LLŶR FLOATING OFFSHORE WIND PROJECT

Llŷr 1 Floating Offshore Wind Farm

Environmental Statement

Volume 2: Chapter 13 - Traffic and Transport

August 2024

Prepared by: Llŷr Floating Wind Ltd

FLOVENTIS ENERGY

Document Status

Version	Authored by	Reviewed by	Approved by	Date
FINAL	AECOM	AECOM	AECOM	August 2024

Approval for Issue

Prepared by	AECOM
Prepared for	Llŷr Floating Wind Limited
Approved by	Jay Hilton-Miller

Acronyms and abbreviations

Acronym or abbreviation	Definition	Acronym or abbreviation	Definition
AADT	Average Annual Daily Traffic	HDD	Horizontal Directional Drilling
AIL	Abnormal Indivisible Loads	HGV	Heavy Goods Vehicle
CIHT	Chartered Institute of Highways and Transportation	IEMA	Institute of Environmental Management and Assessment
CTMP	Construction Traffic Management Plan	PCC	Pembrokeshire County Council
OCEMP	Outline Construction Environmental Management Plan	PIC	Personal Injury Collisions
DMRB	Design Manual for Road and Bridges	TA	Transport Assessment

Glossary of project terms

Term	Definition
The Applicant	The developer of the Project, Llŷr Floating Wind Limited.
Array	All wind turbine generators, inter array cables, mooring lines, floating sub-structures and supporting subsea infrastructure within the Array Area, as defined, when considered collectively, excluding the offshore export cable(s).
Array Area	The area within which the wind turbine generators, inter array cables, mooring lines, floating sub-structures and supporting subsea infrastructure will be located.
Floventis Energy	A joint venture company between Cierco Ltd and SBM Offshore Ltd of which Llŷr Floating Wind Limited is a wholly owned subsidiary.
Landfall	The location where the offshore export cable(s) from the Array Area, as defined, are brought onshore and connected to the onshore export cables (as defined) via the transition joint bays (TJB).
Llŷr 1	The proposed Project, for which the Applicant is applying for Section 36 and Marine Licence consents. Including all offshore and onshore infrastructure and activities, and all project phases.
Marine Licence	A licence required under the Marine and Coastal Access Act 2009 for marine works which is administered by Natural Resources Wales (NRW) Marine Licensing Team (MLT) on behalf of the Welsh Ministers.
Offshore Development Area	The footprint of the offshore infrastructure and associated temporary works, comprised of the Array Area and the Offshore Export Cable Corridor, as defined, that forms the offshore boundary for the S36 Consent and Marine Licence application.
Offshore Export Cable	The cable(s) that transmit electricity produced by the WTGs to landfall.

Term	Definition
Offshore Export Cable Corridor (OfECC)	The area within which the offshore export cable circuit(s) will be located, from the Array Area to the Landfall.
Onshore Development Area	The footprint of the onshore infrastructure and associated temporary works, comprised of the Onshore Export Cable Corridor and the Onshore Substation, as defined, and including new access routes and visibility splays, that forms the onshore boundary for the planning application.
Onshore Export Cable(s)	The cable(s) that transmit electricity from the landfall to the onshore substation.
Onshore Export Cable Corridor (OnECC)	The area within which the onshore export cable circuit(s) will be located.
Proposed Project	All aspects of the Llŷr 1 development (i.e. the onshore and offshore components).
Onshore Substation	Located within the Onshore Development Area, converts high voltage generated electricity into low voltage electricity that can be used for the grid and domestic consumption.
Section 36 consent	Consent to construct and operate an offshore generating station, under Section 36 (S.36) of the Electricity Act 1989. This includes deemed planning permission for onshore works.

Contents

List of Figures

List of Tables

13. TRAFFIC AND TRANSPORT

13.1 Introduction

1. Llŷr Floating Wind Limited (hereafter the Applicant) is proposing to develop the Llŷr 1 Floating Offshore Wind Farm (hereafter referred to as the proposed Project), located approximately 35 km off the coast of Pembrokeshire in the Celtic Sea.
2. The proposed Project is a test and demonstration wind farm development, comprising up to 10 wind turbine generators (WTGs). The proposed Project will make landfall at Freshwater West before connecting into Pembroke Dock power station and the national grid network.
3. The Applicant is seeking a Section 36 consent and Marine Licence for Llŷr 1, and this chapter forms part of the Environmental Statement (ES) which is submitted in support of those consent applications. This chapter describes the potential impacts and effects of the proposed Project on Traffic and Transport during the construction phase of the onshore development and includes mitigation and good practice measures to reduce the impacts of the proposed Project on surrounding roads.
4. **Section 13.6** of this ES chapter provides a summary of the impact assessment undertaken and any residual significant effects on Traffic and Transport following implementation of any mitigation measures.
5. The assessment presented in this chapter should be read in conjunction with the following linked and supporting chapters:

    - **Chapter 04: Description of the Proposed Project** provides further details of the project design parameters.
    - **Chapter 05: EIA Approach and Methodology** - provides further details of the general framework and approach to the EIA.

6. Additional information to support the assessment includes:

    - **Appendix 13A: Average Traffic Count Summary Sheets**
    - **Appendix 13B: Raw Accident Data Form**
    - **Appendix 13C: TEMPRO Output**
    - **Appendix 13D: Project Erebus Environmental Statement Chapter 25: Traffic and Transportation.**
    - **Appendix 13E: Project Erebus: Outline Construction Traffic Management Plan**
    - **Appendix 13F: Personal Injury Collision Data Analysis**

7. The assessment has been undertaken by Oliver Bidwell (AECOM). Further details of the proposed Project Team's competency are provided in **Appendix 1A: Statement of Competence.**

13.2 Legislation, Policy and Guidance

8. The following sections identify specific legislation, policy and guidance that is applicable to the assessment of Traffic and Transport. Further detail on the wider legislation, policy and guidance relevant to this ES is provided in **Chapter 02: Regulatory and Planning Policy Context**.

13.2.1. Legislation

9. The legislation that is applicable to the assessment of Traffic and Transport is summarised below:

- Active Travel Act Guidance (Welsh Government, 2021); and
- Well-being of Future Generations (Wales) Act (Commissioner for Wales, 2015).

13.2.2. National Planning Policy

Table 13-1. A summary of national planning policy relevant to Traffic and Transport

Summary of policy	Description of Policy and Where it is Considered
The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and Wales and how these should be applied. It provides a framework within which locally prepared plans for housing and other developments can be produced. A revised version of NPPF was released in July 2021. The NPPF has two key themes: • *Providing a greater level of integration and simplification of the planning policies governing new development nationally; and* • *Contributing to the achievement of sustainable development from an economic, social and environmental perspective.* Transport specific policies play a key role in supporting and achieving the core planning principles and are intrinsically linked to the objective of sustainable development. The NPPF specifically states that development should only be prevented or refused on transport grounds if there would be an unacceptable impact on highway safety or where the residual cumulative impacts of development are severe.	Paragraph 106 states that planning policies should 'be prepared with the active involvement of local highways authorities, other transport infrastructure providers and operators and neighbouring councils, so that strategies and investments for supporting sustainable transport and development patterns are aligned.' **Demonstrated in section 13.2.6, 13.2.7, Table 13-5** Paragraph 110 of the NPPF states that whilst assessing applications for development, it should be ensured that: • *Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;* • *Safe and suitable access to the site can be achieved for all users;* • *The design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the national design guide and the national model design code; and* • *Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.* **Demonstrated in 13.6, 13.8, 13.9** Paragraph 111 states that 'Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe'. **Demonstrated in 13.8, 13.3.4, 13.10** Paragraph 113 states that a development that generates a significant amount of movement should be supported by a Transport Statement (TS) or TA and should provide a travel plan. **Demonstrated in 13.8, 13.9**
The draft National Policy Statements (NPS) published in September 2021, which are matters that will be important and relevant to the decision-making process:	Paragraph 5.14.3 of the EN1 states 'if a project is likely to have significant transport implications, the applicant's ES…should include a transport assessment, using the NATA/TAG methodology stipulated in Department for Transport guidance, or

Summary of policy	Description of Policy and Where it is Considered
• *Overarching National Policy Statement for Energy (EN1);* • *National Policy Statement for Renewable Energy Infrastructure (EN3); and* • *National Policy Statement for Electricity Networks Infrastructure (EN5).* The NPSs include specific criteria and issues which should be covered by applicants' assessments of the effects of their scheme, and how the decision maker should consider these impacts. In regard to traffic and transportation, only EN1 directly applies. The Government is currently reviewing and updating the Energy NPS to reflect its policies and strategic approach for the energy system that is set out in the Energy White Paper (December 2020), and to ensure that the planning policy framework enables the delivery of the infrastructure required for the country's transition to net zero carbon emissions. As part of the Energy NPS review process, the Government published a suite of Draft Energy NPSs for consultation on 6 September 2021.	any successor to such methodology. Applicants should consult the Highways Agency and Highways Authorities as appropriate on the assessment and mitigation'. **Demonstrated in 13.7, 13.8 , 13.9** Meanwhile, in regard to mitigation paragraph 5.14.9 of the EN 1 states that 'where mitigation is needed, possible demand management measures must be considered and if feasible and operationally reasonable, required, before considering requirements for the provision of new inland transport infrastructure to deal with remaining transport impacts'. **Demonstrated in 13.7, 13.8** The Secretary of State may attach requirements to a consent where there is likely to be substantial HGV traffic that: • *Control numbers of HGV movements to and from the site in a specified period during its construction;* • *And possibly on the routing of such movements;* • *Make sufficient provision for HGV parking, either on the site or at dedicated facilities elsewhere, to avoid 'overspill' parking on public roads, prolonged queuing on approach roads and uncontrolled on-street HGV parking in normal operating conditions; and* • *Ensure satisfactory arrangements for reasonably foreseeable abnormal disruption, in consultation with network providers and the responsible police force.* **Demonstrated in 13.5, 13.8**

