, such as the proposed works.

12.1.3 For this assessment, the sensitive receptor for construction phase impacts is landfill void capacity in the expansive study area of Wales (non-hazardous landfill void capacity). As defined in the IEMA Guidance (Ref 12.1):

"Landfill is a finite resource, and hence – through the ongoing disposal of waste – there is a continued need to expand existing and develop new facilities. This requires the depletion of natural and other resources which, in turn, adversely impacts the environment".

12.1.4 The IEMA Guidance (Ref 12.1):

"Does not consider waste processing and recovery facilities as sensitive receptors, rather: they are part of a system that has the potential to reduce the magnitude of adverse impacts associated with waste generation and disposal. Waste processing and recovery facilities are, hence, different to landfills, in that the latter are finite resources".

Methodology for Determining Construction Effects

12.1.5 Waste would be generated during the construction of the proposed works. A large proportion of this waste would be reused, recycled, or recovered.

12.1.6 Effects of waste during the construction of the proposed works have been assessed by:

- The baseline landfill void capacity in the expansive Study Area.
- Assessing the sensitivity of landfill void capacity.
- Establishing the amount of waste that, if sent to landfill, would constitute a significant effect.
- Estimating whether the total waste arising from the construction of the proposed works is likely to exceed the threshold for a significant effect.

Sensitivity

12.1.7 The sensitivity of landfill void capacity relates to availability in the absence of the proposed works. As outlined in the IEMA Guidance (Ref 12.1):

"*Landfill capacity is recognised as an unsustainable and increasingly scarce option for managing waste*".

12.1.8 The sensitivity of landfill void capacity has been assessed based on a review of historic landfill void capacity trends, where available, and information from relevant policy documents.

12.1.9 Across construction and/or operation phases, the baseline and/or future baseline (i.e. without development) of Wales inert and non-hazardous landfill void capacity will remain unchanged or increase or reduce. The criteria described in **Table 12-1** have been used to evaluate the sensitivity of landfill void capacity

Table 12-1 – Inert and non-hazardous landfill void capacity sensitivity

Sensitivity	Criteria for inert and non-hazardous landfill void capacity sensitivity
Negligible	Remain unchanged or is expected to increase through committed change in capacity.
Low	Reduce minimally by <1% as a result of wastes forecast.
Medium	Reduce noticeably by 1-5% as a result of wastes forecast.
High	Reduce considerably by 6-10% as a result of wastes forecast.
Very high	Reduce very considerably (by >10%). End during construction or operation. Already be known to be unavailable. Require new capacity or infrastructure to be put in place to meet forecast demand.

Magnitude

12.1.10 The magnitude of impact describes the degree of variation from the baseline conditions as a result of the proposed works.

12.1.11 The IEMA Guidance (Ref 12.1) methodology for assessing the magnitude of impact for waste comprised a percentage-based approach; this determined the influence of waste generation from the construction of the proposed works on the baseline landfill void capacity. The criteria which has been used to assess the magnitude of impact for waste has been provided in **Table 12-2.**

Table 12-2 – Waste magnitude of impacts

Magnitude	Criteria for inert and non-hazardous waste magnitude of impacts
No Change	Zero waste generation and disposal from the proposed works.
Negligible	Waste generated by the proposed works will reduce expansive study area landfill void capacity baseline* by <1%.

Magnitude	Criteria for inert and non-hazardous waste magnitude of impacts
Minor	Waste generated by the proposed works will reduce expansive study area landfill void capacity baseline* by 1-5%.
Moderate	Waste generated by the proposed works will reduce expansive study area landfill void capacity baseline* by 6-10%.
Major	Waste generated by the proposed works will reduce expansive study area landfill void capacity baseline* by >10%.

*Forecast as the worst-case scenario, during a defined construction and/or operational phase.

Significance of Effects

12.1.12 **Table 12-3** describes the IEMA Guidance (Ref 12.1) effect thresholds which has been used in determining the effects. **Table 12-4** identifies which effects are considered to be significant.

