

ENVIRONMENTAL STATEMENT (VOLUME II)

Chapter 18 – Cumulative Effects Assessment

Padeswood Carbon Dioxide Spur Pipeline Proposed Development

Town and Country Planning Act 1990

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18. CUMULATIVE EFFECTS ASSESSMENT

18.1. INTRODUCTION

- 18.1.1. This Chapter reports the Cumulative Effects assessment of the likely significant effects of the Padeswood Spur Pipeline Proposed Development and describes:
- Relevant, legislation, policy and guidance;
 - Consultation undertaken;
 - Scope of the assessment;
 - Assessment methodology;
 - Baseline conditions;
 - Sensitive Receptors;
 - Potential effects of the Construction, Operational and Decommissioning Stages of the Padeswood Spur Pipeline Proposed Development;
 - Potential design, mitigation and enhancement measures;
 - Residual effects; and
 - Next steps.
- 18.1.2. This chapter (and its associated figures and appendices) is intended to be read as part of the wider ES, with particular reference to **Chapters 6-17 (Document References: PW.3.2.6 – PW.3.2.17)**.
- 18.1.3. The objectives of the assessment are two-fold. Firstly, it assesses the inter-project effects: in other words, how the effects of the Padeswood Spur Pipeline Proposed Development interact with the effects of other developments. Secondly it assesses intra-project effects, or the effects that occur between the different environmental topics, as reported within **Chapters 6-17** of the ES (**Document References: PW.3.2.6 – PW.3.2.17**) that occur solely to the Padeswood Spur Pipeline Proposed Development.
- 18.1.4. Inter-project effects are addressed in more detail in **Appendix 18.1 (Document Reference: PW.3.3.18.1)** and intra-project effects are addressed in more detail in **Appendix 18.2 (Document Reference: PW.3.3.18.2)**.

18.2. LEGISLATIVE AND POLICY FRAMEWORK

- 18.2.1. A summary of the international, national, and local legislation, planning policy and guidance relevant to the Cumulative Effects Assessment for the Padeswood Spur Pipeline Proposed Development is set out below.

LEGISLATIVE FRAMEWORK

The Town and Country Planning (Environmental Impact Assessment) (Wales) Regulations 2017 (HM Government, 2017)

- 18.2.2. These regulations provide specific thresholds of scale to determine if a development requires EIA, applicable to the Padeswood Spur Pipeline Proposed Development.
- 18.2.3. Paragraph 5 of Schedule 4 of the Regulations state that an ES should include the likely significant effect of the development on the environment, as a result of the '*the cumulation of effects with other existing and/or approved projects*' whilst considering any existing environmental problems. Additionally, paragraph 5 states that the description of likely significant effects should include cumulative effects of the development.

POLICY

Planning Policy Wales (Edition 12) (Welsh Government, 2024)

- 18.2.4. The PPW provision states that the cumulative impact of low carbon energy development and any required mitigation should be considered by local authorities (paragraph 5.9.8 and 5.9.20).

GUIDANCE

IEMA Demystifying Cumulative Effects (IEMA, 2020)

- 18.2.5. This guidance provides a summary of Cumulative Effects Assessment practice in the UK. Whilst noting that there is not a standard methodology for cumulative assessment, it advises that stakeholder consultation is key, particularly when determining the other developments to consider within the assessment.

Nationally Significant Infrastructure Projects: Advice on Cumulative Effects Assessment (Planning Inspectorate, 2024)

- 18.2.6. As this guidance contains one of the key cumulative methodologies, it is considered appropriate to draw upon this for the assessment. This advice note identifies the nature of projects (referred to as 'other developments' in the guidance) that should be considered in a cumulative effects assessment. It advises that a pragmatic approach should be undertaken in respect of what is feasible and reasonable, where there is a lack of information to identify impacts and assess effects.
- 18.2.7. The guidance specifies that statutory definitions of EIA screening thresholds can be of assistance when considering whether the scale and nature of the developments identified in the Zone of Influence

(ZOI) are likely to interact with the proposed project and to result in a cumulative effect.

18.3. SCOPING OPINION AND CONSULTATION

RESPONSE TO THE SCOPING OPINION

- 18.3.1. An EIA Scoping Opinion was received by the Applicant from the Local Planning Authority (LPA) on 8 May 2024, including formal responses from Statutory Consultees. The responses from the LPA in relation to cumulative effects and how these requirements should be addressed by the Applicant are set out in **Appendix 1-3 Scoping Opinion Responses** (Document Reference: PW.3.3.1.3).

CONSULTATION UNDERTAKEN TO DATE

- 18.3.2. **Table 18-1** provides a summary of the consultation undertaken to inform the Cumulative Effects Assessment to date.