13.2.3. *Regional Planning Policy*

Table 13-2. A summary of regional planning policy relevant to Traffic and Transport

Summary of policy	Description of Policy and Where it is Considered
The Wales Transport Strategy 2021 (Welsh Government, 2021) sets out the vision for how the transport system can help deliver the Welsh Government priorities for Wales, helping to put the government on a pathway to creating a more prosperous, green and equal society. As well as setting out short-term priorities and long-term ambitions, the strategy has developed nine 'miniplans' explaining how to deliver them for different transport modes and sectors.	*The vision for the document is 'An accessible, sustainable and efficient transport system.' Delivered through three headline priorities over the next five years:* *Bring services to people in order to reduce the need to travel;* • *Allow people and goods to move easily from door to door by accessible, sustainable and efficient transport services and infrastructure;* • *Encourage people to make the change to more sustainable transport.* **Demonstrated in 13.8, 13.9 13.10**
Future Wales – The National Plan 2040 is a new development plan which provides a national spatial strategy setting out the priorities for Wales over the next 20 years 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 our communities'.	*Policy 12 outlines several measures that the Welsh Government will use to prioritise investment and seek to improve regional connectivity across Wales:* • *Active Travel – Prioritising walking and cycling for all local travel. We will support the implementation of the Active Travel Act to create comprehensive networks of local walking and cycling routes that connect places that people need to get to for everyday purposes.* • *Bus – Improve the legislative framework for how local bus services are planned and delivered. We will invest in the development of integrated regional and local bus networks to increase modal share of bus travel and improve access by bus to a wider range of trip destinations.* • *Metros – Develop the South East Metro, South West Metro and North Wales Metro. We will create new integrated transport systems that provide faster, more frequent and joined up services using trains, buses and light rail.* *Ultra Low Emission Vehicles – Support the roll out of suitable fuelling infrastructure to facilitate the adoption of ultra-low emission vehicles, particularly in rural areas.* **Demonstrated in 13.6, Table 13-20 and considered throughout**
Planning Policy Wales (PPW) sets out the land use planning policies of the Welsh Government. It is supplemented by a series of Technical Advice Notes (TANs). 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. Chapter 2 (People and Places:	Chapter 3 (Strategic and Spatial Choices) of the PPW identifies five key aspects of good design. It states that: 'good design is inclusive design, placing people at the heart of the design process'. It must reduce inequality of access to essential services, education and employment and design measures with design measures improving accessibility by walking, cycling and public transport.

Summary of policy	Description of Policy and Where it is Considered
Achieving Well-being through Placemaking) of the PPW indicates that: 'all development decisions should contribute towards the making of Sustainable Places and improved well-being.' Five key principles are presented in PPW which should be embraced to ensure planning facilitates the right development in the right place. *These are listed below alongside how the development is considered to positively contribute to these goals:* • *Growing our economy in a sustainable manner;* • *Making best use of resources – using resources efficiently, development should be resilient to climate change and contribute towards decarbonising society;* • *Facilitating accessible and healthy environments;* • *Creating and sustaining communities;* • *Maximising environmental protection and limiting environmental impact.*	It is also noted that good design should avoid the creation of car-based developments by maximising opportunities for people to make sustainable and healthy travel choices for their daily journeys. To maximise accessibility by sustainable non-car modes, infrastructure proposed within the site should be integrated with existing infrastructure such as the strategic cycling network. Chapter 4 (Active and Social Places) of the PPW discusses the well-connected cohesive communities, components of placemaking, covering transport, housing retail and commercial development, community facilities and recreational spaces. With regards to transport, it states people should have access to jobs and services through more efficient and sustainable journeys, by walking, cycling and public transport. To encourage the use of Ultra Low Emission Vehicles (ULEVs), PPW 11 states the planning system should support the provision of ULEV charging points as part of new developments. Where car parking is provided for new non-residential development, planning authorities should seek a minimum of 10% of car parking spaces to have ULEV charging points. PPW 11 also notes that it may be appropriate for some to be 'passive', with the necessary underlying infrastructure provided to enable installation and activation in the future. Chapter 5 (Productive and Enterprising Places) of the PPW considers the economic theme of place-making. It states the provision of sustainable transport infrastructure is essential to build prosperity, tackle the climate emergency, reduce airborne pollution and to improve the social, economic, environmental and cultural well-being of Wales. **Demonstrated in 13.6, 13.8, 13.9 and considered throughout.**

13.2.4. Local Planning Policy

Table 13-3. A summary of local planning policy relevant to Traffic and Transport

Summary of policy	Description of Policy and Where it is Considered
The Joint Transport Plan for South West Wales (2015-2020) (Carmarthenshire County Council, Neath Port Talbot County Borough Council, Pembrokeshire County Council and City and County of Swansea, 2015) Joint Transport Plan for South West Wales was published in 2015 and focuses on transport	The Local Transport Plan sets down the vision and objectives for transport in the South West Wales area and provides a short and long-term programme of interventions to work towards achieving these goals. The short-term programme sets down those schemes that are priorities for the five years to 2020. The longer-term

Summary of policy	Description of Policy and Where it is Considered
improvements that lie within the remit of four local authorities: • *Carmarthenshire County Council;* • *Neath Port Talbot County Borough Council;* • *Pembrokeshire County Council;* • *City and County of Swansea.*	programme identifies aspirations up to 2030. Some of the broad objectives of the plan are as follows: • *Economic growth: Supporting and Safeguarding jobs in the City Region;* • *Access to employment: Reducing economic inactivity by delivering safe access to major employment sites in the City Region;* • *Tackling poverty: Maximising the contribution that transport services can make to targeting improvements to tackling poverty and target improvements at the most disadvantaged communities;* • *Sustainable travel and safety: Encouraging safer, healthier and more sustainable travel;* • *Access to services: Connecting communities and enabling access to key services.* **Considered in 13.6, 13.8 and throughout**
Pembrokeshire County Council Local Development Plan (LDP) (2013 - currently undergoing review) provides development strategy and policies to guide development and land use in Pembrokeshire up to 2021. The Authority is currently working on a Replacement Local Development Plan for Pembrokeshire. It is anticipated that this Plan will be adopted in 2022 (though the programme has been delayed) and will run until 2033. This Plan will cover the area of Pembrokeshire, excluding the Pembrokeshire Coast National Park Authority. The LDP is supported by Supplementary Planning Guidance (SPG). The vision for the plan is: 'To ensure that Pembrokeshire is prosperous and that it remains vibrant and special by creating: a network of strong urban and rural communities in Hub Towns, Service Centres, Service and Local Villages supported by a robust, sustainable, diverse high value-adding economy underpinned by the Area's unique environment, maritime access to the Milford Haven Waterway and Fishguard Harbour and internationally important energy and tourism opportunities.'	Policy SP 1 Sustainable Development states that: 'All development proposals must demonstrate how positive economic, social and environmental impacts will be achieved and adverse impacts minimised.' Policy SP 2 Port and Energy Related Development states that: 'Development at the Ports of Milford Haven and Fishguard will be permitted for port related facilities and infrastructure, including energy related development.' Policy SP 10 Transport Infrastructure and Accessibility states that: 'Improvements to the existing transport infrastructure that will increase accessibility to employment, services and facilities, particularly by sustainable means, will be approved. Identified improvements to the existing transport infrastructure will be safeguarded.' **Considered in 13.6, 13.8 and throughout**
The Pembrokeshire Coast National Park LDP 2 was adopted in September 2020. It provides a	The vision for the document is stated as: 'Development continues to respect and where possible enhance the special qualities. This means

Summary of policy	Description of Policy and Where it is Considered
legal framework for the development and use of land within the National Park to 2031. The land use planning dimension of the National Park Management Plan is put into effect through the statutory Local Development Plan for each National Park. The National Park Management Plan is of national importance. National Park Management Plan objectives and policies therefore prevail over regional and local policy as it is delivered in the National Parks.	that the Park's population will not be able to increase significantly. The limited opportunities for development that can be made available are wherever possible made available for development that contributes most to sustaining local communities where compatible with the statutory National Park purposes'. To achieve the vision a number of objectives are stated: • *Special Qualities – To conserve, enhance and promote the historic environment, biodiversity and geodiversity, landscape and seascape and Welsh Language and Culture.* • *Major development, the potential for growth - To promote a spatial strategy that minimises the need to travel.*

13.2.5. Guidance

Table 13-4. A summary of guidance relevant to Traffic and Transport

Summary of Guidance	Notable Sections of Guidance Considered in this Chapter
Travel Plans, Transport Assessments and Statements – Planning Practice Guidance (Department for Communities and Local Government, March 2014)	*Paragraph: 004 Reference ID: 42-004-20140306* *Paragraph: 005 Reference ID: 42-005-20140306* *Paragraph: 006 Reference ID: 42-006-20140306* *Paragraph: 007 Reference ID: 42-007-20140306* *Paragraph: 008 Reference ID: 42-008-20140306* *Paragraph: 009 Reference ID: 42-009-20140306* *Paragraph: 010 Reference ID: 42-010-20140306* *Paragraph: 011 Reference ID: 42-011-20140306* *Paragraph: 012 Reference ID: 42-012-20140306* *Paragraph: 013 Reference ID: 42-013-20140306* *Paragraph: 014 Reference ID: 42-014-20140306* *Paragraph: 015 Reference ID: 42-015-20140306* **Considered Throughout**
Design Manual for Road and Bridges (DMRB).	*CD 109 Highway Design Link* CD 143 – Design for walking, cycling and horse-riding CA 185 – Vehicle speed measurement **Considered Throughout**

13.2.6. Stakeholder Engagement and Consultation

10. Consultation with statutory and non-statutory organisations is a key element of the EIA process. Consultation with regards to Traffic and Transport has been undertaken to inform the approach to, and scope of, the assessment.