Table 12-3 – Effect thresholds

		Magnitude of Impact				
		No Change	**Negligible**	**Minor**	**Moderate**	**Major**
Sensitivity of receptor	**Very High**	Neutral	Slight	Moderate or Large	Large or very large	Very large
	High	Neutral	Slight	Slight or Moderate	Moderate or Large	Large or very large
	Medium	Neutral	Neutral or Slight	Slight	Moderate	Moderate or large
	Low	Neutral	Neutral or Slight	Neutral or Slight	Slight	Slight or moderate
	Negligible	Neutral	Neutral	Neutral or Slight	Neutral or Slight	Slight

Table 12-4 – Significance of effect

Effects	Waste
Neutral and slight	Not significant
Moderate, large and very large	Significant

12.2 Pentir Substation, Bryncir, Trawsfynydd Substation and Wider Works

12.2.1 Not applicable – all receptors scoped out.

13 In-Combination Effects

13.1 Introduction

13.1.1 There is no established methodology for assessing and quantifying the effects of a number of individual impacts on the same sensitive receptors.

13.1.2 The ES defines beneficial and adverse effects during construction (including decommissioning works), maintenance and operation of the Project as being of negligible, minor and/or slight, moderate or major significance. Several impacts on one receptor or receptor group could theoretically interact to produce an overall effect of greater significance than each of the effects alone, for example two or more minor effects could lead to an overall effect of moderate significance, or two or more moderate effects could be major.

13.1.3 For some environmental topics, no interactions with other topics are likely to occur and so no in-combination effects are anticipated. For example, impacts of construction noise will not interact with impacts on buried archaeology, the receptors in question are completely separate. For other environmental topics, interactions could occur and could impact a receptor in different ways. Taking local residents as an example receptor, they could potentially experience effects of reduced air quality, increased noise levels and reduced visual amenity, potentially leading to an overall more significant effect on residential amenity.

13.1.4 **Chapters 4 – 14** of **ES Volume 2: Pentir Substation, Volume 3: Bryncir, Volume 4: Glaslyn Cables, Volume 5: Trawsfynydd Substation** and **Volume 6: Wider Works** have reported the specific effects on these shared receptors and these have been brought together for this assessment.

Stage 1 – Screening

13.1.5 Screening has been undertaken to determine whether a sensitive receptor is exposed to more than one type of residual effect during the construction (including decommissioning works) and operational and maintenance stages of the Project. The sensitive receptors identified in **Chapters 4 – 14** and the residual effects on these receptors following the implementation of mitigation are summarised in **Volume 7, Chapter 15: In-Combination Effects,** with full details in **Volume 8, Appendix 7.4.A: Screening for In-Combination Effects.**

13.1.6 Residual effects of negligible significance in the technical chapters have not been considered in the screening stage. Common sensitive receptors exposed to two or more types of residual effects with a significance of minor/slight, moderate or major have been taken forward into stage 2 of the assessment.

13.1.7 If there is only one type of effect on a sensitive receptor (i.e. only one chapter has identified effects on that sensitive receptor), then it is considered that there are no potential in-combination effects and the sensitive receptor has not been taken forward into stage 2 of the assessment.

Stage 2 – Assessment of In-Combination Effects

13.1.8 A qualitative assessment of the overall significance of the cumulative effects on common sensitive receptors identified at the screening stage has been undertaken based on technical information provided in **Chapters 4 – 14** and supporting appendices as well as professional judgement. Given that the types of effects are very different in some cases, a quantitative assessment was not possible, and it was necessary to apply professional judgement in determining the level of significance.

13.1.9 The results of this qualitative assessment are presented in a summary of in-combination for both the construction (including decommissioning works) and operational phases is presented in **Volume 7, Chapter 15: In-Combination Effects.**

14 Cumulative Effects

14.1 Introduction

14.1.1 A range of public sector and industry-led guidance is available on the approach to assessing cumulative effects but at present there is no single, agreed industry standard method. Whilst the Project is not a Nationally Significant Infrastructure Project (NSIP), the approach to the assessment of cumulative effects broadly follows the Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment guidance (Ref 14.1), as detailed below.

Stage 1 – Establishing a Long List

14.1.2 A 2 km Study Area has been applied to consider applicable developments for consideration of cumulative effects. To identify relevant projects for inclusion in this section, a review of Gwynedd Council planning portal (Ref 14.2) and Eryri National Park planning portal (Ref 14.3) was undertaken to identify planning applications validated in the last two years. A 2 km Study Area was deemed appropriate given the nature of the works and its predominantly rural setting.

14.1.3 The long list has not considered applications related to works at residential properties, changes of use, material amendments, removal of conditions or that are temporary i.e. temporary access road.