Table 18-1 - Summary of Consultation Undertaken

Organisation	Meeting dates and form of consultation	Summary of outcome of discussions
Flintshire County Council (FCC)	Email sent 6 December 2024 with a technical note confirming the methodology will remain the same as in the scoping report, and including a longlist of other developments proposed to be included in the assessment. It was also requested that the GIS shapefiles for the developments to be included in the shortlist be sent on, if they were available.	<p>A response was received from the FCC GIS team on 6 January 2025 with the shapefiles for the developments proposed to be included in the shortlist. Additionally, they sent the shapefile for shortlist ID33. Although this was not initially included in the Planning Application search as it was submitted in December 2024, due to the proximity to the Padeswood Spur Pipeline Proposed Development, it was considered in the shortlist.</p> <p>On 9 January 2025, a response was received from the Planning Officer at FCC, with comments on the status of shortlisted developments included.</p>

18.4. SCOPE OF THE ASSESSMENT

- 18.4.1. The scope of this assessment has been established through an ongoing scoping process. Further information can be found in **Chapter 5: EIA Methodology (Document Reference: PW.3.2.5)** of this ES.
- 18.4.2. This section provides an update to the scope of the assessment and re-iterates the evidence base for scoping out elements following further iterative assessment.

ELEMENTS SCOPED OUT OF THE ASSESSMENT

- 18.4.3. The elements shown in **Table 18-2** are not considered to give rise to likely significant effects as a result of the Padeswood Spur Pipeline Proposed Development and have therefore not been considered within this assessment.

Table 18-2 -Elements Scoped Out of the Inter-Project and Intra-Project Assessments

Element Scoped Out	Justification
Decommissioning Stage	The assumed operational period of 25 years is too far in the future for an assessment of inter-project and intra-project effects to take place. As a result, an assessment of decommissioning effects is not considered practicable and is scoped out.
Air Quality –	All residual effects in Chapter 6 - Air Quality (Document Reference: PW.3.2.6) have been found to be negligible. As a result, both inter-project and intra-project effects are not anticipated.
Climate Resilience	<u>Inter-project Cumulative Effects</u> In terms of inter-project cumulative effects, the only climate variable that could be influenced by another development will be flood risk. The effect of other developments in the vicinity of the Padeswood Spur Pipeline Proposed Development in relation to flood risk and drainage systems have been assessed as part of the Water Environment cumulative effects in Appendix 18.1 . No other inter-project cumulative effects have been identified. <u>Intra-project Assessment</u> The Climate Change Resilience assessment looks at the potential impacts of environmental change on the Padeswood Spur Pipeline

Element Scoped Out	Justification
	<p>Proposed Development, rather than impacts of the Proposed Development on the environment: the receptor for the resilience assessment is the Proposed Development. As such, no assessment of intra-project combined effects will be undertaken, as there are no receptors in common with other assessments.</p>
Biodiversity	<p><u>Inter-project Assessment</u> As there are negligible residual effects during construction for wintering birds, ponds, aquatic macroinvertebrates and macrophytes, these have been scoped out of the inter-project assessment.</p> <p><u>Intra-project Assessment:</u> All non-negligible effects in relation to ecological receptors are assessed within Chapter 9 – Biodiversity (Document Reference: PW.3.2.9). No further effect interactions on ecological receptors are anticipated outside of those reported within the Biodiversity chapter.</p>
Greenhouse Gas (GHG) Emissions	<p><u>Inter-project Assessment</u> Consideration of cumulative GHG emissions is inherent in the assessment as GHG emissions of the Padeswood Spur Pipeline Proposed Development are assessed against various contextual scales, such as sector and local authority policies and UK carbon budgets. This includes comparing the Padeswood Spur Pipeline Proposed Development GHG emissions against the annual emissions of Flintshire and the UK carbon budgets. This is detailed in Section 10.2 of Chapter 10 - Greenhouse Gases (Document Reference PW.3.2.10). GHG emissions have therefore been scoped out of the inter-project assessment .</p> <p><u>Intra-project Combined Effects</u> The combined impact of GHG emissions and other environmental effects of the Padeswood Spur Pipeline Proposed Development on local receptors is not considered. This is because the effect of GHG emissions (climate change) is global – impacting human and natural ecosystems worldwide - and not restricted to nearby receptors which are impacted by the</p>

Element Scoped Out	Justification
	other environmental effects of the Padeswood Spur Pipeline Proposed Development.
Heritage	All residual operational effects in Chapter 8 – Cultural Heritage (Document Reference: PW.3.2.8) have been found to be negligible. As a result, both inter-project and intra-project effects during the Operation Stage are not anticipated.
Land and Soils	All residual effects in Chapter 11 – Land and Soils (Document Reference: PW.3.2.11) have been found to be neutral. As a result, both inter-project and intra-project effects are not anticipated.
Traffic and Transport	<p>The effects of operational traffic have been considered and concluded that traffic flows will be too low to give rise to significant effects. As such, there is no separate assessment of cumulative Operation Stage traffic and transport effects included within this chapter.</p> <p><u>Inter-project Cumulative Effects</u></p> <p>The baseline traffic against which the effects of construction traffic have been assessed and reported in Chapter 16: Traffic and Transport (Document Reference PW.3.2.16) of this ES and includes any traffic that will be generated by committed or 'other developments'. The assessment of construction traffic is therefore inherently cumulative.</p>
MA&D	MA&D is excluded from the assessment as a different assessment approach is used from the other Technical Chapter 6 – 18 (Volume II) assessments within the ES (as detailed in Chapter 13 - Major Accidents and Disasters, (Document Reference: PW.3.2.13)). The vulnerability of the Padeswood Spur Pipeline Proposed Development to major events (including those posed by relevant other developments) is assessed rather than effects on sensitive receptors. As a result, Inter-Project and Intra-Project Effects Assessment considering MA&D is not practicable.