11. Stakeholders for the proposed Project include statutory consultees, landowners, local communities. In addition to the statutory consultation process, there has been ongoing

engagement with statutory and non-statutory consultees to steer the development of the proposed Project and this is detailed in **Table 13-5.**

13.2.7. Summary of Stakeholder Consultations

Table 13-5. Summary of the key issues raised by consultees and how each issue was addressed

Consultee	Consultation type and date	Comment raised	How issue has been addressed and location of response in chapter
Scoping			
Pembrokeshire County Council	Scoping Report for Transport (2022)	Enquiry about the use of Erebus traffic data in our report.	Agreed to use Erebus EIA traffic figure data if appropriate growth rate used.
		Requested Accident data for the Study Area	Accident data received, reviewed and contained within this report
		Additional ATC sites requested	Agreed and ATC's undertaken, data received and reviewed and contained within this report.
Pre-application			
Pembrokeshire County Council	Email 24/04/23	Study Area scope	Agreement of ATC scope

13.3 Approach to Assessment

13.3.1. Assessment Methodology

12. **Chapter 05: EIA Approach and Methodology** provides a summary of the general impact assessment methodology applied in this ES. The following sections provide further detail on the specific methodology used to assess the potential impacts on Traffic and Transport.

13. The approach to the assessment of cumulative impacts, transboundary impacts and interrelated effects is provided in **Sections 13.9.3**, **127** and **13.10**.

14. The significance of potential effects has been evaluated using a systematic approach together with the expert judgement of the specialist consultant. The systematic approach is based upon the identification of the importance/value of receptors and their sensitivity to the proposed Project together with the predicted magnitude of the potential impact.

15. The terms used to define receptor sensitivity and magnitude of impact are based on the methodology detailed in the Chartered Institution of Highways and Transportation's (CIHT) 'Guidelines for Traffic Impact Assessments', which recommends that the environmental impact of the traffic generated by a proposed project should be assessed using the IEMA Guidelines.

13.3.2. Significance Criteria

Magnitude of Impact

16. The scale or magnitude of potential impacts (both beneficial and adverse) is determined by a combination of three criteria: scale of change, spatial extent of change and duration of change, as outlined in **Chapter 05: EIA Approach and Methodology, Section 5.4.9.**

17. The criteria for defining magnitude of impact for the purpose of the assessment on Traffic and Transport are provided in **Table 13-6.**

Table 13-6. A summary of the magnitude criteria that are associated to specific impacts

Magnitude Criterion	Definition
Large	The impact occurs over a large spatial extent resulting in widespread, long-term, or permanent changes in baseline conditions or affects a large proportion of a receptor population. The impact is very likely to occur and/or will occur at a high frequency or intensity. **Adverse:** Loss of resource and / or quality and integrity of resource; severe damage to key characteristics, features or elements **Beneficial:** Large scale or major improvement of resource = quality; extensive restoration; major improvement of attribute quality
Medium	The impact occurs over a medium spatial extent resulting in medium-term, or partial changes in baseline conditions or partially affects a proportion of a receptor population. The impact is likely to occur and/or will occur at a medium frequency or intensity. **Adverse:** Loss of resource, but not adversely affecting the integrity; partial loss of / damage to key characteristics, features or elements **Beneficial:** benefit to, or addition of, key characteristics, features or elements; improvement of attribute quality
Small	The impact occurs over a small spatial extent resulting in short-term, or small changes in baseline conditions or partially affects a small proportion of a receptor population. The impact has a low likelihood of occurring and/or will occur at a low frequency or intensity. **Adverse:** Some measurable change in attributes, quality, minor loss of, or alteration to, one or more key characteristics, features or elements. **Beneficial:** Minor benefit to, or in addition of, one (maybe more) key characteristics, features or elements; some beneficial impact on attribute or a reduced risk or negative impact occurring
Negligible	The impact occurs over a minor spatial extent resulting in very short-term, or minor changes in baseline conditions or partially affects a very small proportion of a receptor population. The impact has a very low likelihood of occurring and/or will occur at a very low frequency or intensity. **Adverse:** Very minor loss of detrimental alteration to one or more characteristics, features or elements. **Beneficial:** Very minor benefit to or positive addition of one or more characteristics, features or elements

18. Magnitude of change is also classified as temporary or permanent. Temporary effects are those associated with demolition or construction stages. Permanent effects are those associated with complete, occupied and operational stages of development.

Table 13-7 IEMA guideline rules

IEMA Rule	Description
Rule 1	Include highway links where traffic flows will increase by more than 30%(or the number of heavy goods vehicles will increase by more than 30%)
Rule 2	Include Highways Links of High sensitivity where traffic flows have increase by 10% or more

19. For the proposed Project, the magnitude of change thresholds set out in **Table 13-8** are adopted, based on IEMA Guidelines, knowledge of the Study Area and professional judgement.

Table 13-8 Magnitude of change thresholds

Potential Effect	Magnitude of change (change in traffic)			
	High	Medium	Small	Negligible
Severance	Up to 90%	Up to 60%	Up to 30%	Up to 10%
Fear and intimidation	Two step changes in level	One step change in level, but with >400 vehicles increase in average 18 hr AV two-way all vehicle flow; and / or >500 HV increase in total 18 hr HV flow	One step change in level, with <400 vehicles increase in average 18 hr AV two-way all vehicle flow; and / or <500 HV increase in total 18 hr HV flow	No step changes
Accidents and Road Safety (per link, per annum, any severity)	High increase in traffic at known collision locations.	Medium increase in traffic at known collision locations.	Low increase in traffic at known collision locations.	Negligible increase in traffic at known collision locations.
Pedestrian and Cycle Amenity	Up to 90%	Up to 60%	Up to 30%	Up to 10%
Pedestrian and Cycle Delay	Up to 90%	Up to 60%	Up to 30%	Up to 10%
Driver Delay	Up to 90%	Up to 60%	Up to 30%	Up to 10%

Sensitivity of Receptor

20. Receptor sensitivity is defined as the degree to which a receptor would be affected by an impact. The sensitivity of the receptor is characterised by three factors: vulnerability, recoverability and importance, as outlined in **Chapter 05: EIA Approach and Methodology, Section 5.4.10.**

21. The criteria for defining receptor sensitivity for the purpose of the assessment on Traffic and Transport are provided in **Table 13-9.**

Table 13-9. A summary of the criteria determining a receptor's sensitivity

Receptor Sensitivity Criteria	Definitions
Very High	Very high importance and/or rarity, internationally important receptor with little or no ability to absorb change without fundamentally altering its character. Limited potential for substitution.
High	High importance and/or rarity, nationally important, limited ability to absorb change and limited potential for substitution.
Medium	Medium or high importance and/or rarity, regional scale, limited potential for Substitution, with a medium ability to absorb change.
Low	Low or medium importance and/or rarity, local scale, with some ability to absorb change.
Negligible	Very low importance and/or rarity, local scale, with good ability to absorb change.

Significance of Effect

22. As set out in **Chapter 05: EIA Approach and Methodology**, an Impact Assessment Matrix (IAM) is used to determine the significance of effect which is a function of the sensitivity of the receptor and the magnitude of the impact, as shown in **Table 13-10.**

23. The matrix provides a framework for the consistent and transparent assessment of predicted effects across all receptor topics, however, it is important to note that the IAM acts as a guide and that assessments also allow for the application of expert judgement.

Table 13-10. Significance matrix

		Value / Sensitivity				
		Very High	High	Medium	Low	Negligible
Magnitude	Large	Major	Major / Moderate	Major / Moderate / Minor	Moderate / Minor	Minor / Negligible
	Medium	Major / Moderate	Major / Moderate	Moderate / Minor	Minor / Negligible	Negligible
	Small	Major / Moderate / Minor	Moderate / Minor	Moderate / Minor	Minor / Negligible	Negligible
	Negligible	Minor / Negligible	Minor / Negligible	Minor / Negligible	Negligible	Negligible

24. The IAM provides levels of effect significance ranging from major to negligible. Assignment of significance is carried out with consideration of embedded mitigation measures relevant to Traffic and Transport. Embedded mitigation measures (including project design measures and best practice) are presented within **Section 13.5.** Details on additional mitigation measures and associated definitions can be found in **Section 13.7.** For the purposes of this assessment, Moderate and Major levels of significance are defined as significant, and where relevant

additional mitigation measures may be required, whilst Negligible or Minor impacts are defined as not significant.

Table 13-11. A summary of the definitions of each significant of effect criteria

Significance Category	Definitions	Significant / Not Significant Effect
Major	A large and detrimental change to a valuable / sensitive receptor; likely or apparent exceeding of accepted (often legal) threshold. Or A large and beneficial change, resulting in improvements to the baseline result in previously poor conditions being replaced by new legal compliance or a major contribution being made to national targets. These effects may represent key factors in the decision-making process. Potentially associated with sites and features of national importance or likely to be important considerations at a regional or district scale. Major effects may relate to resources or features which are unique and which, if lost, cannot be replaced or relocated.	Significant
Moderate	A medium scale change which, although not beyond an acceptable threshold, is still considered to be generally unacceptable, unless balanced out by other significant positive benefits of a project. Likely to be in breach of planning policy rather than a legal statute. Or A positive moderate effect is a medium scale change that is significant in that the baseline conditions are improved to the extent that guideline targets (e.g. UK BAP targets) are contributed to. These effects, if adverse, are likely to be important at a local scale and on their own could have a material influence on decision making.	Significant (unless otherwise specified)
Minor	A small change that, whilst adverse, does not exceed legal or guideline standards. Unlikely to breach planning policy. Or A small positive change, but not one that is likely to be a key factor in the overall balance of issues. These effects may be raised as local issues and may be of relevance in the detailed design of a project but are unlikely to be critical in the decision-making process.	Not Significant
Negligible	A very small change that is so small and unimportant that it is considered acceptable to disregard. Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error. These effects are unlikely to influence decision making irrespective of other effects.	Not Significant

13.3.3. Study Area

25. The Study Area focuses on the Onshore Scoping Boundary, as shown on **Figure 13.1**. The Study Area includes the proposed landfall option recognising the requirement for access during construction, maintenance, operation and potentially for decommissioning works. There is a confirmed grid connection point at Pembrokeshire Power Station. The Onshore Export Cable Corridor (OnECC) will follow the adjacent Erebus project onshore and offshore grid route

where possible. Constraints of the cable routes are explored in further detail in **Chapter 03: Alternatives.**

26. This assessment has focussed on the highway network provided between Pembroke and the Onshore Substation, export cable installation sites and landfall site, on which all construction trips are expected to pass and on which the Proposed Development is expected to have the greatest impact.