14.1.4 Only planning applications that have been validated in the last two years have been considered for the cumulative assessment.

14.1.5 **Table 14-1** describes the planning applications within 2 km of the Project works sites that have been validated in two years by either Gwynedd Council (Ref 14.2). A check was made of Eryri National Park Authority (Ref 14.3) as of 15 August 2025 but no relevant records were found.

14.1.6 The Planning Inspectorate website (Ref 16.4) was checked for NSIPs on the 15 August 2025. No NSIPs were in 2 km of the Project.

Table 14-1 – Long list of other developments

Application	Description	Location	Status
Gwynedd Council			
C24/0532/25/LL	Proposed Energy Storage facility, related access, landscaping, infrastructure, ancillary equipment, with a grid connection import and export capacity of 57MWac.	230 m north-west of the site, Pentir Substation	Approved with conditions

Application	Description	Location	Status
C16/0886/15/LL	Application for the installation of underground 132KV grid connection cables between the Glyn Rhonwy Storage Facility and the Pentir Substation. Two applications to extend the commencement period have been submitted: C21/0934/15/AC and C23/0959/15/AC	Pentir Substation	Approved with conditions
C25/0266/18/LL	Temporary planning permission for a period of 40 years for the erection of an Energy Storage System (ESS), together with associated infrastructure, site access, landscaping and ancillary works.	Immediately south of the Pentir Substation access road	In progress
C25/0277/18/LL	Proposed development of a battery energy storage system, associated infrastructure, access and landscaping.	30 m south-east of the site, Pentir Substation.	In progress
C23/0852/23/TC	The proposed siting of 323 holiday caravans/lodges across Brynteg Holiday Park, to include western former golf course area (area hatched green).	210 m east of the site, near Tower 4ZC134	In progress
C23/0619/26/LL	Proposed erection of 6 new residential dwellings	1.2 km east of the site, near Tower 4ZC121	In progress
C24/0225/24/LL	Construct a single storey building for the storage of a tractor, trailer, agricultural machinery, tools and animal food	75 m north-east of the site, near Tower 4ZC115	Approved with conditions
C23/0891/22/LL	Creation of new football pitch and erection of new storage shed.	1.05 km east of the site, near Tower 4ZC100	Approved with conditions
C24/0360/22/LL	Erection of 4 no. linked light industrial, storage and distribution units with integral office space as follows: a. 4no. 5M units 1no. 8M unit b. 2no. 2 storey/office c. 4no. 5M units d. 4no. 5M units All to be use class B1 and B8.	640 m west of the site, near Tower 4ZC097	Approved with conditions

Application	Description	Location	Status
C24/0875/44/LL	Redevelopment of existing MUGAs to create a new 3G synthetic pitch with spectator area, 3m perimeter fencing and new floodlighting system.	180 m south of the site, Porthmadog	Approved with conditions
C23/0656/44/LL	Creation of secure storage compound to the rear of the telephone exchange site to include 1Nr 6m storage container that will house equipment and materials in support of the local telecoms infrastructure network, along with installing a perimeter heras galvanized metal fence 1.8m high to the perimeter of the storage area.	55 m south of the site, Porthmadog	In progress
C24/0965/08/LL	Rear and side extension to existing factory/Warehouse and associated external works.	515 m south of the site, Minffordd	In progress
C23/0549/08/LL	Erect 8 new flexible business/ industrial units (Use class B1, B2, B8) with associated parking and landscaping.	560 m south-east of the site, Minffordd	Approved with conditions
C25/0554/18/LL	Installation of underground electricity cable in association with Pentir BESS energy storage scheme	Immediately west of the Pentir Substation	Awaiting decision
Eryri National Park Authority			
None			

Stage 2 – Establishing a Short List

14.1.7 The long list of developments has been reviewed in the context of the nature and scale of the Project. The following developments have been **scoped out** based on their distance from the Project works site, nature and scale of the proposed works and unlikely potential for interactions with the Project that may result in cumulative effects:

- C23/0619/26/LL – Proposed erection of 6 new residential dwellings.
- C24/0225/24/LL – Construct a single storey building for the storage of a tractor, trailer, agricultural machinery, tools and animal food.
- C23/0891/22/LL – Creation of new football pitch and erection of new storage shed.