Element Scoped Out	Justification
Habitats Regulation Assessment	The potential for inter-project effects in relation to protected sites assessed in the HRA have not been considered in this assessment. Full assessment of these sites and potential inter-project effects can be found in the HRA.

ELEMENTS SCOPED INTO THE ASSESSMENT

- 18.4.4. The following elements are considered to have the potential to give rise to significant cumulative effects during Construction and / or Operation Stages of the Padeswood Spur Pipeline Proposed Development and have therefore been considered within the assessment:

Inter-project Effects

- Biodiversity (Construction);
- Population and Human Health (Construction);
- Heritage (Construction);
- Water Resources and Flood Risk (Construction and Operation);
- Landscape and Visual Impacts (Construction and Operation); and
- Noise (Construction and Operation).

Intra-project Effects – Construction

- Population and Human Health;
- Traffic and Transport;
- Water Resources and Flood Risk;
- Heritage;
- Landscape and Visual Impact; and
- Noise.

Intra-project Effects – Operation

- Water Resources and Flood Risk;
- Landscape and Visual Impact; and
- Noise.

- 18.4.5. Where relevant, these elements are discussed further in Step 1 and Step 2 of the Inter-Project Effects Assessment (see **Appendix 18.1: Inter-Project Effects Assessment (Document Reference PW.3.3.18.1)** and Step A of the Intra-Project Effects Assessment (see **Appendix 18.2: Intra-Project Effects Assessment (Document Reference PW.3.3.18.2)**). An

explanation of the scoping processes for these assessments are discussed in **Section 18.6** below.

18.5. ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA

STUDY AREA

- 18.5.1. For the purposes of the Inter-Project Effects Assessment, the Study Area for the assessment has been determined following consideration of the likely significant effects that could reasonably arise from the other developments that have been considered alongside the Padeswood Spur Pipeline Proposed Development. The ZOI for each environmental topic is defined by relevant guidelines discussed in **Technical Chapters 6 – 17 (Document References; PW.3.2.6 to PW.3.2.17)** and is detailed in **Table 1.1 in Appendix 18.1: Inter-Project Effects Assessment (Document Reference: PW.3.3.18.1)**. Other developments that fall within these ZOI have been considered on a case-by-case basis. The longlist of other developments considered in the ZOI is contained in **Table 1.2 in Appendix 18.1: Inter-Project Effects Assessment (Document Reference: PW.3.3.18.1)**. The shortlist of other developments for assessment is presented in **Table 1.3 in Appendix 18.1: Inter-Project Effects Assessment (Document Reference: PW.3.3.18.1)**.
- 18.5.2. For the purposes of the Intra-Project Effects Assessment, the Study Area conforms to those defined in **Technical Chapters 6 – 17 (Document References; PW.3.2.6 to PW.3.2.17)** for each scoped-in environmental topic.


METHOD OF BASELINE DATA COLLECTION

- 18.5.3. The entirety of the assessment is desk-study based. Data and information have been collected from publicly available resources as well as consultation with FCC.

INTER-PROJECT EFFECTS METHODOLOGY

- 18.5.4. Other developments for inclusion in the Inter-Project Effects Assessment are categorised into tiers by the certainty associated with the development (such as if the development is already under construction or is in a pre-application stage). This approach is published within the Planning Inspectorate's guidance (Planning Inspectorate, 2024) and reproduced in **Table 18-3** below.

Table 18-3 - Other Developments' Degree of Certainty

Tier	Factors attributing to degree of certainty	Decreasing levels of detail likely to be available
Tier 1	<ul style="list-style-type: none"> • Under construction; • Permitted application(s) but not yet under construction; • Submitted application(s) but not yet determined; and <p>Environmental Assessment equating to that of an EIA or extensive bespoke assessments on environmental topics.</p>	
Tier 2	Projects on the Planning Inspectorate/DNS's Register of Projects	
Tier 3	<ul style="list-style-type: none"> • Projects on the PINS/DNS Register of Projects where an EIA Scoping Request has not been submitted; • Local development plan allocations (adopted and emerging) with appropriate weight being given as they move closer to adoption; and <p>Identified in other plans and programmes (as appropriate) which set the framework for future development consents / approvals.</p>	

- 18.5.5. Expired applications and refused planning applications that are not subject to appeal have not been considered as their implementation is not considered to be reasonably foreseeable.