27. The transport Study Area includes the roads shown in **Table 13-12** and **Volume 5: Figure 13.2** shows the location of these in relation to the Study Area. **Volume 5: Figure 13.4** shows the location of sensitivity receptors in relation to the study area.

Table 13-12 Study area roads

Road Name	Description of the Road
A4075	Two-way single carriageway rural road, between the A477 and Holyland Road (Pembroke). No dedicated pedestrian or cycle facilities present until it reaches Pembroke, where a pedestrian footpath is present.
Well Hill / A4139	Two lane Single carriageway through Pembroke, between the A4075 and the B4319 West of Pembroke. Dedicated footpath along the length of this section, with a shared cycle footpath up to the Junction with B4319 West of Pembroke.
B4319 to Clay Lane	Two-way single carriageway rural road, facilitated by passing places with no centre line road markings, south of its junction with the B4320 to Freshwater Bay in the western side of the Study Area. Two-way single carriageway rural road between Pembroke and Maidenwells in the eastern side of the Study Area. No dedicated pedestrian or cycle facilities are present along either section.
Clay Lane	Two-way single carriageway rural road between Maidenwells and the B4320. No dedicated pedestrian or cycle facilities are present.
B4320	Two-way single carriageway rural road between Clay Lane and it is junction with the C3101. To the west the B4320 narrows with no centre line road markings present and is facilitated by passing places. No dedicated pedestrian or cycle facilities are present along either section.
C3101	Two-way single carriageway rural road, recently refurbished, leading to the Pembroke refinery.
Goldborough Road	Two-way single carriageway narrow rural road facilitated by passing places with no centre line road markings present. No dedicated pedestrian or cycle facilities are present.

13.3.4. Data Sources

Site Specific Surveys

28. In order to provide site specific information on which to base the impact assessment for Traffic and Transport, AECOM made use of traffic survey data gathered from Automatic Traffic Counts (ATC) surveys undertaken at 7 sites within the Study Area. Following scoping with Pembrokeshire County Council (PCC) the surveys sites shown in **Volume 5: Figure 13.3** were selected. The surveys were undertaken during a neutral week in June. They were undertaken for 7 days from Friday the 16th June to Thursday the 22nd June. ATC figures were then processed to produce the Annual Average Daily Traffic movements (AADT) figures for this report. This data has been used to demonstrate the appropriateness of mitigation measures

discussed later in this chapter. The Raw ATC traffic data can be found in **Appendix 13A: ATC Summary Sheets**.

29. Constraints for abnormal loads were identified in the Erebus surveys, particularly Ferry Lane Rail Bridge. A topographical survey was then undertaken demonstrating the largest abnormal load that could be accommodated under the structure, this can be reviewed in **Appendix 13E: Erebus CTMP**. Abnormal loads for the Llŷr project will follow the same path as shown in the Erebus CTMP and as such are able to navigate the same infrastructure with a further review of routes and vehicle types to be undertaken within the Construction Traffic Management Plan (CTMP) which will be prepared post-submission and form part of the embedded and good practice measures for the works.

Desk Study

30. A comprehensive desk-based review was undertaken to inform the baseline for Traffic and Transport. Key data sources used to inform the assessment are set out in **Table 13-13.**

Table 13-13 Study area roads

Title	Source	Year	Brief description
Google Earth	Google Earth.com	2022	Use of aerial mapping to identify Study Area and key local roads for surveys
Pembrokeshire County Council Website	https://www.pembrokeshire.gov.uk/	2023	Use of council website to identify local and regional planning policies

13.3.5. Baseline

31. The following sections describe the baseline environment relating to Traffic and Transport.

13.3.6. Existing Baseline

32. Baseline traffic figures have been obtained from ATCs at 7 sites shown in **Volume 5: Figure 13.3** throughout Pembrokeshire providing traffic flows from the highway network links to the Onshore Substation and OnECC.

33. The primary access route to the Study Area is via the A477, part of the Welsh trunk road network and the main road from St Clears to Pembroke Dock. This route would service transportation to Pembroke Port, the proposed landfall and Onshore Substation, and the proposed OnECC.

34. Access to the proposed Onshore Substation location benefits from a direct route for traffic to Pembroke Power Station. This route is from the A477, via the A4075, A4139 around Pembroke, turning onto the B4319 which becomes Clay Lane before joining the B4320, to the turn off at Wallaston Green. Continuing along the B4320 would provide access to West Angle Bay, Angle Bay, Freshwater West Beach, and other options within the Haven Waterway. Access to the Landfall site would make use of the same roads, turning onto the B4319 before reaching West Angle Bay.

35. All vehicles would make use of the Power Station and Velero Oil Refinery access, C3101, which is an unclassified road. Its role as access to these sites makes it appropriate for construction and O+M vehicles. It has recently been altered giving priority to vehicles travelling to the oil refinery and power station.

36. The B4320 continues past this priority junction, becoming a single track, 3m wide road, supported by passing places. The stretch of road continues for five miles out to Angle but reaches a junction with the B4319 after three miles. A small stretch of the B4319 will be used to access Freshwater Bay and the Landfall site. Although the B4319 can be accessed from just outside Pembroke, vehicles should access landfall sites via the C3101 and B4320 Junction.

37. The standard for much of the local highway network is considered good and, therefore, appropriate for the construction traffic accessing the OnECC and Onshore Substation. The standard of the B4320 declines as it moves towards the West, but measures will be put in place to minimise the impact of construction traffic as summarised in **Section 13.8.**

38. Access to the B4320 from Pembroke is via the B4319 and Clay Lane (previously unclassified). The standard of these roads is high as both have been improved through the construction of a bypass of Maiden Wells, an altered junction priority of the B4139 and the classification of Clay Lane. Leaving Pembroke, the B4319 has a climber lane, with an escape lane for northbound traffic before the A4139 junction.

39. The largest construction components are expected to arrive via Pembroke Dock. The A4139 provides a route suitable for larger construction vehicles, including abnormal loads, with infrastructure able to be removed on a temporary basis. The Ferry Lane rail bridge has been assessed and the largest substation components are able to be transported via this route. The signed weight restriction is aimed at dissuading larger vehicles from passing through the area, there is no actual weight restriction, as demonstrated in Section 2.2.1.1 of the project Erebus CTMP. A signalised junction connects the A4139 to the A477 via a signalised junction and to the B4319 via a priority junction. The road is mostly urban along all its length and so the quality is good.

40. Construction traffic can also access the sites along the A4075 from the east via the A477. It is a rural road with parking restrictions closer to Pembroke, it is a good standard for most of its length. There is a rail bridge at the Western end with a well signed maximum clearance of 4.5M. The A4075 and A477 connection is a large priority junction with single lane dualling, the A4075 and A4139 connection is via a mini roundabout.

41. To inform this chapter of the EIA the links described in **Table 13-12** have been assessed using ATC data collected over seven days from Friday the 16th June 2023 to Thursday the 22nd June 2023.

Table 13-14 Survey results from ATC counts

ATC Site	Highway Link	AADT	HGV %
1	B4319 South of Pembroke	7019	26%
2	Clay Lane	3847	27%
3	B4320	3289	20%
4	C3101 between B4320 and Goldborough Road	2057	24%
5	Goldborough Road	18	20%
6	A4139 Through Pembroke	13713	17%
7	A4075	4283	23%

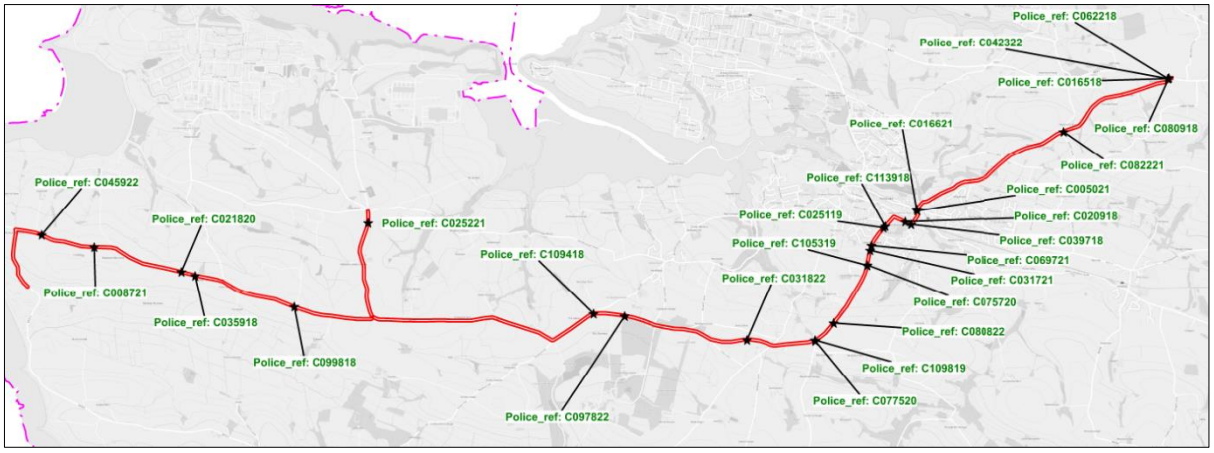
42. **Table 13-14** describes the AADT flow and the percentage of Heavy-Goods Vehicles (HGVs). These were recorded on the local highway links that construction traffic will use in association with the Onshore Substation's construction and Onshore Export Cable installation.