- C24/0875/44/LL – Redevelopment of existing multi-use games areas to create a new 3G synthetic pitch with spectator area, 3 m perimeter fencing and new floodlighting system.
- C23/0656/44/LL – Creation of secure storage compound to the rear of the telephone exchange site to include 1Nr 6 m storage container that will house equipment and materials in support of the local telecoms infrastructure network, along with installing a perimeter heras galvanized metal fence 1.8 m high to the perimeter of the storage area.
- C24/0965/08/LL – Rear and side extension to existing factory and/or warehouse and associated external works.

14.1.8 Therefore, the short list of developments that have been taken forward for assessment are detailed in **Table 14-2.**

Table 14-2 – Short list of other developments

Application	Description	Location	Status
C24/0532/25/LL	Proposed Energy Storage facility, related access, landscaping, infrastructure, ancillary equipment, with a grid connection import and export capacity of 57MWac.	230 m north-west of the Pentir works site	Approved with conditions
C16/0886/15/LL	Application for the installation of underground 132KV grid connection cables between the Glyn Rhonwy Storage Facility and the Pentir Substation. Two applications to extend the commencement period have been submitted: C21/0934/15/AC and C23/0959/15/AC.	Pentir Substation	Approved with conditions
C25/0266/18/LL	Temporary planning permission for a period of 40 years for the erection of an Energy Storage System (ESS), together with associated infrastructure, site access, landscaping and ancillary works.	Immediately south of the Pentir Substation access road	Awaiting decision
C25/0277/18/LL	Proposed development of a battery energy storage system, associated infrastructure, access and landscaping.	30 m south-east of the Pentir works site	Awaiting decision
C23/0852/23/TC	The proposed siting of 323 holiday caravans/lodges across Brynteg Holiday Park, to include	210 m east of the Wider Works site, near Tower 4ZC134	Awaiting decision

Application	Description	Location	Status
	western former golf course area (area hatched green).		
C24/0360/22/LL	Erection of 4 no. linked light industrial, storage and distribution units with integral office space as follows: a. 4no. 5M units 1no. 8M unit b. 2no. 2 storey/office c. 4no. 5M units d. 4no. 5M units All to be use class B1 and B8.	640 m west of the Wider Works site, near Tower 4ZC097	Approved with conditions
C23/0549/08/LL	Erect 8 new flexible business/ industrial units (Use class B1, B2, B8) with associated parking and landscaping.	560 m south-east of the Glaslyn works site, Minffordd	Approved with conditions
C25/0554/18/LL	Installation of underground electricity cable in association with Pentir BESS energy storage scheme	Immediately west of the Pentir Substation	Awaiting decision

14.1.9 In addition to the identified planning applications, the following other developments be considered:

- Eryri Visual Impact Provision (EVIP). This will comprise the installing of a tunnel accommodating cables beneath the Dwyryd Estuary between Minffordd to Llandecwyn and removing the existing overhead line to reduce visual impacts.
- Natural Resources Wales – Porthmadog Flood Defence Works. This project is going options appraisals. An assessment of a range of long-term options to reduce risk of river and sea flooding to Porthmadog and surrounding communities. Natural Resources Wales are in the process of drafting a recommended short list of options for further consideration.

Stage 3 – Information Gathering

14.1.10 Information on the developments detailed in **Volume 8, Appendix 7.4.B: Cumulative Effects Assessment** was gathered using environmental assessment information freely and publicly available via the Gwynedd Council planning portal to inform the cumulative assessment.

Stage 4 - Assessment

14.1.11 The assessment for potential cumulative effects is presented in **Volume 8, Appendix 7.4.B: Cumulative Effects Assessment.** Receptors with minor, moderate or major residual effects that have been identified in **ES Volumes 2 – 6, Chapters 4 – 14** have been considered.

Bibliography

Ref 2.1 – Landscape Institute and Institute of Environmental Assessment and Management, 2013. Guidelines for Landscape and Visual Impact Assessment (GLVIA). 3rd Edition, Routeledge, Abingdon, Oxon.