- 18.5.6. The assessment considers the capacity of environmental resources and receptors to accommodate changes that are likely to occur. This includes the duration, extent, type (additive or synergistic), frequency, value and resilience of the receptor, and likely mitigation.
- 18.5.7. The Planning Inspectorate advice (Planning Inspectorate, 2024) has been adopted for the Padeswood Spur Pipeline Proposed Development for the Inter-Project Effects Assessment. The approach within the Advice identifies a four-stage assessment process, summarised below.
- Inter-Project Effects Assessment – Stage 1:
- 18.5.8. Stage 1 of the approach requires the identification of a longlist of other developments and high-level information, such as the development location or the boundary of the application.
- 18.5.9. As discussed in **paragraph 18.5.1** and in **Appendix 18.1: Inter-Project Effects Assessment (Document Reference: PW.3.3.18.1)**, other developments in the ZOI for each environmental topic are considered. The consideration of other developments at this stage relies on professional judgement. Developments within the ZOI vary in nature, scale, and distance from the Padeswood Spur Pipeline Proposed Development, and those determined as not having the potential for any inter-project effects from the Padeswood Spur Pipeline Proposed Development are not listed.
- 18.5.10. The developments on the longlist were evaluated to determine if they should be taken forward to the shortlist of other developments for each individual environmental topic. Considerations included the temporal scope (construction and operation programmes of other developments), as well as whether there are any shared receptors or pathways for inter-project effects, establishing overlap and any potential for interaction.
- 18.5.11. The other developments were assessed for inclusion within the longlist and shortlist on a case-by-case basis and professional judgement was used.
- 18.5.12. The following criteria were applied when determining the longlist:
- The developments are within the maximum ZOI for the Padeswood Spur Pipeline Proposed Development (10km). This extends to the area of Flintshire County Council;
 - Have been identified for consideration by the Applicant;
 - Have been identified for consideration by FCC and other stakeholders in the Scoping Opinion; and

- Developments were of a size to be considered having the potential to result in an inter-project effect. For the case of the Padeswood Spur Pipeline Proposed Development, developments equal to or smaller than 30 residential units (or an equivalent size) were excluded from the longlist.

18.5.13. As noted in **Chapter 1 – Introduction (Document Reference PW.3.2.1)** and **Chapter 2 – The Project (Document Reference PW.3.2.2) (Volume II)**, the Padeswood Spur Pipeline Proposed Development forms part of the Hynet Project (the “Project”). The Project will include other components (for example construction of a section of new pipeline and Hydrogen Production Plants) which, at the time of completing the Inter-Project Assessment, are at different stages of development and will be seeking separate consents as appropriate. For the purposes of the assessment, these components are considered as other developments. The relevant other developments that are part of the Project that have been included in this assessment are as follows:

- Shortlist ID6 – Hynet Main Onshore Carbon Dioxide Pipeline (PINS Reference: EN070007)
- Shortlist ID21 – Padeswood Carbon Capture and Storage Project (DNS Reference: CAS-02009-W1R1Z7)

Inter-Project Effects Assessment – Stage 2

18.5.14. Following this data collection, the longlist has been refined to a shortlist by reviewing each of the other developments identified against the following criteria:

- Would the Construction or Operation Stage of the other development overlap with the Padeswood Spur Pipeline Proposed Development?
- Is there potential that the Padeswood Spur Pipeline Proposed Development shares common sensitive Receptors with the other development?
- Does the other development have environmental assessment information that is publicly available and is sufficient to allow the identified receptors and residual effects of the other development to be understood? Other developments that have no, or insufficient environmental assessment information, will typically not be considered as it will not be possible to accurately identify common receptors or inter-project effects with the Padeswood Spur Pipeline Proposed Development.

18.5.15. Professional judgement has been applied to develop the above criteria. It is not anticipated that other developments outside of the criteria set out above will give rise to greater or different likely significant effects

together with the Padeswood Spur Pipeline Proposed Development considering its scale and nature. However, professional judgement has been used to support the exclusion of other developments which exceed the thresholds, but which may not give rise to discernible inter-project effects on receptors, and vice versa. The reasons for including or excluding each development are clearly stated.