13.3.7. Baseline Accident Data

43. To ensure that there are no underlying highway issues, personal injury collision data has been analysed and is attached to this EIA in **Appendix 13B: Raw Accident Data from PCC**.

44. The Study Area is shown in the figure below**.** Details of the Personal Injury Collisions (PICs) recorded in the Study Area have been obtained from Pembrokeshire County Council for the highway network for the latest five-year period between 1st January 2018 and 31st December 2022.

Figure 13-1. Personal Injury Collisions



45. The data showed that were 27 collisions recorded in the Study Area during the five-year period. Of these, 20 were classified as 'slight' and seven were classed as 'serious'. There were no fatalities recorded. A summary of the collisions recorded per year is provided in **Table 13-15.**

Table 13-15 Summary of accident data

Year	Fatal	Serious	Slight	Total
2018	0	1	8	9
2019	0	2	1	3
2020	0	0	3	3
2021	0	3	4	7
2022	0	1	4	5
Total	0	7	20	27

46. As the Study Area spans over 15 km, the route has been broken down into four subsections to better analyse the potential causation of collisions in the area. The detailed analysis of the Route is contained within **Appendix 13F: Personal Injury Collision Data**. The collision study area spans over 15 km, the route has been broken down into four subsections to better analyse the potential causation of collisions in the area.

13.3.8. *Future Baseline*

47. This section considers any changes to the baseline conditions described above that might occur over the lifespan of the proposed Project, but in its absence (i.e. in the event that it is not constructed).

Table 13-16 Daily construction traffic generation from Erebus

	0-9 Months		9-18 Months	
Scheme Element	AADT	HGV	AADT	HGV
Onshore Substation	40	18	30	5
Onshore Export Cable	10	5	10	5
Total	50	23	40	10

48. In order to grow the baseline traffic data to 2027 TEMPro 8 has been used. TEMPro is an industry standard tool which produces growth factors based on Origin Destination figures for selected geographic areas. For this assessment Middle Super Output Areas (MSOA) areas have been selected to get growth factors for the Study Area. The TEMPro outputs are shown below in **Table 13-17** and the raw outputs can be found in **Appendix 13C: TEMPRO Output.**

Table 13-17 TEMPro outputs

Area Description		All purposes		Final Growth Factor
Level	Name	Origin	Destination	
W02000138	Pembrokeshire 013	0.998	0.998	0.996
W02000140	Pembrokeshire 015	0.994	0.994	

49. The 2023 Baseline survey data has been growthed to 2027, the final year of construction, using a Growth Factor from TEMPro 8 (0.996) as shown in **Table 13-18.** This is an appropriate assessment as although the predicted peak period for construction vehicles is likely to be within the first nine months, background traffic growth may be higher in 2027.

Table 13-18 Traffic Flows Without Project

Highway Link	2023 Existing		2027 Base (No Project Traffic)	
Highway Link	All	HGV	All	HGV
B4319 South of Pembroke	7019	1799	6991	1791
Clay Lane	3847	1032	3831	1028
B4320	3289	646	3276	644
C3101 between B4320 and Goldborough Road	2057	497	2048	495
Goldborough Road	18	4	18	4
A4139 Through Pembroke	13713	2387	13658	2378
A4075	4283	973	4265	969

50. To produce the final construction traffic forecast the growthed survey data was combined with the daily construction traffic generated, these figures can be seen in **Table 13-22.**

51. During the operational phase of the proposed Project, a small number of staff will visit the site to undertake inspections or maintenance activities; however the operation of the site is not

expected to generate many vehicular trips other than occasional maintenance trips. Operational traffic effects have therefore been scoped out of this assessment.

13.4 Scope of the Assessment

52. An EIA Scoping Report for the proposed Project was submitted to NRW Marine Licensing Team (MLT) in April 2022. The Scoping Report was also shared with Pembrokeshire County Council (PCC) inviting comment on the proposed approach adopted by the Applicant. A Scoping Opinion was provided to the Applicant by NRW MLT in July 2022. Based on the Scoping Opinion received and further consultation undertaken, the potential impacts on Traffic and Transport scoped into the assessment are listed below in **Table 13-19.** Impacts scoped out of the assessment are listed in **Section 13.4.1.**

53. As set out in **Section 13.3.1**, this assessment considers the design parameters of the proposed Project which are predicted to result in the greatest environmental impact, known as the 'realistic worst case scenario'. The realistic worst case scenario represents, for any given receptor and potential impact on that receptor, various options in the Design Envelope that would result in the greatest potential for change to the receptor in question. Given that the realistic worst case scenario is based on the design option (or combination of options) that represents the greatest potential for change, confidence can be held that the development of any alternative options within the design parameters will give rise to effects no greater or worse than those included in this impact assessment.

54. Accordingly, the design scenarios identified in **Table 13-19** have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group within the Study Area. These scenarios have been selected from the details provided in **Chapter 04: Description of the proposed Project.**

Table 13-19. Design scenario considered for the assessment

Potential impact	Design scenario	Justification
Construction		
Increase in Construction traffic effecting the existing road network	*Projected OnECC and selected Onshore Substation location.* *Worst case routeing of road traffic within the air quality Study Area.* *The maximum duration over which works could occur*	*The reasonable worst case design scenario for impacts on the existing road network local community*
Operation and maintenance		
N/A		
Decommissioning		
N/A		

13.4.1. Impacts scoped out of assessment.

55. Following a scoping report submitted to PCC no specific impacts were scoped out of the Traffic and Transport Assessment for this EIA.

13.4.2. Assessment Assumptions and Limitations

56. The assessment has been based on factored construction vehicle figures taken from the Erebus report, scaled to match the proposed Project's scale and timeframe. Although the location of the landfall site and Onshore Substation differ from the Erebus project, the road networks used will remain the same. As such this study is a valid assessment of the Proposed Project's impact on the local highway network.

13.5 Embedded Mitigation, Management Plans and Best Practice

57. As part of the project design process, several designed-in measures have been proposed to reduce the potential for impacts on Traffic and Transport (see **Table 13-20**). The design of the proposed Project therefore includes embedded mitigation measures and reference to various management plans that will be produced as conditions of consent, and which will further mitigate potential impacts. The measures considered in **Section 13.6** below are included in the design of the proposed project and are examples of good practice taken from other EIAs, this approach has been employed to demonstrate commitment to mitigation measures. The assessment of sensitivity, magnitude and therefore significance includes the implementation of these measures.

Table 13-20. Mitigation measures, management plans and best practice adopted as part of the proposed Project

Embedded Mitigation Measures, Management Plans and Best Practice	Justification
Management Plans	
Construction Traffic Management Plan	Mitigation measures which the project has implemented or is committed to implement will be described fully in the CTMP that will follow this EIA, but a summary of these is laid out below: • *There will be signage erected on the C3101 near the junction with Goldborough Road; on Goldborough Road; on the unclassified road that provides access to the onshore substation and on the B4319 to Freshwater Bay. this will highlight the potential for drivers to meet construction traffic.* • *From the C3101 to the onshore substation there will be temporary speed limits implemented.* • *Details of proposed Abnormal Indivisible Loads (AILs) and proposed routing arrangements.* • *When transporting abnormal loads Pembrokeshire County Council (PCC) will be contacted to provide advance warning of the intention to used identified routes.* • *Consultations with the police will be undertaken to agree the most appropriate times for abnormal load deliveries to the onshore substation and help to identify any specific route sections that may require police assistance.* • *Prior to any construction activities route plans will be distributed to contractors to make sure vehicles stay on proposed access routes.* • *There will be escorts for the movement of abnormal loads to help manage the interaction with general traffic and mitigate any impact.* • *Within the vicinity of the onshore substation a 15 mph speed limit will be implemented;*

Embedded Mitigation Measures, Management Plans and Best Practice	Justification
	• *To reduce the amount of mud and debris distributed from the site wheel washing facilities will be provided.* • *When accessing and leaving the onshore substation workers will be encouraged to share vehicles.*
Management of Public Right of Way (PRoW) access	PRoWs may cross over the cabling paths. The paths will endeavour to be managed open, however if temporary closure or diversion is required the appropriate forms will be submitted to traffic@pembrokeshire.gov.uk allowing six weeks for the closure.
Outline Construction Environmental Management Plan (OCEMP)	Mitigation measures which the project has implemented or is committed to implement will be fully described in the OCEMP which can be found in **Appendix 4A: Outline CEMP.**

13.6 Assessment of Environmental Effects

58. The impacts and effects (both beneficial and adverse) associated with the construction, operation and maintenance and decommissioning of the proposed Project are outlined in the sections below. The assessments take into account the embedded mitigation measures described in **Section 13.5.**

13.6.1. Construction Effects

Increase in Vehicle Flows

59. The expected construction period for the project is 2 years. Information on the AADT movements has been derived from ATC counts at 7 sites. The Llŷr 1 project and Erebus are similar and so the construction traffic generation can be expected to be comparable. The shorter construction timeline of 18 months, used in the Erebus report, has been utilised as this concentrates the forecast construction vehicle movements into a smaller timeframe than that proposed for Llŷr. Although the additional 6-month programme of construction could lead to vehicle movements being spread across a larger timeframe, it is considered that the peak construction movements are still likely to be like those presented for Erebus. This provides a worst-case assessment. **Table 13-16** therefore, shows the predicted peak period construction traffic generation proposed by the Erebus project and therefore the Llŷr project.

