

Chapter 24: Summary of Effects

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24. Summary of Effects

24.1 Introduction

- 24.1.1 This chapter of the Preliminary Environmental Information (PEI) Report summarises the likely significant residual effects of the Proposed Development as identified within the preliminary assessment of each technical topic chapter (**Chapters 7-22** in PEI Report **Volume 2**). Residual effects are defined as those effects that remain following the implementation of any required mitigation.
- 24.1.2 The conclusions are based on preliminary information and may be revised for the ES for the DCO application in light of (e.g.) further baseline information, further assessment or in response to design development and consultation feedback. In some cases, the assessment is necessarily conservative at this stage and may therefore overestimate the impact and identify significant effects where none may occur. The information presented in the PEI Report reflects a preliminary point in time and thus the preliminary assessment findings are subject to change and confirmation.
- 24.1.3 This chapter is supported by the following appendices in PEI Report **Volume 4**:
- a. **Appendix 24-PD-1: Environmental Commitments Register.** This appendix details where the Applicants have relied on commitments as the basis for scoping matters out or refining the scope of assessment. The Environmental Commitments Register will be maintained as a 'live' document that is updated throughout the planning process and will ensure that all commitments are up to date at the time the Development Consent Order (DCO) application is decided by the Planning Inspectorate (PINS) on behalf of the Secretary of State (SoS).
 - b. **Appendix 24-PD-2: Preliminary Outline Construction Environmental Management Plan.** The Preliminary Outline Construction Environmental Management Plan (CEMP) provides a high-level description of general approaches and measures to the control of construction activities to avoid or minimise impacts on the environment that have been identified in the PEI Report. A final Outline CEMP, which will include mitigations required, will be prepared to accompany the DCO application, which reflects the final findings of the Environmental Statement (ES).
- 24.1.4 There are no supporting figures for this PEI Report chapter.

24.2 Summary of Approach to Preliminary Assessments

- 24.2.1 Each technical topic chapter (**Chapters 7-22** in PEI Report **Volume 2**) contains a preliminary assessment of both the beneficial and adverse effects identified as likely to arise from the Proposed Development. The criteria applied to define the significance of residual effects are presented in **Chapter 6: Environmental Impact Assessment Methodology** in PEI Report **Volume 2**, with further detail provided within the individual technical topic chapters. Where technical topic chapters have deviated from this standard methodology, this is explained within the respective chapters, together with justification for the approach adopted (e.g. to align with industry-standard guidance for that discipline).
- 24.2.2 The residual effects listed within the technical topic chapters are described with reference to the scale of effect (e.g. minor, moderate or major), whether the effect is significant or not, and the nature of the effect (i.e. adverse, negligible or beneficial).
- 24.2.3 The EIA for the Proposed Development has been undertaken in parallel with the design process and the development of embedded and additional mitigation identified within technical chapters. A number of measures have been incorporated into the design of the Proposed Development to reduce adverse environmental effects. Where identified at this stage, these indicative measures are also presented in the summary of residual effects tables below.
- 24.2.4 For **Chapter 9: Carbon** and **Chapter 10: Climate** (in PEI Report **Volume 2**), the likely significant effects of the Proposed Development are assessed on a project-wide basis, reflecting the nature of those topics and the way effects arise cumulatively across the Proposed Development as a whole rather than being attributable to individual Parts of the Proposed Development.
- 24.2.5 For all other technical topic chapters, the likely significant effects are assessed on a 'Part-by-Part' basis with construction and operational effects reported discretely for each scoped in Part. **Table 24-1** summarises which Parts have been scoped in and out of each technical topic assessment – further explained in each technical topic chapter (**Chapters 7-22** in PEI Report **Volume 2**).

Table 24-1: Summary of scoped out Parts per technical topic

Technical topic	Proposed Development Parts					
	1a	1b	2	3	4a	4b
Agriculture and Soils	Out	In	Out	Out	In	In
Air Quality and Odour	Out	Out	Out	Out	Out	Out
Carbon	In (Project-wide assessment)					
Climate	In (Project-wide assessment)					
Cultural Heritage	In	In	In	In	In	In
Ecology – Aquatic	In	In	In	In	In	In
Ecology – Terrestrial	In	In	In	In	In	In
Ground Conditions	In	In	In	In	In	In
Human Health	In	In	In	In	In	In
Landscape and Visual	In	In	In	In	In	In
Major Accidents and Disasters	Out	Out	In	In	Out	Out
Materials and Waste	In	In	In	In	In	In
Socio-economics	In	In	In	In	In	In
Noise and Vibration	In	In	In	In	In	In
Traffic and Transport	In	In	In	In	In	In
Water Environment and Flood Risk	In	In	In	In	In	In

24.2.6 Further to the Part-by-Part assessment, the technical topic chapters (excluding **Chapter 9: Carbon** and **Chapter 10: Climate** in PEI Report **Volume 2**) then go onto assess combined ‘project-wide’ effects. This considers the interaction of residual effects arising from different Parts of the Proposed Development where they may impact on a shared receptor(s) in a geographical interface. This includes identifying shared receptors across technical assessments and assessing whether effects from multiple Parts combine to give rise to additional or more significant effects, including where further mitigation may be required to reduce the significance of those effects. This chapter also provides a summary of the combined ‘project-wide’ effects for where interfaces have been identified for each technical topic chapter (**Chapters 7 and 11-22** in PEI Report **Volume 2**).

24.2.7 Following the preliminary assessments, **Chapter 8: Air Quality and Odour** (PEI Report **Volume 2**) provides further evidence and justification to scope out the topic in its entirety. Therefore, no summary effects tables have been provided in this chapter.

24.2.8 As explained in **Chapter 23: Cumulative Effects and Interactions** (PEI Report **Volume 2**), due to the preliminary status of the technical topic assessments and requirement to agree the shortlist of other developments for the cumulative effects assessment, the effect interactions and cumulative effects assessments will be completed for the ES.

24.3 Summary of Effects

24.3.1 The following tables provide the summary of residual and combined effects identified as significant from the preliminary assessments and the potential combined project-wide effects for each technical topic chapter (**Chapters 7-22** in PEI Report **Volume 2**). Note that where Parts or combined project-wide interfaces have been scoped/screened out, these are not further referred to in this chapter. Likewise, where a preliminary assessment was not completed at this stage, these have not been identified in this chapter, but are identified in their respective chapters (**Chapter 7-22** in PEI Report **Volume 2**).

Chapter 7: Agricultural and Soils

Residual Effects

24.3.2 There are no significant residual effects identified in **Chapter 7: Agricultural and Soils** in PEI Report **Volume 2**.

Combined Project-wide Effects

24.3.3 There are no combined effects on agriculture and soils from non-continuous Parts of the Proposed Development, but the cumulative total area of all land affected will be reported but the magnitude of short-term temporary land take will remain low based on the Institute of Sustainability and Environmental Professionals¹ (ISEP) 'A New Perspective on Land and Soil in Environment Impact Assessment' guidance (Ref. 1).

24.3.4 Parts 1a, 2, and 3 have been scoped out of this assessment. Consequently, no interactions are expected between the following Parts:

- a. Parts 1a and 1b;
- b. Parts 1b and 2;
- c. Parts 2 and 3; and
- d. Parts 3, 4a, and 4b.

24.3.5 The only interface requiring assessment is between Parts 4a and 4b because they are geographically continuous; this section focuses solely on this interface. Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

24.3.6 The assessment of impacts on soil resources and agricultural land is confined to areas directly affected by the Proposed Development. Combined effects are assessed as additive, with no indication of interactions that would lead to a greater combined impact than the sum of individual effects. The

¹ Formerly the Institute of Environmental Management and Assessment (IEMA).

totality of combined effects are no worse than those effects identified for each Part of the Proposed Development.

Chapter 8: Air Quality and Odour

- 24.3.7 This technical topic has been scoped out in its entirety – refer to **Chapter 8: Air Quality and Odour** in PEI Report **Volume 2** for further explanation. Therefore, no significant residual or combined project-wide air quality or odour effects have been identified.

Chapter 9: Carbon

Residual Effects (Project-wide)

- 24.3.8 There are no significant residual effects identified in **Chapter 9: Carbon** in PEI Report **Volume 2**.

Chapter 10: Climate

Residual Effects (Project-wide)

24.3.9 **Table 24-2** presents the significant effects identified in **Chapter 10: Climate** in PEI Report **Volume 2**.

Table 24-2: Summary of residual effects for climate – Project-wide

Description of impact	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Operational Phase						
Climate Change Risk Assessment	High	Long-term, Short-term Local	Moderate Adverse	Two significant climate risks identified	Additional information and modelling of flood risk to be conducted for the ES stage	Two significant climate risks identified due to flood risk.
In-Combination Climate Change Impact (ICCI) Assessment	As defined by relevant technical topic	Long-term, Short-term Local	Moderate Adverse	One significant ICCI risk identified	Additional modelling and surveys will be required for terrestrial ecology for the ES stage	One significant ICCI risk identified for terrestrial ecology.

Chapter 11: Cultural Heritage

Residual Effects

24.3.10 **Table 24-3** to **Table 24-6** present the significant effects identified in **Chapter 11: Cultural Heritage** in PEI Report **Volume 2**.