Inter-Project Effects Assessment – Stage 3 and 4

- 18.5.16. Information on other developments included within the shortlist has been gathered from available third-party information sources within the public domain. This information has included, where available, reported environmental effects, design, location, construction programme (including demolition), and operational activities.
- 18.5.17. The assessment of the inter-project effects is based upon the residual effects identified in the **Technical Chapters 6 – 17 (Document Reference: PW.3.2.6 – PW.3.2.17)**, as well as available environmental information for the approved other developments. This step corresponds with Stage 4 of the Planning Inspectorate guidance (Planning Inspectorate, 2024).
- 18.5.18. For each shortlisted development, the residual effects (as stated in each technical chapter (**Technical Chapters 6 – 17, Document Reference: PW.3.2.6 – PW.3.2.17**) on identified shared receptors or resources are detailed in the assessment table. The Inter-Project Effects Assessment table also presents the effects on the shared receptors or resources from each shortlisted development, obtained from third-party information where available. Where information on effects from shortlisted other developments has not been available, professional judgement has been used to identify the potential for significant inter-project effects.
- 18.5.19. The qualitative evaluation at the receptor level will consider the following:
- Combined magnitude of change;
 - Sensitivity / value / importance of the receptor / receiving environment to change; or / and
 - Duration and reversibility of effect.
- 18.5.20. Through a combination of evaluating the residual effects presented in **Technical Chapters 6 – 17 (Document Reference: PW.3.2.6 – PW.3.2.17)** of this ES and the environmental information available for the other development, conclusions will be drawn as to the likelihood for significant inter-project effects.

INTRA-PROJECT EFFECTS METHODOLOGY

- 18.5.21. Some environmental topics interact with each other, for example, changes in residential access, road traffic noise, and visual impact. Therefore, several effects on a receptor or resource shared by these environmental topics hypothetically could interact to produce a combined effect of overall greater significance than each individual effect on its own.
- 18.5.22. The reported residual effects on receptors and resources within **Technical Chapters 6 – 17 (Document Reference: PW.3.2.6 – PW.3.2.17)**, have been carried through to this Intra-Project Effect Assessment. The assessment considers intra-project effects at the Construction and Operation Stages of the Padeswood Spur Pipeline Proposed Development. Where more than one residual effect on a receptor or resource has been identified, the Intra-Project Effects Assessment has considered the potential for intra-project effects of greater significance than each individual effect considered separately. Where intra-project effects of greater significance have been identified, consideration has been given to the need for additional mitigation measures.
- 18.5.23. This assessment considers any residual effects that are reported as major, moderate or minor within **Technical Chapters 6 – 17 (Document Reference: PW.3.2.6 – PW.3.2.17)**. Minor effects, while not significant, are considered in the assessment on the basis that multiple minor effects may interact to result in a significant cumulative effect. Negligible residual effects reported in **Technical Chapters 6 – 17 (Document Reference: PW.3.2.6 – PW.3.2.17)** are considered unlikely to accumulate to the extent that a significant intra-project effect will occur.
- 18.5.24. The assessment of Intra-Project Effects has been undertaken in three steps. These steps have been taken for assessment of both the Construction and Operation Stages:
- Step A: Identification of receptors or resources considered in more than one technical chapter and therefore having the potential to be affected by more than one environmental topic. It is during this step that elements have been scoped out to avoid overlap with information reported in technical chapters, as discussed in **Section 18.4**;
 - Step B: For receptors or resources identified in Step A, the significance of the residual effect from each relevant technical chapter have been identified; and
 - Step C: For receptors or resources identified in Step B, consideration has been given to whether there will be an intra-project effect and if

so whether that effect will be of the same or greater significance than the component effects.

SIGNIFICANCE CRITERIA

- 18.5.25. The Inter-Project Effects Assessment considers the potential for significant residual inter-project effects with any required mitigation in place, see **Table 18-4**. The significance of the effect is formulated as a function of a receptor or a resource’s environmental value/sensitivity and the magnitude of the Padeswood Spur Pipeline Proposed Development impact, whilst considering the capacity of environmental resources and receptors to accommodate changes that are likely to occur (Planning Inspectorate, 2024).
- 18.5.26. The significance of intra-project effects has been determined by considering the following factors:
- Which receptors or resources are affected by more than one environmental topic; and
 - How the Padeswood Spur Pipeline Proposed Development affects the condition of the receptor or resource, using information contained within each technical chapter.
- 18.5.27. The significance of both inter-project and intra-project effects has been determined using the significance criteria outlined in **Section 18.5.11 of Chapter 5 – EIA Methodology (Document Reference: PW.3.2.5)**, where full details of the significance process can be found. The significance criteria classifications are outlined in the table below.

Table 18-4 - Inter-project and Intra-project Effects Significance Criteria

Significance Category	Definition of Effect
Major	Adverse or Beneficial effects that are considered to be very important considerations as significant magnification of effects on receptors / resources that are already predicted to occur.
Moderate	Adverse or Beneficial effects that are unlikely to become issues, but where future work may be needed to improve on current performance as a significant magnification of effects on receptors / resources are likely to occur.
Minor	Adverse or Beneficial Effects that are locally significant and will be unlikely to lead to a significant magnification of effects on a receptor / resource.

Significance Category	Definition of Effect
Negligible	No effects or effects that are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error.