Table 13-21 Daily construction traffic generation from Erebus

	0-9 Months		9-18 Months	
Scheme Element	AADT	HGV	AADT	HGV
Onshore Substation	40	18	30	5
Onshore Export Cable	10	5	10	5
Total	50	23	40	10

60. The roads in the Study Area have been reviewed against the IEMA guidelines to identify those which should require further assessment. The Forecast Construction Vehicles have not been split between the Landfall Site and the Onshore Substation and it is assumed they will route

on all Study Area roads, this is a worst-case scenario assessment of the potential environmental effects.

61. The IEMA sets out two rules of thumb when considering the extent of the environmental assessment which are set out in **Table 13-7. Table 13-22** summarises the review of construction traffic increases, highlighting which links may require further mitigation.

Table 13-22 Construction traffic increases

	2018 Existing		2027 Base (no dev)		2027 Base (With dev)		Difference		% Difference	
Highway Link	All	HGV	All	HGV	All	HGV	All	HGV	All	HGV
B4319 South of Pembroke	7019	1799	6991	1791	7041	1814	50	23	1%	1%
Clay Lane	3847	1032	3831	1028	3881	1051	50	23	1%	2%
B4320	3289	646	3276	644	3326	667	50	23	2%	4%
C3101 between B4320 and Goldborough Road	2057	497	2048	495	2088	513	40	18	2%	4%
Goldborough Road	18	4	18	4	58	22	40	18	221%	506%
A4139 Through Pembroke	13713	2387	13658	2378	13708	2401	50	23	0%	1%
A4075	4283	973	4265	969	4315	992	50	23	1%	2%

62. **Table 13-22** highlights that all roads other than Goldborough Road are well below the 30% and 10% threshold, set out in **Table 13-7,** and do not require further consideration in the environmental assessment.

Magnitude of impact

63. Goldborough Road has a traffic increase of 221%, with HGVs increasing by 506%. This appears to be a major increase; however, this large change is a result of the existing low vehicle flows which are to be expected as Goldborough Road is not likely to be utilised as a through route between destinations. Only a small section of Goldborough Road will be used (360 m) by vehicles travelling East from the C3101 to the entrance of Lambeeth farm. The magnitude is therefore considered to be **Negligible**.

Sensitivity of the receptor

64. There is a section of the A4139 which travels past Golden Grove school, which is classed as a high sensitivity receptor. All other roads in the Study Area are medium sensitivity receptors, as they have moderate capacity to absorb change without significantly altering their present character and have some environmental value and local importance. As a worst-case scenario the overall sensitivity of the receptors is **High**.

Significance of the effect

65. The magnitude of impact is below 10% and considered **Negligible** on all links while the sensitivity of receptors is considered High. Therefore, applying the matrix for significant effects, the result is **Minor/Negligible** and considered '**Not Significant'** in EIA terms.

Severance

66. Severance can be described as 'the perceived division that can occur within a community when it becomes separated by a major traffic artery'. The degree of severance can be influenced, with construction traffic flow being the main factor in this study. The presence of construction

traffic can increase severance for pedestrians. Goldborough Road is the only receptor where the maximum forecast increase in traffic is above 30%.

Magnitude of impact

67. The increase in vehicles is well below the IEMA thresholds shown in **Table 13-7** with Goldborough Road being the only site which sees a vehicle increase above 30%. As discussed above this apparent increase can be discounted due to the unique nature of this site. As severance is directly influenced by construction vehicle increases and these are all below 10% the magnitude of impact is **Negligible.**

Sensitivity of the receptor

68. There is a section of the A4139 which travels past Golden Grove school, which is classed as a high sensitivity receptor. All other roads in the Study Area are medium sensitivity receptors, as they have moderate capacity to absorb change without significantly altering their present character and have some environmental value and local importance. As a worst-case scenario the overall sensitivity of the receptors is **High**.

Significance of the effect

69. The magnitude of impact is below 10% and is considered Negligible while the sensitivity of receptors is considered High. Therefore, applying the matrix for significance of effect the result is **Minor/Negligible** and considered '**Not Significant'** in EIA terms.

Fear and Intimidation

70. Using criteria outlined in **Section 13.3.2** it can be seen that the existing level of fear and intimidation is considered to be 'Great' on all links other than Goldborough Road, as highlighted in **Table 13-23.** For an average construction day, the maximum forecast in daily traffic on any Study Area Road is +50 vehicles, of which 23 will be HGVs. As demonstrated in **Table 13-8** this traffic increase corresponds to a negligible magnitude of impact.

Table 13-23 Fear and Intimidation Score

Average traffic flow over 18-hour day – all vehicles / hour 2-way (a)		Total 18-hour heavy vehicle flow (b)		Average Vehicle Speed mph (c)		Fear and intimidation	
All	Degree of Hazard Score	HGV	Degree of Hazard Score	mph	Degree of Hazard Score	Score	Level
7248	30	1891	10	42	30	70	Great
4107	30	1113	10	50	30	70	Great
3573	30	723	0	55	30	60	Great
2437	30	589	0	42	30	60	Great
20	0	4	0	25	10	10	Small
14347	30	2594	20	27	10	60	Great
4345	30	1064	10	40	30	70	Great

Magnitude of impact

71. Most of the Study Area roads don't have footways adjacent to the carriageway or dedicated cycle facilities and are rural in nature. Pembroke is the only area with existing footpaths or dedicated cycle ways, the ATC data shows that the construction traffic will only increase the

HGV movements by 1%, which is not a step change and considered a **Negligible** magnitude of impact.

Sensitivity of the receptor

72. There is a section of the A4139 which travels past Golden Grove school, which is as a high sensitivity receptor. All other roads in the Study Area are medium sensitivity receptors, as they have moderate capacity to absorb change without significantly altering their present character and have some environmental value and local importance. Therefore, as a worst-case the overall sensitivity of the receptors is **High**.

Significance of the effect

73. Significance of Fear and intimidation on the receptors is directly linked to an increase in traffic flows. The magnitude of impact is considered Negligible while the overall sensitivity is considered High, due to the proximity of Golden Grove School. When applying the significance of effect matrix the result is **Minor/ Negligible**, as such the overall significance of effect is considered '**Not Significant'** in EIA terms.

Accidents and Road Safety

74. A review of the accident data obtained from PCC was undertaken and seven serious incident sites were found within the Study Area. The frequency of these incidents was considered to be low and there were no observed patterns or collision cluster sites of concern.

Magnitude of impact

75. Traffic increases are proposed to be below the 30% and 10% threshold for all but Goldborough Road. Given that the magnitude of change on Goldborough Road is small with an increase of all traffic by 40 vehicles and HGVs by 18, it is considered unlikely that this increase in vehicles will exacerbate any potential for collisions in the Study Area. The magnitude of change is therefore considered to be **Negligible**.

Sensitivity of the receptor

76. There is a section of the A4139 which travels past Golden Grove school, considered a high sensitivity receptor. All other roads in the Study Area are medium sensitivity receptors, as they have moderate capacity to absorb change without significantly altering their present character and have some environmental value and local importance. Therefore, as a worst-case the overall sensitivity of receptors is **High**.

Significance of the effect

77. The magnitude of impact has been identified as **Negligible** and the overall sensitivity is noted as high. Therefore, applying the significance of effect matrix the result is **Minor/Negligible** and the overall significance effect is considered '**Not Significant'** in EIA terms.

Pedestrian and Cycle Amenity

78. The pedestrian and cycle amenity of the site can broadly be defined as the 'relative pleasantness of a journey'. The pleasantness can be closely linked with the fear and intimidation of a journey considering the perceived danger of the route.

Magnitude of impact

79. For an average construction day, the maximum forecast in daily traffic on any Study Area Road is +221% on Goldborough Road with traffic increase below the 30% and 10% threshold for all other receptors. The apparent major increase on Goldborough Road can be discounted as discussed above, therefore, the magnitude is **Negligible**.

Sensitivity of the receptor

80. There is a section of the A4139 which travels past Golden Grove school, a high sensitivity receptor. As all other roads within the Study Area are classed as medium sensitivity receptors with moderate capacity to absorb change without significantly altering their present character.

81. There are 6 sections of PRoW that enter the OnECC. These sections don't cross into the proposed Landfall area of the Onshore Substation; however, where they may be affected by cabling works appropriate mitigation measures will be implemented as shown **Table 13-7.**

Significance of the effect

82. The magnitude of impact is **Negligible**, and the overall sensitivity of the study area is classed as High, because of Golden Grove School. Therefore, applying the significance of effect matrix, the significance of effect on Pedestrian and Cycle Amenity is **Minor/Negligible** and is considered '**Not Significant'** in EIA terms.

Pedestrian and Cycle Delay

83. It is noted by the Institute for Environmental Assessment that changes to traffic flows have the potential to affect the ability of people to cross the road. Generally, increases in traffic flows produce a delay to pedestrian and cycle crossings, with the extent of this delay being influenced by the level of pedestrian / cycle activity and the quality of the site.

Magnitude of impact

84. For an average construction day, the maximum forecast in daily traffic on any Study Area Road is +221% on Goldborough Road with traffic increase below the 30% and 10% threshold for all other receptors. The apparent major increase on Goldborough Road can be discounted as discussed above, therefore, the magnitude is **Negligible**.

Sensitivity of the receptor

85. There is a section of the A4139 which travels past Golden Grove school, a high sensitivity receptor. As all other roads within the Study Area are classed as medium sensitivity receptors with moderate capacity to absorb change without significantly altering their present character. As a worst-case scenario the overall sensitivity of the receptors is **High**.

Significance of the effect

86. The magnitude of impact is shown to be **Negligible**, and the sensitivity of receptors is defined as High. Therefore, applying the significance of effect matrix, the significance of effect on pedestrian and cycle delay is **'Not significant'** in EIA terms.

Driver Delay

87. HGV traffic by its nature may travel slower than other vehicles on the public highway and can delay general traffic resulting in increased journey times. It is not uncommon for a 'convoy' effect to occur when suitable overtaking opportunities for other vehicles are limited. Increased journey times can lead to driver frustration. Abnormal Indivisible Loads (AILs) carrying large items also have the potential to cause delays or localised road closures for short periods of time.