Ref 2.2 – Landscape Institute (2024). *Notes and Clarifications on aspects of the 3rd Edition Guidelines on Landscape and Visual Impact Assessment (GLVIA3).* Available at: https://www.landscapeinstitute.org/wp-content/uploads/2024/08/LITGN-2024-01-GLVIA3-NC_Aug-2024.pdf. Accessed October 2024

Ref 3: – Landscape Institute (2019). *Technical Guidance Note 06-19: Visual Representation of development Proposals. A*vailable at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2019/09/LI_TGN-06-19_Visual_Representation.pdf. Accessed October 2024

Ref 4: – Landscape Institute, 2021. Technical Guidance Note 02/21: Assessing Landscape Value outside National Designations. Available at: https://landscapewpstorage01.blob.core.windows.net/www-landscapeinstitute-org/2021/05/tgn-02-21-assessing-landscape-value-outside-national-designations.pdf. Accessed October 2024.

Ref 3.1 – HMSO (2017). *The Water Environment (WFD) (England and Wales) Regulations 2017.* Available at: https://www.legislation.gov.uk/uksi/2017/407/contents/made. Accessed September 2024.

Ref 3.2 – JNCC (2010). *Handbook for Phase 1 habitat survey. – a technique for environmental audit, JNCC, Peterborough*.

Ref 3.3 – CIEEM (2024). *Guidelines for ecological impact assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Version 1.3.*

Ref 3.4 – HMSO (2017). *The Conservation of Habitats and Species Regulations 2017 (as amended) (the Habitats Regulations 2017).* Available at: https://www.legislation.gov.uk/uksi/2017/1012/contents/made. Accessed September 2024.

Ref 4.1 – Welsh Government/Cadw (2017a). *Heritage Impact Assessment in Wales*. Cardiff: Cadw. Available at: https://cadw.gov.wales/advice-support/placemaking/heritage-impact-assessment/heritage-impact-assessment. Accessed October 2024.

Ref 4.2 – Welsh Government/Cadw, (2017b). *Setting of Historic Assets in Wales*. Cardiff: Cadw. Available at: https://cadw.gov.wales/advice-support/placemaking/heritage-impact-assessment/setting-historic-assets. Accessed October 2024.

Ref 4.3 – Welsh Government (2017). *The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017.* Available at: https://www.legislation.gov.uk/wsi/2017/567. Accessed October 2024.

Ref 5.1 – Environment Agency (2020). *Land Contamination Risk Management*. Available at: https://www.gov.uk/government/publications/land-contamination-risk-management-lcrm. Accessed October 2024

Ref 5.2 – Standard for Highways (2019). *DMRB LA109 Geology and Soils*. Available at: https://www.standardsforhighways.co.uk/search/adca4c7d-4037-4907-b633-76eaed30b9c0 Accessed October 2024.

Ref 5.3 – Standard for Highways (2020). *DMRB LA113 Road Drainage and the Water Environment*. Available at: https://www.standardsforhighways.co.uk/search/d6388f5f-2694-4986-ac46-b17b62c21727. Accessed October 2024

Ref 5.4 – Institute of Environmental Management and Assessment (IEMA) (2022). *A New Perspective on Land and Soil in Environmental Impact Assessment.* Available at: https://www.iema.net/resources/blogs/2022/02/17/iema-launch-of-new-eia-guidance-on-land-and-soils-february-2022/. Accessed January 2025.

Ref 5.5 – CL:AIRE. Control of Asbestos Regulations 2012: *Interpretation for Managing and Working with Asbestos in Soil and Construction & Demolition materials: Industry Guidance.* Available at: https://claire.co.uk/projects-and-initiatives/asbestos-in-soil. Accessed January 2025.

Ref 5.6 - Standard for Highways (2020). *DMRB LA104 Environmental Assessment and Monitoring.* Available at: https://www.standardsforhighways.co.uk/search/0f6e0b6a-d08e-4673-8691-cab564d4a60a. Accessed October 2024

Ref 7.1 – Institute of Environmental Management and Assessment (IEMA) (2023). *Environmental Assessment of Traffic and Movement Guidelines*. Available at: https://www.iema.net/resources/blog/2023/07/12/new-iema-guidance-environmental-assessment-of-traffic-and-movement. Accessed August 2024.

Ref 8.1 – IAQM (2014). Guidance on the assessment of dust from demolition and construction. Institute of Air Quality Management.

Ref 9.1 – British Standards Institution (2014). *British Standard 5228-1:2009+A1:2014. Code of practice for noise and vibration control on construction and open sites - Part 1: Noise*.