ASSUMPTIONS AND LIMITATIONS

Inter-project Effects

- 18.5.28. The assessment of inter-project effects has been based on the interpretation and assessment of publicly available data and limited by the level of information available.
- 18.5.29. There are cases that other developments are screened into the shortlist which have environmental information available for some or most topics, but not for others. In such instances, the Inter-Project Effect Assessment for the given other development(s) may be limited to only those topics which have environmental information upon which to assess. However, in such cases efforts have been made, where possible, for the topics lacking environmental information to make an assessment based upon assumptions. The assumptions are stated within the assessment.
- 18.5.30. Although environmental information may be available for other development(s), it may be limited in its compatibility where different assessment methodologies or criteria have been used. Where a lack of information limits and/or prevents the Inter-Project Effects Assessment, this has been stated.
- 18.5.31. For the purpose of the assessment, professional judgement using a reasonable worst-case scenario have been used when there is a lack of certainty about a given other development.
- 18.5.32. In the absence of information and assessments of other development(s) for some topics, it is assumed that the developer will implement standard practice mitigation measures to reduce the effect of the other development.
- 18.5.33. Additionally, the assessment assumes that the mitigation measures discussed in each of the **Technical Chapters 6 – 17 (Document References: PW.3.2.6 – PW.3.2.17)** are implemented.
- 18.5.34. For the purposes of this assessment, the search for additional planning applications was concluded on 22nd November 2024. FCC have also provided additional developments in January 2025 which have been considered. As such, any planning applications submitted after this date have not been considered within the assessment.

Intra-Project Effects

- 18.5.35. The assessment of effects interactions resulting from the Padeswood Spur Pipeline Proposed Development has been focused on the residual effects from the Construction, Operation and Decommissioning Stages following the implementation of mitigation measures, with exceptions for certain environmental topics (see **Table 18-2**).

BASELINE CONDITIONS

- 18.5.36. The assessment of cumulative effects does not include a bespoke analysis of baseline conditions, this information is instead drawn from **Technical Chapters 6 – 17 (Document References: PW.3.2.6 – PW.3.2.17)**, for the receptors in question.

FUTURE BASELINE

- 18.5.37. The Inter-Project Effects Assessment presents future baseline conditions as part of the assessment process.
- 18.5.38. A future baseline assessment has not been carried out for the Intra-Project Effects Assessment as these assessments are already contained within **Technical Chapters 6 – 17 (Document References: PW.3.2.6 – PW.3.2.17)** for relevant environmental topics.

18.6. SENSITIVE RECEPTORS

- 18.6.1. The following sensitive receptors/resources have been assessed for the Inter-Project Effects Assessment:

- Protected Ecological Areas and Ecological Receptors (habitats and species);
- Heritage Assets;
- Residential Receptors (residents and residential properties);
- Recreational Receptors (users of and areas of recreation (including Public Rights of Way (PRoW)));
- Surface water bodies, controlled waters and groundwater;
- Human health; and
- Visual amenity and Landscape Character Areas.

- 18.6.2. The Intra-Project Effects Assessment has assessed the following sensitive receptors/resources, which have been identified as ‘common receptors’ as described in **Table 18-3**, as per the process and exclusions outlined in **Section 18.5** and detailed in **Appendix 18.2: Intra-Project Effects Assessment (Document Reference: PW.3.3.18.2)**:

- Residential receptors (residents and residential properties);
- Non-residential receptors (and their users); and

- Recreational receptors (users of and areas of recreation (including PRow)).

18.7. PRELIMINARY ASSESSMENT OF LIKELY IMPACTS AND EFFECTS

- 18.7.1. This Section details the preliminary assessment of predicted impacts and effects for the Padeswood Spur Pipeline Proposed Development during the Construction and Operational Stages. Full details on the assessment and the residual effect outcomes can be found in **Appendix 18.1: Inter-Project Effects Assessment (Document Reference PW.3.3.18.1)** and **Appendix 18.2: Intra-Project Effects Assessment Document Reference PW.3.3.18.1)**.

INTER-PROJECT EFFECTS

Construction Stage

- 18.7.2. The Inter-Project Effects Assessment for the Construction Stage assessed the potential for inter-project effects for the following topics:






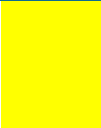






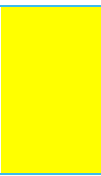
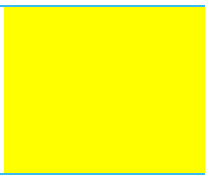




- Biodiversity;
- Landscape and Visual;
- Noise and Vibration;
- Heritage
- Population and Human Health; and
- Water Resource and Flood Risk.

- 18.7.3. Of the residual inter-project effects reported for the shortlisted other developments, most effects were appraised to be either minor adverse (not significant) or negligible (not significant). Significant effects have been determined for common visual receptors, for ID8 (moderate adverse for receptors at Rose Lane), ID21 (major adverse for residents and users of PROWs near Padeswood Above Ground Installation (AGI)) and ID33 (major adverse for users of Wat's Dyke Way and residents along Bryn y Bal Road). These effects are anticipated during construction only, and as a result they are temporary in nature. As a result, no additional mitigation is proposed.