Table 24-3: Summary of residual effects for cultural heritage – Part 1b

Description of Impact	Heritage Asset	Value of Heritage Asset	Magnitude of Impact	Significance of effect (with embedded design measures)	Additional mitigation, enhancement and/or monitoring	Residual significance of effect
Construction Phase						
Intrusive direct impacts from construction activities on designated or non-designated heritage assets resulting in permanent total loss of historic fabric, features or remains affecting heritage value	Three non-designated heritage assets (MWA6554; MWA19303; MWA5812)	Low	Large	Permanent Moderate Adverse (Significant)	A programme of archaeological investigation and recording – to be undertaken	Permanent Minor Adverse (Not Significant)
Intrusive direct impacts from construction activities on designated or non-designated heritage assets resulting in permanent partial loss of historic fabric, features or remains affecting heritage value	One grade II* registered park and garden (NHLE 1001190)	High	Small	Permanent Moderate Adverse (Significant)	Replanting of trees and vegetation along the boundary with the road	Permanent Minor Adverse (Not Significant)

Description of Impact	Heritage Asset	Value of Heritage Asset	Magnitude of Impact	Significance of effect (with embedded design measures)	Additional mitigation, enhancement and/or monitoring	Residual significance of effect
Direct impacts from temporary changes to the setting of designated or non-designated heritage assets arising from construction (such as noise, dust, vibration, construction traffic, lighting) affecting their heritage value	One grade II* registered park and garden (NHLE 1001190)	High	Small	Temporary Moderate Adverse (Significant)	To be reviewed at ES stage	Temporary Moderate Adverse (Significant)

Table 24-4: Summary of residual effects for cultural heritage – Part 2 Study Area CWAH 10

Description of Impact	Heritage Asset	Value of Heritage Asset	Magnitude of Impact	Significance of effect (with embedded design measures)	Additional mitigation, enhancement and/or monitoring	Residual significance of effect
Construction Phase						
Direct impacts from temporary changes to the setting of designated or non-designated heritage assets arising from construction (such as noise, dust, vibration, construction traffic,	Three Scheduled Monuments (NHLE 1003874; NHLE 1006934; NHLE 1013660)	High	Small	Temporary Moderate Adverse (Significant)	To be reviewed at ES stage	Temporary Moderate Adverse (Significant)

Description of Impact	Heritage Asset	Value of Heritage Asset	Magnitude of Impact	Significance of effect (with embedded design measures)	Additional mitigation, enhancement and/or monitoring	Residual significance of effect
lighting) affecting their heritage value						

Table 24-5: Summary of residual effects for cultural heritage – Part 2 Study Area CWAH 12

Description of Impact	Heritage Asset	Value of Heritage Asset	Magnitude of Impact	Significance of effect (with embedded design measures)	Additional mitigation, enhancement and/or monitoring	Residual significance of effect
Construction Phase						
Intrusive direct impacts from construction activities on designated or non-designated heritage assets resulting in permanent partial loss of historic fabric, features or remains affecting heritage value	One Scheduled Monument (NHLE 1007938)	High	Medium	Permanent Major Adverse (Significant)	A programme of archaeological investigation and recording	Permanent Moderate Adverse (Significant)
Direct impacts from temporary changes to the setting of designated or non-designated heritage assets arising from construction (such	One Scheduled Monument (NHLE 1007938)	High	Medium	Temporary Major Adverse (Significant)	To be reviewed at ES stage	Temporary Major Adverse (Significant)
	One Scheduled Monument	High	Small	Temporary Moderate	To be reviewed at ES stage	Temporary Moderate

Description of Impact	Heritage Asset	Value of Heritage Asset	Magnitude of Impact	Significance of effect (with embedded design measures)	Additional mitigation, enhancement and/or monitoring	Residual significance of effect
as noise, dust, vibration, construction traffic, lighting) affecting their heritage value	(NHLE 1007930)			Adverse (Significant)		Adverse (Significant)

Table 24-6: Summary of residual effects for cultural heritage – Part 4b

Description of Impact	Heritage Asset	Value of Heritage Asset	Magnitude of Impact	Significance of effect (with embedded design measures)	Additional mitigation, enhancement and/or monitoring	Residual significance of effect
Construction Phase						
Intrusive direct impacts from construction activities on designated or non-designated heritage assets resulting in permanent total loss of historic fabric, features or remains affecting heritage value	Four non-designated heritage assets (MBD3416; MBD1392; MBD16210; MBD10445)	Medium	Large	Permanent Major Adverse (Significant)	A programme of archaeological investigation and recording	Permanent Moderate Adverse (Significant)

Combined Project-wide Effects

24.3.11 **Table 24-7** to **Table 24-9** present the potential combined effects between Proposed Development Part interfaces are identified in **Chapter 11: Cultural Heritage** in PEI Report **Volume 2**.

Table 24-7: Summary of potential combined effects for cultural heritage between Parts 1a and 1b

Heritage assets	Potential combined effect?	Significance of combined effects
Non-designated heritage assets	Yes	Significance of effect is no worse than those reported individually for each Part of the Proposed Development.

Table 24-8: Summary of potential combined effects for cultural heritage between Parts 1b and 2

Heritage assets	Potential combined effect?	Significance of combined effects
Designated heritage assets	Yes	Significance of effect is no worse than those reported individually for each Part of the Proposed Development.
Non-designated heritage assets	Yes	Significance of effect is no worse than those reported individually for each Part of the Proposed Development.

Table 24-9: Summary of potential combined effects for cultural heritage between Parts 4a and 4b

Heritage assets	Potential combined effect?	Significance of combined effects
Non-designated heritage assets	Yes	Significance of effect is no worse than those reported individually for each Part of the Proposed Development.

Chapter 12: Ecology – Aquatic

Residual Effects

24.3.12 **Table 24-10** to **Table 24-13** present the significant effects identified in **Chapter 12: Ecology – Aquatic** in PEI Report **Volume 2**.

Table 24-10: Summary of residual effects for aquatic ecology – Part 1a

Description of impact and receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
<i>Effects on Habitats</i>						
Standing water (ponds on the Minworth Wastewater Recycling Centre [WwRC] site)	Medium	Adverse (within the County)	Medium	Moderate Adverse (Significant)	To be reviewed for the ES as part of the ongoing assessment	Moderate Adverse (Significant) (likely to be of reduced magnitude with additional mitigation confirmed at the ES stage)
Operational Phase						
<i>Effects on Non-Statutory Designated Sites</i>						
River Tame Local Wildlife Site (LWS)	Medium	Adverse (Within the County)	Medium	Moderate Adverse (Significant)	To be reviewed for the ES as part of the ongoing assessment	To be assessed at the ES (likely to be not significant with additional mitigation confirmed at the ES stage)
Lea Marston Lakes LWS	Medium	Adverse (Within the County)	Medium	Moderate Adverse (Significant)	To be reviewed for the ES as part of the ongoing assessment	To be assessed at the ES (likely to be not significant with additional mitigation confirmed at the ES stage)

Description of impact and receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Coton Pools LWS	Medium	Adverse (Within the County)	Medium	Moderate Adverse (Significant)	To be reviewed for the ES as part of the ongoing assessment	To be assessed at the ES (likely to be not significant with additional mitigation confirmed at the ES stage)
<i>Effects on Habitats</i>						
The rivers Tame and Trent and tributaries	High	Adverse Regional	Medium	Moderate Adverse (Significant)	To be reviewed for the ES as part of the ongoing assessment	To be assessed at the ES (likely to be not significant with additional mitigation confirmed at the ES stage)
<i>Effects on Species</i>						
Macro-invertebrates, Macrophytes, Fish on the Minworth WwRC	Medium	Adverse (within the County)	Medium	Moderate Adverse (Significant)	To be reviewed for the ES as part of the ongoing assessment	To be assessed at the ES (likely to be not significant with additional mitigation confirmed at the ES stage)
Fish passage of migratory and resident species and potential barriers to fish passage on the rivers Tame and Trent	High	Adverse Regional (within the Catchment)	High	Major Adverse (Significant)	To be reviewed for the ES as part of the ongoing assessment	To be assessed at the ES (likely to be not significant with additional mitigation confirmed at the ES stage)

Table 24-11: Summary of residual effects for aquatic ecology – Part 1b

Description of impact and receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Operational Phase						
<i>Effects on Species</i>						
All receptors in relation to Break Pressure Tank (BPT)	High	Adverse, National / Regional	Medium	Moderate Adverse (Significant)	To be reviewed for the ES as part of the ongoing assessment	To be assessed at the ES (likely to be not significant with additional mitigation confirmed at the ES stage)

Table 24-12: Summary of residual effects for aquatic ecology – Part 3

Description of impact and receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
<i>Effects on Habitats</i>						
Standing water (reservoirs)	Low	Adverse, Local (reservoirs)	Medium	Moderate Adverse (Significant)	To be reviewed for the ES as part of the ongoing assessment	To be assessed at the ES (likely to be not significant with additional mitigation confirmed at the ES stage)
<i>Effects on Non-Statutory Designated Sites</i>						
Daventry Reservoir Local Nature Reserve (LNR)/ Local	Low	Adverse Local	Medium	Moderate Adverse (Significant)	To be reviewed for the ES as part of the ongoing assessment	To be assessed at the ES (likely to be not significant with additional mitigation confirmed at the ES stage)

Description of impact and receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Wildlife Site (LWS) and Drayton Reservoir LWS						

Table 24-13: Summary of residual effects for aquatic ecology – Part 4a

Description of impact and receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
<i>Effects on Habitats</i>						
Running watercourses and ditches (culverted watercourse and ditch only)	Low	Adverse, Local	Medium	Moderate Adverse (Significant)	To be reviewed for the ES as part of the ongoing assessment	To be assessed at the ES (likely to be not significant with additional mitigation confirmed at the ES stage)
Operational Phase						
<i>Effects on Habitats</i>						
Running watercourses and ditches (culverted watercourse and ditch only)	Low	Adverse, Regional	Medium	Major Adverse (Significant)	To be reviewed for the ES as part of the ongoing assessment	To be assessed at the ES (likely to be not significant with additional mitigation confirmed at the ES stage)

Combined Project-wide Effects

24.3.13 **Table 24-14** to **Table 24-18** present the potential combined effects between Proposed Development Part interfaces are identified in **Chapter 12: Ecology – Aquatic** in PEI Report **Volume 2**.

Table 24-14: Summary of potential combined effects for aquatic ecology between Parts 1a and 1b

Receptor groups	Potential combined effect?	Significance of combined effects
Designated Sites	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Aquatic species – Fish	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Invasive non-native species (INNS)	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

Table 24-15: Summary of potential combined effects for aquatic ecology between Parts 1b and 2

Receptor groups	Potential combined effect?	Significance of combined effects
Designated Sites	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
INNS	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

Table 24-16: Summary of potential combined effects for aquatic ecology between Parts 2 and 3

Receptor groups	Potential combined effect?	Significance of combined effects
Designated Sites	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

Receptor groups	Potential combined effect?	Significance of combined effects
Aquatic species – Fish	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development; however, engagement with stakeholders and consultees is recommended to establish any concerns.
INNS	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

Table 24-17: Summary of potential combined effects for aquatic ecology between Parts 2 and 4a

Receptor groups	Potential combined effect?	Significance of combined effects
Aquatic species – Fish	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
INNS	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

Table 24-18: Summary of potential combined effects for aquatic ecology between Parts 4a and 4b

Receptor groups	Potential combined effect?	Significance of combined effects
Designated Sites	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Habitats of Principal Importance	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
INNS	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

Chapter 13: Ecology – Terrestrial

Residual Effects

24.3.14 **Table 24-19** to **Table 24-24** present the significant effects identified in **Chapter 13: Ecology – Terrestrial** in PEI Report **Volume 2**.