Ref 9.2 – British Standards Institute (2009 with 2014 amendments). *BS 5228-1:2009+A1:2014 – Code of practice for noise and vibration control on construction and open sites Part 2: Vibration.*

Ref 9.3 – Department of Transport/Welsh Office (1988). *Calculation of Road Traffic Noise. Her Majesty's Stationery Office, London.*

Ref 9.4 – Highways England (2020). *Design Manual for Road and Bridges LA 111: Noise and Vibration, Revision 2*. Available at https://www.standardsforhighways.co.uk/tses/attachments/cc8cfcf7-c235-4052-8d32-d5398796b364?inline=true. Accessed September 2024.

Ref 9.5 – British Standards Institute (2019). *BS 4142:2014+A1:2-19 – Methods for rating and assessing industrial and commercial sound.*

Ref 9.6 – British Standards Institute (2014). *BS 8233:2014 – Guidance on sound insulation and noise reduction for buildings.*

Ref 10.1 - Homes and Communities Agency (2014). *Additionality Guide Fourth Edition.* Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/378177/additionality_guide_2014_full.pdf. Accessed May 2025.

Ref 11.1 – IEMA (2022). E*nvironmental Impact Assessment Guide to: Assessing Greenhouse Gas Emissions and Evaluating their Significance (2nd Edition).* Available at:

https://www.iema.net/media/soanjg22/eia-guide_ghg-assessment-and-significance_iema_16may17.pdf. Accessed September 2024.

Ref 11.2 – British Standards Institute (2023). *PAS 2080:2023 Carbon Management in Infrastructure*. Available at: https://www.bsigroup.com/en-GB/insights-and-media/insights/brochures/pas-2080-carbon-management-in-infrastructure-and-built-environment/. Accessed September.

Ref 11.3 – CCC (2021). *The Sixth Carbon Budget: The UK's Path to Net Zero.* Available at: https://www.theccc.org.uk/publication/sixth-carbon-budget/. Accessed September 2024.

Ref 11.4 – UNFCCC (2015). *Conference of the Parties, Report of the Conference of the Parties on its twenty-first session, held in Paris from 30 November to 13 December 2015. FCCC/CP/2015/10.* Available at: https://unfccc.int/sites/default/files/resource/docs/2015/cop21/eng/10a01.pdf. Accessed September 2024.

Ref 11.5 – Senedd Cymru (2021). *The Climate Change (Interim Emissions Targets) (Wales) (Amendment) Regulations 2021*. Available at: https://www.legislation.gov.uk/wsi/2021/338/made. Accessed September 2024.

Ref 11.6 – IEMA (2020). *Environmental Impact Assessment Guide to: Climate Change Resilience and Adaptation.* Available at: https://www.iema.net/media/mabhqino/iema-eia-climate-change-resilience-june-2020.pdf. Accessed September 2024.

Ref 11.7 – Met Office (2019). *UK Climate Projections (UKCP18)*. Available at: https://ukclimateprojections-ui.metoffice.gov.uk/products. Accessed September 2024.

Ref 11.8 – European Commission (2021). *Technical guidance on the climate proofing of infrastructure in the period 2021-2027*. Available at: https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=uriserv%3AOJ.C_.2021.373.01.0001.01.ENG. Accessed September 2024.

Ref 12.1 – Institute of Environmental Management and Assessment (IEMA) (2020). *Guide to: Materials and Waste in Environmental Impact Assessment, Guidance for a Proportionate Approach.*

Ref 14.1 – Planning Inspectorate (2024). *Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment.* Available at https://www.gov.uk/guidance/nationally-significant-infrastructure-projects-advice-on-cumulative-effects-assessment. Accessed September 2024.

Ref 14.2 – Cyngor Gwynedd. *View planning applications (track and trace).* Available at: https://www.gwynedd.llyw.cymru/en/Residents/Planning-and-building-control/Planning/View-planning-applications-Track-and-Trace.aspx. Accessed May 2025.

Ref 14.3 – Eryri National Park. *Search planning applications.* Available at: https://planning.snowdonia.gov.wales/planning-permission/search-planning-applications/. Accessed May 2025.

Ref 14.4 – Planning Inspectorate. *National Infrastructure Planning (Wales).* Available at: https://infrastructure.planninginspectorate.gov.uk/projects/wales/. Accessed June 2025.