- 18.7.4. **Table 18-5** provides an overview of the adverse inter-project effects identified during construction, for each of the environmental topics. Refer to **Appendix 18.1: Inter-Project Effects Assessment (Document Reference: PW.3.3.18.1)** for further details on the nature of these effects and a full description of the proposed other developments.

Table 18-5 - Inter-Project Effects - Construction Stage








Other Development	Key:		Biodiversity	Landscape and Visual	Noise and Vibration	Population and Human Health	Water Resources and Flood Risk	Heritage	Noise
		Minor adverse (not significant)							
		Moderate adverse (significant)							
		Major adverse (significant)							
ID1 - Development of land to provide Lodge/Chalet park to include single storey and two storey lodges and a site office.									
ID2 - Demolition of the existing Argoed High School buildings and provision of a new Net Zero Carbon in operation school campus including nursery, primary and secondary school provision and associated school sports facilities, vehicular, pedestrian and cycle accesses, car and cycle parking, landscaping, Sustainable Urban Drainage and associated infrastructure.									
ID3- Residential development comprising 90 Dwellings including the provision of affordable units, areas of public open space, landscaping and associated works.									
ID4- Screening Opinion for construction of residential development and associated works.									
ID5- Erection of 159 dwellings, construction of a new vehicular access, landscaping and associated works									
ID6- A new build carbon dioxide (CO ₂) pipeline that will transport CO ₂ produced and captured in North West England and North Wales for offshore storage. The CO ₂ pipeline will comprise both newbuild and existing pipelines that will be covered under the same application. When complete it will run from the Ince AGI in Cheshire to Talacre Beach in North Wales.									

Other Development	Key:							
	 Minor adverse (not significant)	 Moderate adverse (significant)	 Major adverse (significant)					
	Biodiversity	Landscape and Visual	Noise and Vibration	Population and Human Health	Water Resources and Flood Risk	Heritage	Noise	
ID8- Development of 56 dwellings on land to rear of 66A Mold Road, including new roadway, parking areas, landscaping and drainage connections including formation of swale.								
ID9- Erection of residential development of 232 no. units together with associated public open space and infrastructure								
ID18- Construction of 130 affordable homes. new vehicular and pedestrian accesses off Ffordd Pedrog including public open space, landscaping, highways works, foul and surface water drainage infrastructure and associated ancillary works.								
ID19-Construction of 315 dwellings (including 126 affordable homes), new vehicular and pedestrian accesses off Holywell Road and Green Lane, public open space, landscaping, offsite-highways works, foul and surface water drainage infrastructure and associated ancillary works								
ID21- Padeswood Carbon Capture and Storage Project, consisting of Padeswood Carbon Capture and Storage Plant and supporting infrastructure including access roadways, construction and laydown compound areas.								
ID22- Application for Approval of Reserved Matters following Outline Approval 060076 (Conditions 2,7 & 9)								
ID33- Full planning for 135 affordable dwellings, on site public open space and site infrastructure.								

Operation Stage

- 18.7.5. The Inter-Project Effects Assessment for the Operation Stage assessed the potential for inter-project effects for the following topics:
- Noise and Vibration;
 - Landscape and Visual; and
 - Water Resources and Flood Risk.
- 18.7.6. Of the residual inter-project effects reported for the shortlisted other developments, most effects were appraised to be either minor adverse (not significant) or negligible (not significant). Significant effects have been determined for common visual receptors, for ID6 (moderate adverse for PROW users near Northop Hall AGI) and ID21 (moderate adverse for residents and users of PROWs near Padeswood AGI). These effects are reported in Operation Year 1, and as a result will be minimised once proposed landscape planting becomes established. The effects will reduce to minor adverse (not significant) at Year 15 for ID6, and minor adverse (not significant) at Year 15 for ID21. As a result, no additional mitigation is proposed.
- 18.7.7. **Table 18-6** overleaf provides an overview of the adverse inter-project effects identified during operation, for each of the environmental topics. Refer to **Appendix 18.1: Inter-Project Effects Assessment (Document Reference: PW.3.3.18.1)** for further details on the nature of these effects and a full description of the proposed other developments.

Table 18-6 - Inter-Project Effects - Operational Stage

Other Development	Key:		Landscape and Visual	Water Resources and Flood Risk	Noise
		Minor adverse (not significant)			
		Moderate adverse (significant)			
ID6- A new build carbon dioxide (CO ₂) pipeline that will transport CO ₂ produced and captured premises in North West England and North Wales for offshore storage. The CO ₂ pipeline will comprise both newbuild and existing pipelines that will be covered under the same application. When complete it will run from the Ince AGI in Cheshire to Talacre Beach in North Wales.					
ID8- Development of 56 dwellings on land to rear of 66A Mold Road, including new roadway, parking areas, landscaping and drainage connections including formation of swale.					
ID21- Padeswood Carbon Capture and Storage Project, consisting of Padeswood Carbon Capture and Storage Plant and supporting infrastructure including access roadways, construction and laydown compound areas.					
ID33- Full planning for 135 affordable dwellings, on site public open space and site infrastructure.					