Magnitude of impact

88. For an average construction day, the maximum forecast in daily traffic on any Study Area Road is +221% on Goldborough Road with traffic increase below the 30% and 10% threshold for all

other receptors. The apparent major increase on Goldborough Road can be discounted as discussed above, therefore, the magnitude is **Negligible**.

Sensitivity of the receptor

89. There is a section of the A4139 which travels past Golden Grove school, a high sensitivity receptor. As all other roads within the Study Area are classed as medium sensitivity receptors with a moderate capacity to absorb change without significantly altering their present character. As a worst-case scenario the overall sensitivity of the area is considered **High**.

Significance of the effect

90. The magnitude of impact is shown to be **Negligible**, and the sensitivity of receptors is defined as **High**. Therefore, applying the significance of effect matrix, the significance of effect on pedestrian and cycle delay is **'Not significant'** in EIA terms.

13.6.2. Summary of Residual Environmental Effects

91. This chapter of the EIA has assessed the potential environmental effects on Traffic and Transport for the construction phase of the project. No significant effects have been identified and therefore no additional mitigation measures have been considered.

92. **Table 13-24** summarises the impact assessment undertaken and confirms the significance of any residual effects.

13.7 Summary of Additional Mitigation Measures

93. No effects are significant in the Matrix of Classifying Effects found in **Table 13-10** and as such they are not considered to require any further specific mitigation measures. The Standard mitigation contained within the embedded good practice section will be applied to all effects mentioned above. As such the outcome of the residual effects following the implementation of mitigation measures will remain the same as the initial assessment as shown in **Table 13-24.**

13.7.3. Monitoring

94. There are no monitoring requirements for Traffic and Transport.

13.8 Summary of Effects and Conclusions

95. This section summarises the residual significant effects of the proposed Project on Traffic and Transport following the implementation of mitigation.

96. The construction traffic vehicle forecasts in this chapter provide a basis for the assessment of environmental effects. The assessment has conservatively assumed that all Proposed Project construction traffic will use all Study Area roads. The assessment has not spread out the predicted construction vehicle numbers over a 2-year construction period instead confining the movements to 18 months producing a worst-case scenario assessment and assuming the peak period of construction activity will be the same as that predicted for the Project Erebus scheme.

Table 13-24. Assessment summary

Potential Impact	Receptor	Receptor Sensitivity	Magnitude of impact	Significance of effect	Additional Mitigation	Residual Significance of Effect
Construction						
Increased Traffic Flows	*B4320 & Goldborough Road*	*High*	*Negligible*	*Not Significant (adverse)*	*N/A*	*Minor Adverse Not Significant*
Severance	*Pedestrian Traffic School*	*High*	*Negligible*	*Not Significant (adverse)*	*N/A*	*Minor Adverse Not Significant*
Fear and Intimidation	*Pedestrian Traffic School*	*High*	*Negligible*	*Not Significant (adverse)*	*N/A*	*Minor Adverse Not Significant*
Accident and Road Safety	*Pedestrian, Cycle & Vehicle traffic*	*High*	*Negligible*	*Not Significant (adverse)*	*N/A*	*Minor Adverse Not Significant*
Pedestrian and Cycle Amenity	*Pedestrian & Cycle Traffic School*	*High*	*Negligible*	*Not Significant (adverse)*	*N/A*	*Minor Adverse Not Significant*
Pedestrian and Cycle Delay	*Pedestrian & Cycle Traffic*	*High*	*Negligible*	*Not Significant (adverse)*	*N/A*	*Minor Adverse Not Significant*
Driver Delay	*Vehicle traffic*	*High*	*Negligible*	*Not Significant (adverse)*	*N/A*	*Minor Adverse Not Significant*
Operation and Maintenance						
N/A						
Decommissioning						
N/A						

13.9 Cumulative Effects of the Project

13.9.1. Introduction

97. Cumulative effects are those effects upon receptors arising from the proposed Project alongside all existing, and/ or reasonably foreseeable projects, plans and activities that result in cumulative effects with any element of the proposed Project. Existing Projects are generally considered as part of the baseline and as such are considered within the impact assessment presented in **Section 13.6** above.

98. This section assesses potential cumulative effects on Traffic and Transport from identified projects, plans and activities that have the potential to act cumulatively with the proposed Project.

99. PINS Advice 17: Cumulative Effects Assessment (2019) suggests that CEA follows a four-stage process. The aim of this approach is to accurately determine relevant projects and associated relationships with scoped in receptors identified in the ES, to be included within the interproject CEA.

100. The approach to the assessment of cumulative effects is detailed in **Appendix 5B: Approach to Cumulative Effects Assessment**, and is also summarised in **Table-13 -25.**

Table-13 -25 PINS Advice 17 Stages of the CEA process

CEA Stage	Activity
Stage 1	Determine a zone of influence (ZoI) via desk study for each topic receptor scoped into the ES. This will establish a *long list* of projects within each ZoI that will be shortlisted in Stage 2. This list of plans and projects/activities is drawn up through a desk study of planning applications, development plan documents, relevant development frameworks and any other available sources to identify 'other development' within the ZoI. Information on each project (location, development type, status, etc.) is documented, along with the certainty or tier assigned to the 'other development' (i.e. confidence it will take place in the current form and when it will take place in relation to the project). PINS notes that the project should then consult with the relevant planning authority/ authorities and statutory consultees regarding the long list.
Stage 2	Screening of the long list identified in Stage 1, to establish a short list for the CEA. Screening is based on the criteria presented in the scoping report and subsequent comments by the regulator and statutory consultees. PINS has provided inclusions/ exclusion threshold criteria, against which the potential for 'other development to give rise to significant cumulative effects by virtue of overlaps in temporal scope, the scale and nature of the 'other developments' and /or receiving environment, or any other relevant factors is assessed. From this assessment, a shortlist of 'other developments' to be included in the CEA is produced. It is noted that documented information on each of the 'other developments' is likely to be high level at this stage, outlining the key issues to take forward.
Stage 3	Gathering of all information available on short listed projects generated in Stage 2. At this stage all available data and information about the shortlisted projects that will be included in the CEA is collected to inform the assessment. This should utilise the most current information for each project in the public domain, and assess the assumptions and limitations of the information collected on each shortlisted project.
Stage 4	Each of the shortlisted projects are reviewed in turn by the different topics to assess whether cumulative effects may arise and the nature of those effects (i.e. beneficial or adverse). The significance of the effects on environmental receptors is established within each ES technical chapters. Where significant adverse cumulative effects are identified, mitigation measures are also considered within the CEA alongside the mechanism to secure that mitigation, e.g. consent condition requirements.

13.9.2. *Scope of Cumulative Effects Assessment* Traffic and Transport

101. The following impacts have been scoped into the CEA for Traffic and Transport.

Construction

- Increased Traffic Flows;
- Severance;
- Fear and Intimidation;
- Accidents and Road Safety;
- Pedestrian and Cycle Amenity;
- Pedestrian and Cycle Delay; and
- Driver Delay.

Operation and maintenance

- No impacts identified.

Decommissioning

- No impacts identified.

102. **Table 13-26** presents the short list of projects identified and included within the CEA for Traffic and Transport. The team reviewed consented and committed development for inclusion in the cumulative assessment of the Proposed Development.

Table 13-26 List of projects considered for the Traffic and Transport cumulative effects assessment

Project Name/Developer	Project Type	Tier and Status	Approx. distance from the proposed Project	Construction Timeframe
Erebus – BlueGem Wind	Offshore Wind	**Consent Authorised.** A 100 MW floating wind demonstration project. Landfall site at West Angle Bay and cable route which follows the B4320 to a grid connection point adjacent to Pembrokeshire power station. Expected to generate comparable levels of construction traffic that will use the same access routes as Llŷr.	1.7km	June 2026 – October 2026
Valorous – BlueGem	Offshore Wind	**Scoping Opinion Issued.** An early commercial floating wind project following on from the Erebus project. The onshore cable route is not yet confirmed but will enter the RLB of Llŷr. Construction traffic numbers are unknow but expected to use the same construction traffic routes as Llŷr	0 km	2028

Greenlink Interconnector	Subsea and underground electricity interconnector	**Under construction.** Laying of onshore and offshore cable connecting Ireland and Britain's electrical grid. Landfall at Freshwater West Bay and grid connection point adjacent to Pembrokeshire power station. Cable route follows similar route to that of Llŷr. Construction traffic to follow the same route as Llŷr and expected to be greater than that produced by Llŷr.	0 km	2022-December 2024

13.9.3. *Cumulative Effect Assessment*

Construction

Increased Traffic Flows

103. As the committed and consented developments for cumulative assessment are comprised of wind farms and cabling, only the construction phases will be considered due to it representing a worst-case scenario, and as such operation and decommissioning phases have not been considered further. A worst-case scenario has been used to assess the cumulative impact. This combines the peak construction traffic generated by all the projects if they were to be at their peak at the same time, this is shown in.

Table 13-27 Cumulative Construction Traffic.

Planning Description	AADT	HGVs
Llŷr	50	23
Erebus	50	23
Valorous	50	23
Greenlink	85	25
Total	235	91

Table 13-28 Cumulative Transport Assessment

	2018 Existing		2027 Base (no dev)		2027 Base (With dev)		Difference		% Difference	
Highway Link	**All**	**HGV**	**All**	**HGV**	**All**	**HGV**	**All**	**HGV**	**All**	**HGV**
B4319 South of Pembrokeshire	7019	1799	6991	1791	7226	1800	235	91	3%	5%
Clay Lane	3847	1032	3831	1028	4066	1032	235	91	6%	10%
B4320	3289	646	3276	644	3511	740	235	91	7%	14%
C3101 between B4320 and Goldborough Road	2057	497	2048	495	2283	657	235	91	11%	16%
Goldborough Road	18	4	18	4	253	95	235	91	1301%	2249%
B4319 Through Pembroke	13713	2387	13658	2378	13893	2774	235	91	2%	3%
A4075	4283	973	4265	969	4500	1071	235	91	6%	9%

104. As can be seen in **Table 13-28** most of the links investigated here remain below the 30% and 10% assessment threshold set out by the IEMA. Goldborough Road, C3101 between Goldborough Road and the B4320 exceed the 10% threshold for HGV movements. Goldborough appears to exceed both thresholds by a dramatic margin but again this can be attributed to the low initial traffic flows as this is not a typical through road. The sites that exceed the 10% threshold are medium sensitivity receptors and do not require a further assessment. Therefore, the worst case magnitude is **Small**.