Table 24-19: Summary of impacts and likely significance of residual effects for terrestrial ecology – Part 1a

Receptor	Receptor Importance	Description of impact	Effect (prior to additional mitigation)	Additional Mitigation/ Enhancement	Likely significance of residual effect (conversion to effect terminology used elsewhere in EIA)
Construction Phase					
Non-statutory designated sites Minworth Sewage Works Sites of Importance for Nature Conservation (SINC)	County	Direct habitat loss Disturbance to birds (which are designated feature)	Permanent and temporary adverse effect at the County level, Significant	Details to be confirmed in the ES.	Permanent and temporary adverse effect at the County level – Significant (Moderate adverse)
Habitat of Principal Importance (HPI) - Open Mosaic Habitat (OMH)	Up to County	Permanent loss of habitat of isolated habitat parcel that is locally scarce and has limited distribution and / or	Permanent adverse effect at County level that is Significant.	Details to be confirmed in the ES.	Permanent adverse effect at County level – Significant. (Moderate adverse)

Receptor	Receptor Importance	Description of impact	Effect (prior to additional mitigation)	Additional Mitigation/ Enhancement	Likely significance of residual effect (conversion to effect terminology used elsewhere in EIA)
		abundance in the region.			
Deciduous woodland	Up to County	Localised habitat loss and fragmentation of locally abundant features including approximately 3.09 ha parcel north west of AWTP.	Permanent adverse at County level that is Significant	Under evaluation. Details to be confirmed in the ES. (Would require provision of replacement habitat re-establishment of value in the medium – long term).	Permanent adverse at County level - Significant (Moderate adverse)
Birds: Breeding and Non-breeding	Up to County	Permanent loss of bird nesting, roosting and foraging habitats.	Permanent adverse at County level that is Significant.	Details to be confirmed in the ES following review of data from surveys to be undertaken.	Permanent adverse at County level that is Significant. (Moderate Adverse)
		Temporary noise and visual disturbance will result in birds displacing from their regularly used habitats.	Temporary adverse at County level that is Significant.	Details to be confirmed in the ES following review of data from surveys to be undertaken.	Temporary adverse at County level that is Significant. (Moderate Adverse)

Receptor	Receptor Importance	Description of impact	Effect (prior to additional mitigation)	Additional Mitigation/ Enhancement	Likely significance of residual effect (conversion to effect terminology used elsewhere in EIA)
Bats: Roosting & Activity	Up to County (Medium)	Until re-instatement: Temporary habitat loss and/or degradation Severance of foraging or commuting habitat.	Permanent adverse up to County level - Significant.	Details to be confirmed following further survey work.	Permanent adverse up to County level - Significant. (Moderate adverse)
		Long term - reduction in habitat within development footprint	Permanent adverse up to County level - Significant.	Details to be confirmed following further survey work.	Permanent adverse up to County level - Significant. (Moderate adverse)
Terrestrial invertebrates	Up to County	Permanent loss of habitat	Permanent adverse up to County level - Significant.	Details to be confirmed following further survey work.	Permanent adverse up to County level - Significant. (Moderate adverse)
Notable flora	Local	Permanent loss	Permanent adverse at up to County level – Significant	Details to be confirmed in the ES.	Permanent adverse at up to County level – Significant. (Moderate adverse)

Table 24-20: Summary of impacts and likely significance of residual effects for terrestrial ecology – Part 1b

Receptor	Receptor Importance	Description of Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect (conversion to effect terminology used elsewhere in EIA)
Construction Phase					
Bentley Park Wood Site of Special Scientific Interest (SSSI)	National	Disturbance to qualifying bird species by construction activities and loss of linked habitat.	Temporary adverse effect at the County level that is Significant	Details to be confirmed in the ES.	Temporary adverse effect at the County level – Significant (Moderate Adverse)
Whitacre Heath SSSI	National	Disturbance to qualifying bird species by construction activities and small-scale loss of linked habitat.	Temporary adverse effects at the County level that is Significant	Details to be confirmed in the ES.	Temporary adverse effect at the County level – Significant (Moderate Adverse)
Non-statutory designated site: Merevale Lake Woodlands LWS	County	Disturbance from construction activities to birds as qualifying species	Temporary adverse effect at the County level that is Significant	Details to be confirmed in the ES.	Temporary adverse effect at the County level – Significant (Moderate Adverse)

Receptor	Receptor Importance	Description of Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect (conversion to effect terminology used elsewhere in EIA)
Non-statutory designated Ecosites which overlap Preliminary Order Limits: Curdworth Paddocks; Coleshill Rd; Haunch Lane; Lea Bridge; Birmingham Rd; Baxterley Quarry; Field North of Bentley Common; Bentley Veteran Oak; Colliery Farm Wood; Bentley Park Wood; The Outwoods Golf Course.	Local (individually)	Habitat loss and fragmentation	Permanent adverse effect at the County level (collectively) - Significant	Details to be confirmed in the ES.	Permanent adverse effect at the County level - Significant (Moderate Adverse)

Receptor	Receptor Importance	Description of Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect (conversion to effect terminology used elsewhere in EIA)
Ancient woodland adjacent or within 500 m.	National	Fragmentation of habitat and/or potential damage to tree roots. Potential hydrological impacts to be assessed in the ES.	Permanent adverse effect at the National level - Significant	Details to be confirmed in the ES, following further design development and identification of mitigation measures.	Permanent adverse effect at the National level – Significant (Major Adverse)
Veteran trees	National	Fragmentation of habitat and/or potential damage to tree roots	Permanent adverse effect at the National level - Significant	Details to be confirmed in the ES.	Permanent adverse effect at the National level – Significant (Major Adverse)
Deciduous Woodland	County	Habitat loss and fragmentation of contiguous woodland parcels. Replacement planting would take a long time to achieve comparable ecological value.	Permanent adverse at County level - Significant	Details to be confirmed in the ES.	Permanent adverse at County level - Significant (Moderate Adverse)

Receptor	Receptor Importance	Description of Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect (conversion to effect terminology used elsewhere in EIA)
Lowland Fen	Regional	Potential degradation from ground water changes	Temporary adverse effect up to County level - Significant. Assessment to be confirmed at the ES stage following further survey and design update	Details to be confirmed following further survey	Temporary adverse effect at County level – Significant (Moderate Adverse)
Great crested newt	Up to County	Habitat loss and fragmentation	Permanent adverse effect at the County level - Significant	Details to be confirmed following further survey work.	Permanent adverse effect at the County level – Significant (Moderate Adverse)
Reptiles	Up to County	Habitat loss and fragmentation	Temporary adverse effect at the County level - Significant	Details to be confirmed following further survey work.	Temporary adverse effect at the County level – Significant (Moderate Adverse)
Birds: Breeding and Non-breeding	Up to District	Permanent loss of bird nesting, roosting and foraging habitats.	Permanent adverse at up to District level - Significant	Details to be confirmed in the ES following review of data from surveys to be undertaken and any Proposed	Permanent adverse at up to District level – Significant (Moderate Adverse)

Receptor	Receptor Importance	Description of Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect (conversion to effect terminology used elsewhere in EIA)
				Development design changes.	
		Temporary noise and visual disturbance will result in birds displacing from their regularly used habitats.	Temporary adverse effect up to District level - Significant	Details to be confirmed in the ES following review of data from surveys to be undertaken and any Proposed Development design changes.	Temporary adverse effect at up to District level – Significant (Moderate Adverse)
		Habitat loss and/or degradation; Severance of foraging or commuting habitat. Temporary reduction of reinstated habitat until naturally re-established, pending any habitat reinstatement and/or creation.	Temporary adverse effect at the Regional level - Significant	Details to be confirmed following further survey work.	Temporary adverse effect at the Regional level – Significant (Major Adverse)

Receptor	Receptor Importance	Description of Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect (conversion to effect terminology used elsewhere in EIA)
Hazel Dormouse	Up to County	Habitat loss and/or degradation; Severance of foraging or commuting habitat. Temporary reduction in habitat until naturally re-established, pending any habitat reinstatement and/or creation.	Temporary adverse effect at the County level - Significant	Details to be confirmed following further survey work.	Temporary adverse effect at the County level – Significant (Moderate adverse)
Notable flora	Up to County	Killing, damage to individual plants and habitat loss	Temporary adverse effect up to County level - Significant	Details to be confirmed in the ES.	Temporary adverse effect up to County level – Significant (Moderate Adverse)
Terrestrial invertebrates	Up to County	Habitat loss, fragmentation	Temporary adverse effect up to County level - Significant	Details to be confirmed following further survey work.	Temporary adverse effect up to County level – Significant (Moderate Adverse)

Table 24-21: Summary of impacts and likely significance of residual effects for terrestrial ecology – Part 2

Receptor	Receptor Importance	Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect (conversion to effect terminology used elsewhere in EIA)
Construction Phase					
Non-statutory designated sites: Nine LWS; one Wildlife Trust Reserves (WTR); three Wildlife Corridors (WC) and 43 Ecosites	County	Direct habitat loss during construction.	Permanent adverse effect at County level - Significant	Details to be confirmed in the ES.	Permanent (in the absence of mitigation at this stage) adverse effect at County level - Significant (Moderate Adverse)
HPI: Lowland Fen	Up to National	Potential habitat loss	Permanent adverse effect up to National level - Significant	Details to be confirmed in the ES.	Permanent adverse effect up to National level – Significant (Major Adverse)
HPI: Traditional Orchards	Up to County	Potential habitat loss	Permanent adverse effect up to County level – Significant	Details to be confirmed in the ES.	Permanent adverse effect up to County level – Significant (Moderate Adverse)
HPI: Deciduous woodland	Up to National	Potential habitat loss	Permanent adverse effect up to County level - Significant	Details to be confirmed in the CEMP and ES	Permanent adverse effect up to County level – Significant