INTRA-PROJECT EFFECTS

Construction Stage

- 18.7.8. The following common receptors were identified in the Construction Stage as having the potential for intra-project effects:
- Residential receptors (residents and residential properties);
 - Non-residential receptors (and their users); and
 - Recreational Areas and PRow (and their users).
- 18.7.9. Residential and non-residential receptors are anticipated to experience Minor Adverse (not significant) intra-project effects during construction due to the interaction of visual, noise and traffic impacts (as reported in **Chapter 12 – Landscape and Visual (Document Reference PW.3.2.12)**, **Chapter 14 – Noise and Vibration (Document Reference PW.3.2.14)**, **Chapter 15 – Population and Human Health (Document Reference PW.3.2.15)** and **Chapter 16 – Traffic and Transport (Document Reference PW.3.2.16)**).
- 18.7.10. Recreational Areas and PRow are anticipated to experience Minor Adverse (not significant) intra-project effects during construction due to the interaction of visual and transport impacts (as reported in **Chapter 12 – Landscape and Visual (Document Reference PW.3.2.12)** and **Chapter 16 – Traffic and Transport (Document Reference PW.3.2.16)**).
- 18.7.11. Further details on the construction intra-project effects can be found in Appendix 18.2: Intra-Project Effects Assessment (Document Reference PW.3.3.18.2).

Operation Stage

- 18.7.12. The following common receptors were identified in the Operation Stage as having the potential for intra-project effects:
- Residential receptors (residents and residential properties); and
 - Recreational Areas and PRow (and their users).
- 18.7.13. Residential receptors are anticipated to experience Minor Adverse (not significant) intra-project effects during operation due to the interaction of visual and noise impacts (as reported in **Chapter 12 – Landscape and Visual (Document Reference PW.3.2.12)** and **Chapter 14 – Noise and Vibration (Document Reference PW.3.2.14)**).
- 18.7.14. Recreational Areas and PRow are anticipated to experience Minor Adverse (not significant) intra-project effects during operation due to the interaction of visual and noise impacts (as reported in **Chapter 12 –**

Landscape and Visual (Document Reference PW.3.2.12) and Chapter 14 – Noise and Vibration (Document Reference PW.3.2.14)).

- 18.7.15. Further details on the operational and decommissioning intra-project effects can be found in **Appendix 18.2: Intra-Project Effects Assessment** (Document Reference PW.3.3.18.2).

18.8. MITIGATION AND ENHANCEMENT MEASURES

- 18.8.1. As discussed in **paragraphs 18.7.3 and 18.7.6**, significant inter-project effects have been identified during construction (with ID8, ID21 and ID33) and operation (with ID6 and ID21) for Landscape and Visual receptors. No additional mitigation is proposed as during construction the effects will be temporary. For operation, with current mitigation proposals, the significant effects are expected to reduce to be not significant by Operation Year 15, therefore no additional mitigation is proposed.
- 18.8.2. There are no significant effects anticipated for the intra-project assessment, therefore no additional mitigation is proposed.

18.9. MONITORING

- 18.9.1. The assessment has not identified the need for any additional monitoring requirements beyond that stated in **Technical Chapters 6 – 17** (Document References: PW.3.2.6 – PW.3.2.17).

18.10. RESIDUAL EFFECTS

- 18.10.1. **Table 18-4** below summarises the residual inter-project effects associated with the Padeswood Spur Pipeline Proposed Development during construction and operation.

Table 18-7 - Summary of Residual Inter-Project Effects

Receptor	Pre-mitigation significance of effects	Mitigation measure	Residual effect*
Construction			
ID8 – common visual receptors at Rose Lane.	Moderate Adverse (significant)	No additional measures required.	Moderate Adverse (significant) T / I / ST
ID21 – common visual receptors including residents and users of PROWs near the Padeswood AGI.	Major adverse (significant)	No additional measures required.	Major adverse (significant) T / I / ST
ID33 – common visual receptors including users of Wat's Dyke Way and residents along Bryn-y-Bal Road.	Major adverse (significant)	No additional measures required.	Major adverse (significant) T / I / ST
Operation			
ID6 – common visual receptors including PROW users near Northop Hall AGI.	Moderate adverse (Significant) at Year 1, reducing to minor adverse (not significant) at Year 15.	No additional measures required.	Moderate adverse (Significant) at Year 1, reducing to minor adverse (not significant) at Year 15. Permanent (P) / I / Long-Term (LT)
ID21 – common visual receptors including residents and users of PROWs near the Padeswood AGI.	Moderate adverse (Significant) at Year 1, reducing to minor adverse (not significant) at Year 15.	No additional measures required.	Moderate adverse (Significant) at Year 1, reducing to minor adverse (not significant) at Year 15. P / I / LT

*Key: Direct/Indirect – D/I; Short / Medium / Long term – ST/MT/LT; Permanent/Temporary – P/T

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