105. **Table 13-28** is considered an appropriate assessment as it assumes all construction traffic will be travelling on all roads within the proposed area, which would be a worst case scenario. It also does not consider the different timescales and work periods of the separate projects which will affect the flow of construction vehicles. The likelihood of the study roads experiencing this level of construction traffic is low and **Table 13-28** shows that even in this a worst-case scenario all roads except Goldborough remain under the 30% threshold.

106. There is a section of the A4139 which travels past Golden Grove school, classed as a high sensitivity receptor. All other roads within the Study Area are classed as medium sensitivity receptors with a moderate capacity to absorb change without significantly altering their present character.

107. The high Sensitivity site, B4319 through Pembroke, has a magnitude of change lower than 10% and therefore the impact is considered **Negligible**. For the remaining medium sensitivity sites the highest magnitude of change remains between 10% and 30%, so the impact is considered **Small**.

108. Applying the significance of effect matrix the B4319 through Pembroke is classed as, **Minor/ Negligible** while all other sites are classed as **Moderate / Minor**. As the increase in vehicle

flows at the medium sensitivity receptors is well below the threshold for Rule one as set out for the IEMA, the final significance effect is considered Minor. Therefore, it is felt that no further environmental assessment is required for any sites as the impact across all sites is considered **'Not Significant'** in EIA terms. However, Llŷr will endeavour to work with the other developers to further minimise any impact wherever possible.

Severance

109. The cumulative impact on severance effects a section of the A4139 which travels past Golden Grove school, in Pembroke, which is classed as a high sensitivity receptor. **Table 13-28** demonstrates that the magnitude of change at this site is less than 10% as such **Negligible**.

110. As demonstrated above the remaining medium sensitivity receptors have a small magnitude of change and when considering the IEMA guidance and factors discussed in **Table 13-7** the cumulative significance effect across all sites is **Minor** and **'Not Significant'** in EIA terms.

Fear and intimidation

111. The ATC in Pembroke shows a high level of traffic already travels through Pembroke and the construction traffic of all cumulative developments will only increase the HGV moves less then 10% and which is considered a **Negligible** magnitude of change.

112. All other roads in the Study Area are medium sensitivity receptors and have a small magnitude of change. When considering the IEMA guidance and factors discussed in **Section 13.2.5** the cumulative significance effect across all sites is considered to be **Minor** and '**Not Significant'** in EIA terms.

Accidents and road safety

113. Cumulative Traffic increases are proposed to be below the 30% threshold for all but Goldborough Road. It is considered unlikely that the increase in vehicles on Goldborough Road will exacerbate any potential for collisions in the Study Area. The magnitude is therefore considered to be **Small**.

114. There is a section of the A4139 which travels past Golden Grove school, classed as a high sensitivity receptor, however magnitude of change is identified as **Negligible** at this site and as such the significance effect is **Minor**, **'Not Significant'**.

115. As demonstrated above the remaining medium sensitivity receptors have a small magnitude of change and when considering the IEMA guidance and factors discussed in **Table 13-7**. The cumulative significance effect across all sites is **Minor** and **'Not Significant'** in EIA terms.

Pedestrian and Cycle Amenity

116. Cumulative Traffic increases are proposed to be below the 30% threshold for all but Goldborough Road. The magnitude is therefore considered to be **Small**.

117. There is a section of the A4139 which travels past Golden Grove school, classed as a high sensitivity receptor, however magnitude of change is identified as **Negligible** at this site and as such the significance effect is **Minor, 'Not Significant'.**

118. As demonstrated above the remaining medium sensitivity receptors have a small magnitude of change and when considering the IEMA guidance and factors discussed in **Table 13-7.** The cumulative significance effect across all sites is **Minor** and '**Not Significant'** in EIA terms.

Pedestrians and Cycle Delay

119. Cumulative Traffic increases are proposed to be below the 30% threshold for all but Goldborough Road. The magnitude is therefore considered to be **Small**.

120. There is a section of the A4139 which travels past Golden Grove school, classed as a high sensitivity receptor, however magnitude of change is identified as **Negligible** at this site and as such the significance effect is **Minor, 'Not Significant'.**

121. As demonstrated above the remaining medium sensitivity receptors have a small magnitude of change and when considering the IEMA guidance and factors discussed in **Table 13-7.** The cumulative significance effect across all sites is **Minor** and **'Not Significant'** in EIA terms.

Driver Delay

122. Cumulative Traffic increases are proposed to be below the 30% threshold for all but Goldborough Road. It is considered unlikely that the increase in vehicles on Goldborough Road will exacerbate any potential for collisions in the Study Area. The magnitude is therefore considered to be **Small**.

123. There is a section of the A4139 which travels past Golden Grove school, classed as a high sensitivity receptor, however magnitude of change is identified as **Negligible** at this site and as such the significance effect is **Minor, 'Not Significant'.**

124. As demonstrated above the remaining medium sensitivity receptors have a small magnitude of change and when considering the IEMA guidance and factors discussed in **Table 13-7**. The cumulative significance effect across all sites is **Minor** and **'Not Significant'** in EIA terms. Inter-related Effects of the proposed Project

125. The term 'Inter-related' considers the environmental interactions ('inter-relationships') with other receptors within the proposed Project. These are referred to in the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 and further described in **Chapter 31: Inter-related Effects Assessment.**

126. As set out in PINS Advice Note 17 (PINS), 2019, inter-related -project effects, or 'interrelationships between topics', derive from combinations of different project specific impacts which, when acting together on the same receptor, could result in a new or different effect, or an effect of greater significance than the project effects, when considered in isolation.

127. Inter-related effects comprise the following:

- Project lifetime effects: effects that have the potential to occur during more than one phase of the proposed Project (i.e. construction, operation and maintenance and decommissioning) and to interact in a way that could potentially create a more significant effect than if it was assessed in isolation; and
- Receptor-led effects: effects that have the potential to interact, spatially and temporally, to create inter-related effects on a receptor.

128. **Chapter 31: Inter-related Effects Assessment** details the approach to the inter-related effects assessment and includes a description of the likely inter-related effects that may occur because of the proposed Project on Traffic and Transport.

129. Topics with potential inter-related effects associated with traffic and transport comprise air quality and noise. The assessment of air quality given in **Chapter 14: Air Quality** and the assessment of noise given in **Chapter 15: Noise and Vibration** includes consideration of the likelihood of air quality and noise effects associated with traffic and transport.

130. Therefore, inter-related effects on these topic areas are already assessed within the topic-specific chapters and are not considered further here.

13.10 Transboundary Effects

131. A transboundary effect refers to the impacts or effects of a project that extend beyond the boundaries of the United Kingdom and have the potential to affect the environment of other countries within the European Economic Area (EEA). These effects can occur either from the proposed Project on its own or when combined with the effects of other projects or activities in the wider geographical area.

132. In terms of the impacts on Traffic and Transport receptors, impacts will be localised to the extent of the Construction traffic on the Study Area. Given the intervening distance to neighbouring European Economic Area (EEA) states, there is no potential for transboundary impacts and resultant effects to occur.

13.11 References

Active Travel Act Guidance (Welsh Government, 2021) Available at: https://www.gov.wales/active-travel-act-guidance [Accessed: 26 January 2024].

Energy White Paper (December 2020), Available at: https://committees.parliament.uk/publications/9002/documents/152669/default/ [Accessed: 26 January 2024].

Future Wales: The National Plan to 2040 (2021); Planning Policy Wales 11 (PPW) (2021); Available at: https://www.gov.wales/future-wales-national-plan-2040 [Accessed: 26 January 2024].

Institute of Environmental Management and Assessment (IEMA) Guidelines 2023. Available at: https://www.iema.net/resources/blog/2023/07/12/new-iema-guidance-environmental-assessment-of-traffic-and-movement [Accessed: 26 January 2024].

Joint Transport Plan for South West Wales (2015-2020) (Carmarthenshire County Council, Neath Port Talbot County Borough Council, Pembrokeshire County Council and City and County of Swansea, 2015); Available at: https://www.carmarthenshire.gov.wales/media/4797/joint-transport-plan-300115.pdf [Accessed: 26 January 2024].

National Planning Policy Framework (Ministry of Housing Communities & Local Government, 2021) Available at: https://assets.publishing.service.gov.uk/media/65a11af7e8f5ec000f1f8c46/NPPF_December_2023.pdf [Accessed: 26 January 2024].

Pembrokeshire County Council Local Development Plan (LDP) (2013 - currently undergoing review) Available at: https://www.pembrokeshire.gov.uk/adopted-local-development-plan [Accessed: 26 January 2024].

Pembrokeshire Coast National Park LDP 2 (2020) Available at: https://www.pembrokeshirecoast.wales/planning/planning-policy/local-development-plan-2/ ; [Accessed: 26 January 2024].

The Wales Transport Strategy 2021 (Welsh Government, 2021). Available at: https://www.gov.wales/llwybr-newydd-wales-transport-strategy-2021 [Accessed: 26 January 2024].

Well-being of Future Generations (Wales) Act (Commissioner for Wales, 2015) Available at: https://www.futuregenerations.wales/about-us/future-generations-act/ [Accessed: 26 January 2024].