Receptor	Receptor Importance	Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect (conversion to effect terminology used elsewhere in EIA)
				following further survey work.	(Moderate Adverse)
Great crested newt (GCN)	Up to County	Habitat loss and fragmentation.	Permanent adverse effect up to County level - Significant	Details to be confirmed following further survey work.	Permanent adverse effect up to County level – Significant (Moderate Adverse)
Reptiles	Up to County	Habitat loss or fragmentation until re-instatement	Temporary adverse effect up to County level - Significant	Details to be confirmed following further survey work.	Temporary adverse effect up to County level – Significant (Moderate Adverse)
Birds: Breeding and Non-breeding	Up to County	Permanent loss of bird nesting, roosting and foraging habitats.	Permanent adverse up to County level - Significant	Details to be confirmed in the ES following review of data from surveys to be undertaken and any Proposed Development design changes.	Permanent adverse up to County level – Significant (Moderate Adverse)
		Temporary noise and visual disturbance will result in birds displacing from their	Temporary adverse effect up to County level – Significant	Details to be confirmed in the ES following review of data from surveys to be undertaken and any Proposed	Temporary adverse effect at up to County level – Significant (Moderate Adverse)

Receptor	Receptor Importance	Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect (conversion to effect terminology used elsewhere in EIA)
		regularly used habitats.		Development design changes.	
Bat Roosts Bat Activity	Up to County	Loss and severance of foraging and commuting habitat	Permanent adverse effect up to County level - Significant	Details to be confirmed following further survey work.	Permanent adverse effect up to County level - Significant (Moderate Adverse)
Hazel Dormouse	Up to County	Temporary habitat loss and fragmentation until habitat reinstatement and/or creation is established.	Temporary adverse effect up to County level – Significant.	Details to be confirmed following further survey work.	Temporary adverse effect up to County level – Significant. (Moderate Adverse)
Terrestrial invertebrates	Up to Regional	Habitat loss and fragmentation.	Temporary adverse up to a Regional level - Significant	Details to be confirmed following further survey work.	Temporary adverse up to a Regional level – Significant (Major Adverse)

Receptor	Receptor Importance	Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect (conversion to effect terminology used elsewhere in EIA)
Notable flora	Up to County	Habitat loss leading to loss or fragmentation of populations.	Temporary adverse up to County level - Significant	Details to be confirmed following further survey work.	Temporary adverse up to County level – Significant (Moderate Adverse)

Table 24-22: Summary of impacts and likely significance of residual effects for terrestrial ecology – Part 3

Receptor	Receptor Importance	Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect
Construction Phase					
Statutory designated site: Daventry Reservoir and Country Park LNR	County	Habitat loss and disturbance to birds as qualifying species.	Temporary and permanent adverse effects at County level – Significant.	Details to be confirmed following further survey work. A compensation strategy is being developed and will be outlined alongside the ES.	Temporary and permanent adverse effects at County level – Significant. (Moderate Adverse)
Non-statutory designated site: Daventry	County	Habitat loss and disturbance to birds as qualifying species.	Temporary and permanent adverse effects at County level – Significant.	Details to be confirmed in the ES. A compensation strategy is being	Temporary and permanent adverse effects at County level – Significant.

Receptor	Receptor Importance	Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect
Country Park LWS				developed and will be outlined alongside the ES.	(Moderate Adverse)
Good quality semi-improved grassland and traditional orchards	County	Potential habitat loss	Temporary and potentially permanent adverse effect up to County level – Significant	Details to be confirmed following further surveys.	Temporary and potentially permanent adverse effect up to County level – Significant (Moderate Adverse)
Deciduous woodland	County	Localised habitat loss and degradation in areas adjacent to Daventry Reservoir. Loss of linear corridor between Daventry Reservoir and Little Braunston.	Permanent adverse effect at County level – Significant	Details to be confirmed in the ES.	Permanent adverse effect at County level – Significant (Moderate Adverse)
GCN	Up to County	Habitat loss	Temporary adverse effect at County level – Significant.	Details to be confirmed following further survey work.	Temporary adverse effect at County level – Significant (Moderate Adverse)
Reptiles	Up to County	Habitat loss and severance	Temporary adverse effect up to County level – Significant.	Details to be confirmed following further survey work.	Temporary adverse effect up to County level – Significant (Moderate Adverse)

Receptor	Receptor Importance	Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect
Birds: Breeding and Non-breeding	Up to County	Temporary loss of bird nesting, roosting and foraging habitats.	Temporary adverse at County level – Significant.	Details to be confirmed following review of data from surveys to be undertaken and any Proposed Development design changes.	Temporary adverse at County level that is significant (Moderate Adverse)
		Temporary noise and visual disturbance will result in birds displacing from their regularly used habitats.	Temporary adverse effect at County level – Significant.	Details to be confirmed following review of data from surveys to be undertaken and any Proposed Development design changes.	Temporary adverse effect at County level – Significant. (Moderate Adverse)
Bats: Roosting & Activity	Up to County	Habitat loss and/or degradation; Severance of foraging or commuting habitat.	Temporary adverse effect at the County level – Significant.	Details to be confirmed following further survey work.	Temporary adverse effect at the County level – Significant. (Moderate Adverse)
Hazel Dormouse	Up to County	Habitat loss and severance	Temporary adverse effect up to County level – Significant.	Details to be confirmed following further survey work.	Temporary adverse effect up to County level – Significant. (Moderate Adverse)

Receptor	Receptor Importance	Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect
Terrestrial invertebrates	Up to County	Habitat loss or degradation	Temporary adverse effect up to County level – Significant.	Details to be confirmed following further survey work.	Temporary adverse effect up to County level – Significant. (Moderate Adverse)
Notable flora	Up to District	Habitat loss or degradation	Temporary adverse effect up to County level – Significant.	Details to be confirmed following further survey work.	Temporary adverse effect up to County level – significant (Moderate Adverse)
Operational Phase					
Birds: Breeding	County	Temporary fluctuations in water level within Daventry Reservoir and Drayton Reservoir is likely to result in changes in the availability of suitable bird nesting, roosting and foraging habitats	Temporary adverse effect at County level – Significant.	Details to be confirmed following review of desktop data and any Proposed Development design changes.	Temporary adverse effect at County level – Significant. (Moderate Adverse)

Table 24-23: Summary of impacts and likely significance of residual effects for terrestrial ecology – Part 4a

Receptor	Receptor Importance	Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect
Construction Phase					
Veteran Trees	National	Possible loss of one Veteran tree.	Permanent adverse effect at the National level – Significant.	Design of the Proposed Development to be reviewed. Any required mitigation will include a bespoke, suitable compensation strategy.	Permanent adverse effect at the National level – Significant. (Major Adverse)
Birds: Breeding and Non-breeding	Up to County	Permanent loss of bird nesting, roosting and foraging habitats.	Permanent adverse effect at up to County level – Significant.	Details to be confirmed in the ES following review of data from surveys to be undertaken and any Proposed Development design development.	Permanent adverse effect at up to County level – Significant. This will be reviewed for the ES. (Moderate Adverse)
		Temporary noise and visual disturbance will result in birds displacing from their	Temporary adverse effect at up to County level – Significant.	Details to be confirmed in the ES following review of data from surveys to be undertaken and any Proposed	Temporary adverse effect at up to County level – Significant. (Moderate Adverse)

Receptor	Receptor Importance	Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect
		regularly used habitats.		Development design changes.	
Bats Roosting & Activity	Up to County	Habitat loss and/or degradation. Severance of foraging or commuting habitat.	Permanent adverse effect at the County level that is Significant	To be confirmed following further survey work.	Permanent adverse effect at the County level – Significant. (Moderate adverse – Significant)
Hazel Dormouse	Up to County	Habitat loss and/or degradation; Permanent loss of hedgerow Severance of habitat pending any habitat reinstatement and/or creation.	Permanent adverse effect at the County level – Significant.	Details to be confirmed following further survey work.	Permanent adverse effect at the County level – Significant. (Moderate Adverse)
Water vole	Up to District	Habitat loss and fragmentation.	Temporary adverse effect at the District level – Significant.	Details to be confirmed in the ES. Water vole mitigation strategy. Protected species licence may be required to displace water voles during works	Temporary adverse effect at the District level – Significant. (Moderate Adverse)

Table 24-24: Summary of impacts and likely significance of residual effects for terrestrial ecology – Part 4b

Receptor	Receptor Importance	Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect
Construction Phase					
Non-statutory designated sites: Eggington Fields CWS, A5 (T) Roadside WC, The Pond Near Buttermilk Wood BNS	County	Habitat loss until re-instatement after works – considered permanent under precautionary principle	Permanent adverse at the County level – Significant.	Details to be confirmed in the ES.	Permanent adverse at up to the County level – Significant. (Moderate Adverse)
Ancient woodland: Slough Wood ASNW; Roundwood ASNW	National	Potential habitat loss	Permanent adverse up to National level – Significant.	Routing of the pipeline to avoid woodland and 15 m protection zone. Details to be confirmed in the ES.	Permanent adverse up to National level – Significant. (Major Adverse)
Deciduous woodland	County	Partial habitat loss and fragmentation of habitat particularly at Chaul End. Habitat reinstatement post construction.	Permanent adverse effect up to County level – Significant.	Details to be confirmed following further surveys to confirm quality and condition. Micro-siting to avoid impact. Enhancement of retained habitat parcel at Chaul End	Permanent adverse effect up to County level - Significant (Moderate Adverse)

Receptor	Receptor Importance	Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect
				to improve resilience to pressures.	
Traditional orchards	County	Partial habitat loss. Indirect impacts during construction which will be controlled by application of the measures included in the Outline CEMP.	Permanent adverse effect up to County level – Significant.	Details to be confirmed in the ES. Design to avoid impacts.	Permanent adverse effect up to County level – Significant (Moderate Adverse)
GCN	Up to County	Impacts to ponds and habitats	Permanent adverse effect up to County level – Significant	Details to be confirmed following further survey. in the ES.	Permanent adverse effect up to County level – Significant (Moderate Adverse)
Reptiles	Up to County	Habitat loss and severance until re-instatement	Temporary adverse up to County level – Significant.	Details to be confirmed following further survey.	Temporary adverse up to County level – Significant. (Moderate Adverse)
Birds: Breeding and Non-breeding	Up to County	Temporary loss of bird nesting, roosting and foraging habitats.	Temporary adverse effect at up to County level – Significant.	Details to be confirmed following review of data from surveys to be undertaken and any Proposed	Temporary adverse effect at up to County level – Significant. (Moderate Adverse)

Receptor	Receptor Importance	Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect
				Development design changes.	
		Temporary noise and visual disturbance will result in birds displacing from their regularly used habitats.	Temporary adverse effect at up to County level – Significant.	Details to be confirmed following review of data from surveys to be undertaken and any Proposed Development design changes.	Temporary adverse effect at up to County level – Significant. (Moderate Adverse)
Bats: Roosting & Activity	Up to Regional	Habitat loss and/or degradation; Severance of foraging or commuting habitat. Reduction in habitat until naturally re-established, pending any habitat reinstatement and/or creation.	Temporary adverse effect up to Regional level – Significant.	Details to be confirmed following further survey work.	Temporary adverse effect up to Regional level – Significant (Major Adverse)

Receptor	Receptor Importance	Impact	Effect prior to additional mitigation	Additional Mitigation/ Enhancement	Likely significance of residual effect
Hazel Dormouse	Up to County	Habitat loss and/or degradation; Severance of foraging or commuting habitat. Habitat re-instated post works.	Temporary adverse effect up to the County level – Significant	Details to be confirmed following further survey work.	Temporary adverse effect up to the County level – Significant (Moderate Adverse)
Terrestrial invertebrates	Up to Regional	Habitat loss or degradation until re-instatement	Temporary adverse effect up to Regional level – Significant	Details to be confirmed following further survey work.	Temporary adverse effect up to Regional level – Significant (Major Adverse)
Notable flora	Up to Regional	Habitat loss, degradation, killing of individual plants.	Temporary adverse effect up to Regional level – Significant	Details to be confirmed following further survey work and design development.	Temporary adverse effect up to Regional level – Significant (Major Adverse)

Combined Project-wide Effects

24.3.15 **Table 24-25 to Table 24-29** present the potential combined effects between Proposed Development Part interfaces are identified in **Chapter 13: Ecology – Terrestrial** in PEI Report **Volume 2**.

Table 24-25: Summary of potential combined effects for terrestrial ecology between Parts 1a and 1b

Receptor groups	Potential combined effect?	Significance of combined effects
Designated Sites	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Habitats	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Protected and Notable Species	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
INNS	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

Table 24-26: Summary of potential combined effects for terrestrial ecology between Parts 1b and 2

Receptor groups	Potential combined effect?	Significance of combined effects
Designated Sites	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Habitats	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Protected and Notable Species	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
INNS	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

Table 24-27: Summary of potential combined effects for terrestrial ecology between Parts 2 and 3

Receptor groups	Potential combined effect?	Significance of combined effects
Designated Sites	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Habitats	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Protected and Notable Species	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
INNS	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

Table 24-28: Summary of potential combined effects for terrestrial ecology between Parts 2 and 4a

Receptor groups	Potential combined effect?	Significance of combined effects
Designated Sites	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Habitats	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Protected and Notable Species	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
INNS	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

Table 24-29: Summary of potential combined effects for terrestrial ecology between Parts 4a and 4b

Receptor groups	Potential combined effect?	Significance of combined effects
Designated Sites	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Habitats	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Protected and Notable Species	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
INNS	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

Chapter 14: Ground Conditions

Residual Effects

24.3.16 No significant effects were identified in **Chapter 14: Ground Conditions** (PEI Report **Volume 2**) at this stage; however, this is due to further ground investigations taking place and the preparation of a Geotechnical Investigation Report (GIR) and Geotechnical Design Report (GDR) at the ES stage.

Combined Project-wide Effects

24.3.17 **Table 24-30** to **Table 24-33** present the potential combined effects between Proposed Development Part interfaces are identified in **Chapter 14: Ground Conditions** in PEI Report **Volume 2**.

Table 24-30: Summary of potential combined effects for ground conditions between Parts 1a and 1b

Receptor groups	Potential combined effect?	Significance of combined effects
Receptors to Contaminated Land	Yes	The potential for land contamination and the relevant assessment will be undertaken in the ES.

Table 24-31: Summary of potential combined effects for ground conditions between Parts 1b and 2

Receptor groups	Potential combined effect?	Significance of combined effects
Mineral Resources	Yes	Significance of effect is no worse than those reported individually for each Part of the Proposed Development.
Receptors to Contaminated Land	Yes	The potential for land contamination and the relevant assessment will be undertaken in the ES.

Table 24-32: Summary of potential combined effects for ground conditions between Parts 2 and 3

Receptor groups	Potential combined effect?	Significance of combined effects
Mineral Resources	Yes	Significance of effect is no worse than individually reported for each Part of the Proposed Development.
Receptors to Contaminated Land	Yes	The potential for land contamination and the relevant assessment will be undertaken in the ES.

Table 24-33: Summary of potential combined effects for ground conditions between Parts 4a and 4b

Receptor groups	Potential combined effect?	Significance of combined effects
Receptors to Contaminated Land	Yes	The potential for land contamination and the relevant assessment will be undertaken in the ES.

Chapter 15: Human Health

Residual Effects

24.3.18 **Table 24-34** to **Table 24-38** present the significant effects identified in **Chapter 15: Human Health** in PEI Report **Volume 2**.

Table 24-34: Summary of residual effects for human health – Project-wide

Description of impact	Sensitivity of receptor	Nature of effect / geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Operational Phase						
Water availability: Permanent changes in water availability	Medium	Beneficial, Long-term, Regional	Medium	Moderate	None	Moderate Beneficial (Significant)

Table 24-35: Summary of residual effects for human health – Part 1a

Description of impact	Sensitivity of receptor	Nature of effect / geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
Open space, play and leisure: Changes in availability and quality of public areas of open space and	Medium	Adverse, Short-term, Local	Medium	Moderate (Significant)	To be assessed and reported in the ES.	Moderate Adverse (Significant)

Description of impact	Sensitivity of receptor	Nature of effect / geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
recreational walking and cycling routes						

Table 24-36: Summary of residual effects for human health – Part 1b

Description of impact	Sensitivity of receptor	Nature of effect / geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
Healthcare and other social infrastructure: Changes in access to healthcare services and other community facilities • General population	Medium	Adverse, Short-term, Local	High	Moderate (Significant)	To be assessed and reported in the ES.	Moderate Adverse (Significant)
Healthcare and other social infrastructure: Changes in access to healthcare services and other community facilities • Sub-population	High	Adverse, Short-term, Local	High	Major (Significant)	To be assessed and reported in the ES.	Major Adverse (Significant)

Description of impact	Sensitivity of receptor	Nature of effect / geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Open space, play and leisure: Changes in availability and quality of public areas of open space and recreational walking and cycling routes	Medium	Adverse, Short-term, Local	Medium	Moderate (Significant)	To be assessed and reported in the ES.	Moderate Adverse (Significant)
Transport modes, access and connections: Changes in vehicles on the local road network and public transport • General Population	Medium	Adverse, Short-term, Local	Medium	Moderate (Significant)	To be assessed and reported in the ES.	Moderate Adverse (Significant)
Transport modes, access and connections: Changes in vehicles on the local road network and public transport • Sub-Population	High	Adverse, Short-term, Local	Medium	Moderate (Significant)	To be assessed and reported in the ES.	Moderate Adverse (Significant)
Noise and vibration: Changes in construction noise and vibration and road traffic noise	Medium	Adverse, Short-term, Local	Medium	Moderate (Significant)	To be assessed and reported in the ES.	Moderate Adverse (Significant)

Table 24-37: Summary of residual effects for human health – Part 2

Description of impact	Sensitivity of receptor	Nature of effect / geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
Open space, play and leisure: Changes in availability and quality of public areas of open space, canal towpaths and recreational walking and cycling routes	Medium	Adverse, Short-term, Local	Medium	Moderate (Significant)	To be assessed and reported in the ES.	Moderate Adverse (Significant)
Noise and vibration: Changes in construction noise and vibration and road traffic noise	Medium	Adverse, Short-term, Local	Medium	Moderate (Significant)	To be assessed and reported in the ES.	Moderate Adverse (Significant)
Landscape and visual amenity: Changes in visual amenity of public areas of open space, active travel walking, canal towpath and cycling routes	Medium	Adverse, Short-term, Local	Medium	Moderate (Significant)	To be assessed and reported in the ES.	Moderate Adverse (Significant)
Housing: Changes to housing need and provision. Changes in access to residential properties	High	Adverse, Short-term, Local	Medium	Moderate (Significant)	None	Moderate Adverse (Significant)

Table 24-38: Summary of residual effects for human health – Part 4b

Description of impact	Sensitivity of receptor	Nature of effect / geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
Noise and vibration: Changes in construction noise and vibration and road traffic noise	Medium	Adverse, Short-term, Local	Medium	Moderate (Significant)	To be assessed and reported in the ES.	Moderate Adverse (Significant)
Social participation, interaction and support. Changes to opportunities for community participation and interaction, and for social and family support. • Sub-population	Medium	Adverse, Short-term, Local	Medium	Moderate (Significant)	To be assessed and reported in the ES.	Moderate Adverse (Significant)

Combined Project-wide Effects

24.3.19 **Chapter 15: Human Health** (PEI Report **Volume 2**) does not provide a separate assessment for combined effects between Proposed Development Parts, as these are provided in the separate technical chapters (**Chapter 8: Air Quality and Odour**; **Chapter 9: Carbon**; **Chapter 10: Climate**; **Chapter 16: Landscape and Visual**; **Chapter 19: Noise and Vibration**; **Chapter 20: Socio-economics**; **Chapter 21: Traffic and Transport**; and **Chapter 22: Water Environment and Flood Risk**) in PEI Report **Volume 2**, and also provided in this chapter where there is potential for combined effects to occur.

Chapter 16: Landscape and Visual

24.3.20 **Table 24-39** to **Table 24-42** present the significant effects identified in **Chapter 16: Landscape and Visual** in PEI Report **Volume 2**.

Table 24-39: Summary of significant residual effects for landscape and visual – Part 1b

Receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
Viewpoint 6: PRow off Dexter Lane	Medium	Long-term temporary noticeable change to the composition of the view	Medium	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (Significant)
Viewpoint 7: Roadside Gateway off Twenty One Oaks	Medium	Long-term temporary noticeable change to the composition of the view	Medium	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (Significant)
Operational Phase (Year 1)						
Viewpoint 7: Roadside Gateway off Twenty One Oaks	Medium	Long-term noticeable change to the composition of the view	Medium	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (Significant)

Table 24-40: Summary of significant residual effects for landscape and visual – Part 2

Receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
Viewpoint 9: Canal Farm Bridge (no.24) near Canal Farm over the Coventry Canal	High	Long-term temporary prominent change to the composition of the view	Medium	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (significant)
Viewpoint 10: Coventry Canal Towpath, Eastern Edge of Hawkesbury Village	High	Long-term temporary prominent change to the composition of the view	Medium	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (significant)
Viewpoint 11: Wyken Arm Junction Bridge over the Oxford Canal	Medium	Long-term temporary prominent change to the composition of the view	High	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (significant)
Viewpoint 12: Ansty Bridge (no.14) over the Oxford Canal	High	Long-term temporary noticeable change to the composition of	Medium	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (significant)

Receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
		the view				
Viewpoint 13: Colehurst Lane adjacent to Grimes Bridge (no.26) over the Oxford Canal	High	Long-term temporary prominent change to the composition of the view	High	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (significant)
Viewpoint 14: Burtons Bridge (no.71) along The Locks over the Oxford Canal	High	Long-term temporary prominent change to the composition of the view	Medium	Moderate adverse (significant)	The potential for the reduction of vegetation removed during the construction stage. Although not confirmed so no change to residual effects identified.	Moderate adverse (significant)
Viewpoint 19: Canal Lock at George Lane, Grand Union Canal	High	Long-term temporary prominent change to the composition of the view	High	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (significant)
Viewpoint 22: Junction of Rural Lane off the A508	Medium	Long-term temporary prominent	High	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (significant)

Receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
and Farm Track		change to the composition of the view				
Viewpoint 23: Towpath near Canal Lock at Cosgrove Marina, Western Edge of Cosgrove	High	Long-term temporary prominent change to the composition of the view	High	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (significant)
Viewpoint 24: Towpath along the Grand Union Canal, Eastern Edge of Fenny Stratford	High	Long-term temporary prominent change to the composition of the view	Medium	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (significant)
Operation Phase (Year 1)						
Viewpoint 10: Coventry Canal Towpath, Eastern Edge of Hawkesbury Village	High	Long-term prominent change to the composition of the view	Medium	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (significant)
Viewpoint 13: Colehurst Lane adjacent to	High	Long-term prominent change to the	High	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (significant)

Receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Grimes Bridge (no.26) over the Oxford Canal		composition of the view				
Viewpoint 14: Burtons Bridge (no.71) along The Locks over the Oxford Canal	High	Long-term prominent change to the composition of the view	Medium	Moderate adverse (significant)	The potential for the reduction of vegetation removed during the construction stage. Although not confirmed so no change to residual effects identified.	Moderate adverse (significant)

Table 24-41: Summary of significant residual effects for landscape and visual – Part 3

Receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
Viewpoint 16: PRow off Osprey Drive, Western Edge of Daventry Country Park	Medium	Long-term temporary prominent change to the composition of	High	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (significant)

Receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
		the view				
Viewpoint 17: Daventry Reservoir Embankment, Northern Edge of Daventry Country Park	High	Long-term temporary prominent change to the composition of the view	Medium	Moderate adverse (significant)	No additional mitigation identified at this stage	Moderate adverse (significant)

Table 24-42: Summary of significant residual effects for landscape and visual – Part 4b

Receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
Viewpoint 27: PRoW near Fox Farm Equestrian	High	Long-term temporary noticeable change to the composition of the view	Medium	Moderate adverse (significant)	No additional mitigation identified at this stage, but will be reviewed for the ES.	Moderate adverse (significant)
Viewpoint 29: PRoW on Elevated Ground	High	Long-term temporary noticeable	Medium	Moderate adverse	No additional mitigation identified at this	Moderate adverse

Receptor	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
near Eaton Bray		change to the composition of the view		(significant)	stage, but will be reviewed for the ES.	(significant)
Viewpoint 30: PRow off Dunstable Downs Viewpoint	Very High	Long-term temporary noticeable change to the composition of the view	Medium	Moderate adverse (significant)	No additional mitigation identified at this stage, but will be reviewed for the ES.	Moderate adverse (significant)
Viewpoint 31: PRow off Beacon Road	High	Long-term temporary noticeable change to the composition of the view	Medium	Moderate adverse (significant)	No additional mitigation identified at this stage, but will be reviewed for the ES.	Moderate adverse (significant)

Combined Project-wide Effects

24.3.21 **Table 24-43** to **Table 24-47** present the potential combined effects between Proposed Development Part interfaces are identified in **Chapter 16: Landscape and Visual** in PEI Report **Volume 2**.

Table 24-43: Summary of potential combined effects for landscape and visual between Parts 1a and 1b

Landscape receptors	Potential combined effect?	Significance of combined effects
National Character Areas (NCA), Landscape Character Type (LCT) and Landscape Character Area (LCA)	Yes	Significance of effect is no greater than those reported individually for each Part of the Proposed Development.

Table 24-44: Summary of potential combined effects for landscape and visual between Parts 1b and 2

Landscape receptors	Potential combined effect?	Significance of combined effects
NCA, LCT and LCA	Yes	Significance of effect is no greater than those reported individually for each Part of the Proposed Development.

Table 24-45: Summary of potential combined effects for landscape and visual between Parts 2 and 3

Landscape receptors	Potential combined effect?	Significance of combined effects
NCA, LCT and LCA	Yes	Significance of effect is no greater than those reported individually for each Part of the Proposed Development.

Table 24-46: Summary of potential combined effects for landscape and visual between Parts 2 and 4a

Landscape receptors	Potential combined effect?	Significance of combined effects
NCA/ LCT/ LCA	Yes	Significance of effect is no greater than those reported individually for each Part of the Proposed Development.

Table 24-47: Summary of potential combined effects for landscape and visual between Parts 4a and 4b

Landscape receptors	Potential combined effect?	Significance of combined effects
NCA/ LCT/ LCA	Yes	Significance of effect is no greater than those reported individually for each Part of the Proposed Development.

Chapter 17: Major Accidents and Disasters

24.3.22 As explained in **Chapter 17: Major Accidents and Disasters** in PEI Report **Volume 2**, in the absence of sufficient evidence on navigational risks at this stage, no further assessment has been undertaken to inform this PEI Report in relation to boating incidents on the canal network or on Drayton reservoir during the construction and/or operation of the Proposed Development. Therefore, a precautionary approach has been taken, consequently, a likely significant effect in relation to navigation risk during construction and operation on Part 2 and 3 of the Proposed Development could occur. However, it is considered that further information from the Trust and the operators of Drayton reservoir on their processes and procedures for construction and advertisement of new infrastructure to users of the canals and reservoir will identify suitable mitigation measures to ensure that all risks are mitigated as far as reasonably practicable. Further assessment will be undertaken and reported in the ES.

Chapter 18: Materials and Waste

Residual Effects

24.3.23 Table 24-48 presents the significant effects identified in **Chapter 18: Materials and Waste** in PEI Report **Volume 2**.

Table 24-48: Summary of residual effects for materials and waste – Part 1a

Description of effect	Sensitivity of receptor	Nature of effect/ geographic scale	Magnitude of effect	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
Changes in available landfill void capacity (hazardous)	Very high	National	Moderate	Large or Very Large Adverse (Significant)	To be reviewed for the ES as part of the ongoing assessment.	Large or Very Large Adverse (Significant)

Combined Project-wide Effects

24.3.24 **Table 24-49** to **Table 24-51** present the potential combined effects between Proposed Development Part interfaces are identified in **Chapter 18: Materials and Waste** in PEI Report **Volume 2**.

Table 24-49: Summary of potential combined effects for materials and waste between Parts 1a and 1b

Receptor groups	Potential combined effect?	Significance of combined effects
Demand for materials	Yes	Material quantities have been provided for Parts 1a and 1b; however, they are not yet confirmed for Part 2 at this stage. However, the significance of effect is unlikely to be worse than that reported for each individual Part of the Proposed Development.

Landfill void capacity (non-hazardous and hazardous)	Yes	Construction, demolition and excavation quantities have been confirmed for Part 1a and Part 1b, while some quantities for Part 2 are not yet confirmed. However, the significance of effect is unlikely to be worse than that reported for each individual Part of the Proposed Development (Significant for hazardous waste for Part 1a, Not Significant for non-hazardous waste for Part 1a, Part 1b and Part 2).
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Table 24-50: Summary of potential combined effects for materials and waste between Parts 2 and 3

Receptor groups	Potential combined effect?	Significance of combined effects
Demand for materials	Yes	Material quantities are not yet confirmed for Parts 2 and 3. Significance of combined effects will be assessed and reported in the ES where possible, however it is unlikely to be significant.
Landfill void capacity (non-hazardous and hazardous)	Yes	Some waste quantities are not yet confirmed for Part 2 and Part 3. Significance of combined effects will be assessed and reported in the ES, where possible, however it is unlikely to be significant.

Table 24-51: Summary of potential combined effects for materials and waste between Parts 2 and 3

Receptor groups	Potential combined effect?	Significance of combined effects
Demand for materials	Yes	Material quantities are not yet confirmed for Part 2, Part 4a and Part 4b. Significance of combined effects will be assessed and reported in the ES, where possible, however it is unlikely to be significant.
Landfill void capacity (non-hazardous and hazardous)	Yes	Some waste quantities are not yet confirmed for Part 2, Part 4a and Part 4b. Significance of combined effects will be assessed and reported in the ES, where possible, however it is unlikely to be significant.

Chapter 19: Noise and Vibration

Residual Effects

24.3.25 **Table 24-52** to **Table 24-57** present the significant effects identified in **Chapter 19: Noise and Vibration** in PEI Report **Volume 2**.

Table 24-52: Summary of residual effects for noise and vibration – Part 1a

Receptor	Sensitivity of receptor	Description of impact	Nature of effect/ geographic scale	Magnitude of Impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase							
Receptors AWTP_130 and AWTP_131 (as listed in Appendix 19-P1A-1 in PEI Report Volume 4)	Medium	Construction noise impacts on sensitive receptors	Adverse, Direct, Temporary	Moderate	Moderate Adverse (Significant)	To be confirmed at ES stage	To be confirmed in the ES – Likely to be less extensive with fewer significant effects

Table 24-53: Summary of residual effects for noise and vibration – Part 1b

Receptor	Sensitivity of receptor	Description of impact	Nature of effect/ geographic scale	Magnitude of Impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase							
76 receptors (as listed in Appendix 19-P1B-1 in PEI Report Volume 4)	Medium	Construction noise impacts on sensitive receptors	Adverse, Direct, Temporary	Major	Major Adverse (Significant)	To be confirmed at ES stage	To be confirmed at ES stage (likely to be less extensive with fewer significant effects)
87 receptors (as listed in Appendix 19-P1B-1 in PEI Report Volume 4)	Medium		Adverse, Direct, Temporary	Moderate	Moderate Adverse (Significant)		To be confirmed at ES stage (likely to be Minor or Negligible Adverse [Not Significant])
Receptor BPT_006 (as listed in Appendix 19-P1B-1 in PEI Report Volume 4)	Medium	Construction vibration impacts on sensitive receptors	Adverse, Direct, Temporary	Moderate or Major	Moderate or Major Adverse (Significant)	To be confirmed at ES stage	To be confirmed at ES stage (likely to be less extensive with fewer significant effects)

Table 24-54: Summary of residual effects for noise and vibration – Part 2

Receptor	Sensitivity of receptor	Description of impact	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase							
69 receptors (as listed in Appendix 19-P2-1 in PEI Report Volume 4)	Medium	Construction noise impacts on sensitive receptors	Adverse, Direct, Temporary	Major	Major Adverse (Significant)	To be confirmed at ES stage	To be confirmed at ES stage– Likely to be less extensive with fewer significant effects
87 receptors (as listed in Appendix 19-P2-1 in PEI Report Volume 4)	Medium		Adverse, Direct, Temporary	Moderate	Moderate Adverse (Significant)		To be confirmed at ES stage – Likely to be less extensive with fewer significant effects
51 receptors (as listed in Appendix 19-P2-1 in PEI Report Volume 4)	Medium	Construction vibration impacts on sensitive receptors (including canal infrastructure)	Adverse, Direct, Temporary	Moderate or Major	Moderate or Major Adverse (Significant)	To be confirmed at ES stage	To be confirmed at ES stage – Likely to be less extensive with fewer significant effects

Table 24-55: Summary of residual effects for noise and vibration – Part 3

Receptor	Sensitivity of receptor	Description of impact	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase							
Receptors DRO_OUT_01, DRO_OUT_02, DRO_OUT_03, DRO_OUT_04 and DRO_OUT_05 (as listed in Appendix 19-P3-1 in PEI Report Volume 4)	Medium	Construction noise impacts on sensitive receptors	Adverse, Direct, Temporary	Major	Major Adverse (Significant)	Additional mitigation measures such as noise barriers, sensitive site layouts (i.e. locating noisy activities away from receptors), monitoring and use of quieter mechanical plant/processes	To be confirmed at ES stage (likely to be less extensive with fewer significant effects)
Receptors DRO_REF_03, DRO_REF_04, DRO_REF_06, DRO_OUT_06 and DRO_OUT_07 (as listed in Appendix 19-P3-1 in PEI Report Volume 4)	Medium		Adverse, Direct, Temporary	Moderate	Moderate Adverse (Significant)		To be confirmed at ES stage (likely to be less extensive with fewer significant effects)

Table 24-56: Summary of residual effects for noise and vibration – Part 4a

Receptor	Sensitivity of receptor	Description of impact	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase							
Receptor SouthWest_of_A4146_REF_01 (as listed in Appendix 19-P4A-1 in PEI Report Volume 4)	Medium	Direct temporary noise impacts on sensitive receptors	Adverse, Direct, Temporary	Moderate	Moderate Adverse (Significant)	To be determined at ES.	To be confirmed at ES stage– Likely to be less extensive with fewer significant effects

Table 24-57: Summary of residual effects for noise and vibration – Part 4b

Receptor	Sensitivity of receptor	Description of impact	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase							
46 receptors (as listed in Appendix 19-	Medium	Construction noise impacts on	Adverse, Direct, Temporary	Major	Major Adverse (Significant)	To be determined at ES	To be confirmed at ES stage (likely to be less extensive

Receptor	Sensitivity of receptor	Description of impact	Nature of effect/ geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
P4B-1 in PEI Report Volume 4)		sensitive receptors					with fewer significant effects)
49 receptors (as listed in Appendix 19-P4B-1 in PEI Report Volume 4)	Medium		Adverse, Direct, Temporary	Moderate	Moderate Adverse (Significant)		To be confirmed at ES stage (likely to be less extensive with fewer significant effects)

Combined Project-wide Effects

24.3.26 **Table 24-58** presents the potential combined effects between Proposed Development Part interfaces are identified in **Chapter 19: Noise and Vibration** in PEI Report **Volume 2**.

Table 24-58: Summary of potential combined effects for noise and vibration between Parts 1a and 1b

Receptor	Potential combined effect?	Significance of combined effects
AWTP_130	Yes	It is not known whether the works affecting this receptor by Parts 1a and 1b will occur simultaneously. However, if they do, they will not combine to form an effect of greater order than already reported.
AWTP_131	Yes	Combines to a major effect, however it is unknown whether the works will occur simultaneously.
AWTP_132	Yes	Combines to a major effect, however it is unknown whether the works will occur simultaneously.

Receptor	Potential combined effect?	Significance of combined effects
NL_PL_001	Yes	Combines to a major adverse effect, however it is unknown whether the works will occur simultaneously.

Chapter 20: Socio-economics

Residual Effects

24.3.27 **Table 24-59** to **Table 24-61** present the significant effects identified in **Chapter 20: Socio-economics** in PEI Report **Volume 2**.

Table 24-59: Summary of residual effects for socio-economics – Part 1b

Description of effect	Sensitivity of receptor	Nature of effect / geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
Impacts on local and private assets – Land-take at the Outlands	Medium	Adverse, Short-Term, Local	Medium	Moderate Adverse (Significant)	To be reported in the ES.	Moderate Adverse (Significant)
Temporary disruption to PRow access	Medium	Adverse, Short-Term, Local	Medium	Moderate Adverse (Significant)	To be reported in the ES.	Moderate Adverse (Significant)

Table 24-60: Summary of residual effects for socio-economics – Part 2

Description of effect	Sensitivity of receptor	Nature of effect / geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
Impacts on local and private assets -	High	Adverse, short-term, local	Medium	Major Adverse (Significant)	The Applicants will continue to engage with	Major Adverse (Significant)

Description of effect	Sensitivity of receptor	Nature of effect / geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
moorings – Temporary relocation					affected parties and explore options for relocations which minimise disruption to residents.	
Impacts on local and private assets – moorings – Permanent relocation	High	Adverse, permanent, local	High	Major Adverse (Significant)	The Applicants will continue to engage with affected parties and explore options for relocations which minimise disruption to residents.	Major Adverse (Significant)
Impacts on local and private assets – moorings (engaged in commercial activity) – Temporary relocation	Medium	Adverse, Short-Term, Local	Medium	Moderate Adverse (Significant)	To be reported in the ES.	Moderate Adverse (Significant)
Impacts on local and private assets – moorings (engaged in	Medium	Adverse, Permanent, Local	Medium	Moderate Adverse (Significant)	To be reported in the ES.	Moderate Adverse (Significant)

Description of effect	Sensitivity of receptor	Nature of effect / geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
commercial activity)– Permanent relocation						
Impacts on local and private assets – commercial operators and businesses (including marinas) – Direct impacts	Medium	Adverse, Short-Term, Local	Medium	Moderate Adverse (Significant)	To be reported in the ES.	Moderate Adverse (Significant)
Impacts on the use of the canal network as a recreational and leisure resource – Boating	Medium	Adverse, Short-Term, Local	Medium	Moderate Adverse (Significant)	To be reported in the ES.	Moderate Adverse (Significant)
Impacts on the use of the canal network as a recreational and leisure resource – Canoeing, paddleboarding and kayaking	Medium	Adverse, Short-Term, Local	Medium	Moderate Adverse (Significant)	To be reported in the ES.	Moderate Adverse (Significant)
Impacts on the use of the canal network as a recreational and leisure resource – Angling	Medium	Adverse, Short-Term, Local	Medium	Moderate Adverse (Significant)	To be reported in the ES.	Moderate Adverse (Significant)

Description of effect	Sensitivity of receptor	Nature of effect / geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Temporary disruption to canal towpath	High	Adverse, Short-Term, Local	Low	Moderate Adverse (Significant)	To be reported in the ES.	Moderate Adverse (Significant)
Impacts on tourism sector	Medium	Adverse, Short-Term, Local	Medium	Moderate Adverse (Significant)	To be reported in the ES.	Moderate Adverse (Significant)
Impacts on local and private assets – Open space and recreation – Permanent Land-take	Low	Adverse, Permanent, Local	High	Moderate Adverse (Significant)	To be reported in the ES.	Moderate Adverse (Significant)

Table 24-61: Summary of residual effects for socio-economics – Part 4b

Description of effect	Sensitivity of receptor	Nature of effect / geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase						
Impacts on local and private assets – Dunstable Downs Country Park	Medium	Adverse, Short-Term, Local	Medium	Moderate Adverse (Significant)	To be assessed and	Moderate Adverse (Significant)

Description of effect	Sensitivity of receptor	Nature of effect / geographic scale	Magnitude of impact	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
					reported in the ES	
Temporary disruption to PRow access – public bridleways	Medium	Adverse, Short-Term, Local	Medium	Moderate Adverse (Significant)	To be confirmed in the ES	Moderate Adverse (Significant)
Temporary disruption to recreational route access – NCN Route 574	Medium	Adverse, Short-Term, Local	Medium	Moderate Adverse (Significant)	To be confirmed in the ES	Moderate Adverse (Significant)

Combined Project-wide Effects

24.3.28 **Table 24-62** and **Table 24-63** present the potential combined effects between Proposed Development Part interfaces are identified in **Chapter 20: Socio-economics** in PEI Report **Volume 2**.

Table 24-62: Summary of potential combined effects between Parts 1b and 2

Receptor groups	Potential combined effect?	Significance of combined effects
PRowS and canal towpaths	Yes	Through combined effects on the identified PRow and canal towpath, significance of effect are likely to be greater than individual reported for each Part of the Proposed Development; resulting in a Moderate Adverse (Significant) effect. However, the provision of measures such as keeping PRowS and sections of canal towpath open during works (where possible) using temporary railed

Receptor groups	Potential combined effect?	Significance of combined effects
		walkways or short diversions will help reduce to reduce construction effects to Minor Adverse (Not Significant).

Table 24-63: Summary of potential combined effects between Parts 2 and 3

Receptor groups	Potential combined effect?	Significance of combined effects
PRoWs	Yes	Through combined effects on the identified PRoW, significance of effect are likely to be greater than, individual reported for each Part of the Proposed Development; resulting in a Moderate Adverse (Significant) effect. However, by providing measures such as the PRoW being kept open during works using (e.g.) temporary railed walkways or a short diversion, will help reduce the construction effects to Minor Adverse (Not Significant).

Chapter 21: Traffic and Transport

Residual Effects

24.3.29 **Table 24-64** and **Table 24-65** present the significant effects identified in **Chapter 21: Traffic and Transport** in PEI Report **Volume 2**.

Table 24-64: Summary of residual effects for traffic and transport – Part 1b

Receptor	Sensitivity of receptor	Description of effect	Nature of effect/ geographic scale	Magnitude of effect	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase							
Vehicle drivers, passengers, and non-motorised users (NMU)	High	Severance of communities due to temporary road closures and diversions along Coleshill Road (south of Atherstone)	Temporary Adverse Short-term, Local	To be confirmed at ES stage (likely to be High)	To be confirmed at ES stage (likely to be Major)	To be confirmed at ES stage (likely to be Yes)	To be confirmed at ES stage (likely to be Major Significant)
Vehicle drivers, passengers, and NMUs including pedestrians and cyclists	High	Fear and intimidation on and by road users as a result of construction near Atherstone	Temporary Adverse, Short-term, Local	High	Major Adverse (Significant)	To be confirmed at ES stage	Major Adverse (Significant)

Receptor	Sensitivity of receptor	Description of effect	Nature of effect/ geographic scale	Magnitude of effect	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
		residential area, access to Atherstone Golf Club					
Vehicle drivers and passengers	High	Road vehicle driver and passenger delay as a result of construction near Atherstone residential area and access to Atherstone Golf Club	Temporary Adverse, Short-term, Local	To be confirmed at ES stage (likely to be High)	To be confirmed at ES stage (likely to be Major)	To be confirmed at ES stage (likely to be Yes)	To be confirmed at ES stage (likely to be Major Adverse [Significant])

Table 24-65: Summary of residual effects for traffic and transport – Part 2

Receptor	Sensitivity of receptor	Description of effect	Nature of effect/ geographic scale	Magnitude of effect	Initial classification of effect (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Construction Phase							
Vehicle drivers, passengers, and NMUs	To be confirmed at ES stage (likely to be High)	Severance of communities due to temporary road closures and diversions	Adverse Short-term, Local	To be confirmed at ES stage (likely to be Low)	To be confirmed at ES stage (likely to be Moderate Adverse [Significant])	To be confirmed at ES stage (likely to be Yes)	To be confirmed at ES stage (likely to be Minor [Not Significant])

Combined Project-wide Effects

24.3.30 **Table 24-66 to Table 24-69** presents the potential combined effects between Proposed Development Part interfaces are identified in **Chapter 21: Traffic and Transport** in PEI Report **Volume 2**.

Table 24-66: Summary of potential combined effects for traffic and transport between Parts 1a and 1b

Receptor groups	Potential combined effect?	Significance of combined effects
NMUs (including pedestrians, cyclists, amenity users and usual residents)	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development. This conclusion is based on the assumption that there will be minimal cumulative impact on the affected PRoW and footways between the two parts of the Proposed Development. As well as keeping all PRoW and footway to remain accessible as much as possible.
Road vehicle drivers and passengers at M42 Junction 9	Yes	Significance of effect is no worse than those individual reported for each Part of the Proposed Development. This conclusion is based on the minimal level of construction traffic generated by the Proposed Development as well as the rolling basis construction programme.

Table 24-67: Summary of potential combined effects for traffic and transport between Parts 1b and 2

Receptor groups	Potential combined effect?	Significance of combined effects
NMUs (including pedestrians, cyclists, amenity users and usual residents)	Yes	Significance of effect is likely to be greater than those individual reported for each Part of the Proposed Development; resulting in a Moderate Adverse (Significant) effect. However, by providing measures such as PRoW and footways being kept open during works through the use of (e.g.) temporary railed walkways or a short diversion, will help reduce the construction effects to Minor Adverse (Not Significant).
Road vehicle drivers and passengers along Coleshill Road and the surrounding residential streets within Atherstone area	Yes	Significance of effect is likely to be the same as individually reported for each Part of the Proposed Development; resulting in a Major Adverse (Significant) effect. At this stage, there are no identified mitigation measures for the closure of Coleshill Road. However, where practicable, additional measures for the temporary road closure and diversion would be devised at the ES stage.

Table 24-68: Summary of potential combined effects for traffic and transport between Parts 2 and 3

Receptor groups	Potential combined effect?	Significance of combined effects
NMUs (including pedestrians, cyclists, amenity users and usual residents)	Yes	Significance of effect is no worse than those individual reported for each Part of the Proposed Development. This conclusion is based on the assumption that there will be minimal cumulative impact on the affected PRoW and footways between the two parts of the Proposed Development. As well as, keeping all PRoW and footway to remain accessible as much as possible.
Road vehicle drivers and passengers along the A361, particularly at the A361 / Farnborough Drive roundabout	Yes	Significance of effect is no worse than those individual reported for each Part of the Proposed Development. This conclusion is based on the minimal level of construction traffic generated by the Proposed Development as well as the rolling basis construction programme.

Table 24-69: Summary of potential combined effects for traffic and transport between Parts 4a and 4b

Receptor groups	Potential combined effect?	Significance of combined effects
NMUs (including pedestrians, cyclists, amenity users and usual residents) along Galley Lane	Yes	Significance of effect is no worse than those individual reported for each Part of the Proposed Development. This conclusion is based on the assumption that there will be minimal cumulative impact on the affected PRow and footways between the two parts of the Proposed Development. As well as, keeping all PRow and footway to remain accessible as much as possible.
Road vehicle drivers and passengers along Galley Lane, particularly at the A4146 / Galley Lane roundabout	Yes	Significance of effect is no worse than those individual reported for each Part of the Proposed Development. This conclusion is based on the minimal level of construction traffic generated by the Proposed Development as well as the rolling basis construction programme.

Chapter 22: Water Environment and Flood Risk

Residual Effects

24.3.31 **Table 24-70** presents the significant effects identified in **Chapter 22: Water Environment and Flood Risk** in PEI Report **Volume 2**.

Table 24-70: Summary of residual effects for water environment and flood risk – Part 1a

Receptor	Receptor Importance	Description of Effect	Nature of effect / geographic scale	Magnitude of Impact	Initial classification on of effect significance (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
Operational Phase							
<i>Water Resources</i>							
Fish passes in the Rivers Tame and Trent	Very high	Effects of changes in flows on the functionality of fish passes in the Rivers Tame and Trent	Adverse, permanent, regional	Moderate	Highly significant	Further modelling and assessment for the ES.	To be reported in the ES.
<i>Flood Risk</i>							
Existing WwRC, and M42, M6 Toll Road	Very high	Effects on fluvial flood risk	Adverse, Permanent, Regional	Large adverse	Very Highly Significant	Detailed hydraulic modelling currently being developed which will feed into design for flood plain	This will be reported at the ES stage.

Receptor	Receptor Importance	Description of Effect	Nature of effect / geographic scale	Magnitude of Impact	Initial classification on of effect significance (with embedded control)	Additional mitigation, enhancement and/or monitoring	Residual effect significance
						compensation.	

Combined Project-wide Effects

24.3.32 **Table 24-71** to **Table 24-75** presents the potential combined effects between Proposed Development Part interfaces are identified in **Chapter 22: Water Environment and Flood Risk** in PEI Report **Volume 2**.

Table 24-71: Summary of potential combined effects for water environment and flood risk between Parts 1a and 1b

Receptor groups	Potential combined effect?	Significance of combined effects
Surface Water	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Hydromorphology	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Groundwater	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Flood Risk	Yes	An update of the hydraulic modelling is being carried out and the potential for in combination effects will be assessed at ES stage.

Table 24-72: Summary of potential combined effects for water environment and flood risk between Parts 1b and 2

Receptor groups	Potential combined effect?	Significance of combined effects
Surface Water	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Hydromorphology	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Groundwater	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Flood Risk	Yes	An update of the hydraulic modelling is being carried out and the potential for in combination effects will be assessed at ES stage.

Table 24-73: Summary of potential combined effects for water environment and flood risk between Parts 2 and 3

Receptor groups	Potential combined effect?	Significance of combined effects
Surface Water	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Hydromorphology	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Groundwater	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Flood Risk	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

Table 24-74: Summary of potential combined effects for water environment and flood risk on Part 2 and Part 4a

Receptor groups	Potential combined effect?	Significance of combined effects
Surface Water	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Hydromorphology	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Groundwater	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Flood Risk	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

Table 24-75: Summary of potential combined effects for water environment and flood risk on Part 4a and Part 4b

Receptor groups	Potential combined effect?	Significance of combined effects
Surface Water	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Hydromorphology	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Groundwater	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.
Flood Risk	Yes	Significance of effect is no worse than those individually reported for each Part of the Proposed Development.

24.4 Next Steps

- 24.4.1 The preliminary assessments presented in the PEI Report are a snapshot based on the Proposed Development as currently defined and using the environmental information gathered to date. The design of the Proposed Development is ongoing and will continue to be informed by feedback from engagement with stakeholders and the environmental assessment process.
- 24.4.2 Environmental surveys and modelling are also ongoing and will continue to shape the design and any measures required to avoid or reduce significant environmental effects.
- 24.4.3 The final environmental assessment will be reported in the ES that will accompany the DCO application.

24.5 References

- Ref. 1 Institute of Sustainability and Environmental Professionals (ISEP) (2022) A New Perspective on Land and Soil in Environmental Impact Assessment.