10. Summary of likely effects

10.1 Introduction

1.1.1 This Chapter presents the summary of residual effects tables taken from the assessments of environmental effects presented in **Chapter 5 Biodiversity** to **Chapter 9 Long-term Radiological and Non-radiological Impact**.

10.1.1 **Tables 10.1** to **Table 10.4** below provide a summary of the residual effects likely to arise from the Proposed Development on a topic by topic basis.

10.2 Overall summary of effects

Table 10.1 Summary of effects for biodiversity

Receptor and summary of predicted effects	Significance	Summary rationale
Chapter 5 Biodiversity		
Bats *Disturbance due to increased noise and vibration*	**Not significant**	Due to the adherence to normal best-practice construction measures including controls on working hours, it is considered that the changes in noise levels associated with construction site noise and construction traffic noise will have a negligible effect on the integrity of local bat populations.
Bats *Disturbance due to increased light levels*	**Not significant**	Changes to lighting during the Proposed Development will be minor and temporary, and the effect on bats will be negligible. No effect on the integrity of the local bat populations.

Table 10.2 Summary of effects for noise and vibration

Receptor	Receptor sensitivity	Effect duration	Magnitude of impact	Significance
Ty Gwyn Farm	Medium	Temporary	Low	Minor (Not Significant)
Caersaeson	Medium	Temporary	Negligible	Negligible (Not Significant)
Cae Einion Alun	Medium	Temporary	Negligible	Negligible (Not Significant)
Unnamed residential property at OS grid location SH701380	Medium	Temporary	Negligible	Negligible (Not Significant)

Table 10.3 Summary of effects for geo-environmental impacts and surface water quality

Activity	Receptor	Significance	Summary Rationale
Stockpiled demolition materials	People (off site)	Negligible to minor negative (Not significant)	Due to the unlikely likelihood of impact based on compliance with the **Construction and Demolition Environmental Management Plan (CEMP)** and the negligible impact magnitude it is considered that the significance of effect will be negligible to minor negative (not significant).
	Controlled waters (groundwater)	Negligible to minor negative (Not significant)	
	Controlled waters (surface water – Llyn Trawsfynydd)	Negligible to minor negative (Not significant)	
	Controlled waters (surface water – unnamed stream)	Negligible to minor negative (Not significant)	
	Off-site ecology utilising surface water bodies (unnamed stream)	Negligible to minor negative (Not significant)	
	Off-site ecology utilising surface water bodies (Llyn Trawsfynydd)	Negligible to minor negative (Not significant)	

Changes to ground surface cover	People (off site) (excluding effects due to the permitted discharge to Llyn Trawsfynydd via the Diversion Culvert caused by ingestion of, or dermal contact with, contaminants in surface water)	Negligible to minor negative (Not significant)	The Proposed Development is unlikely to effect these receptors and the impact magnitude is negligible based on compliance with the **CEMP** and permitting requirements, it is considered that the significance of effect will be negligible to minor negative (not significant).
	People (off site) (effects due to the permitted discharge to Llyn Trawsfynydd via the Diversion Culvert caused by ingestion of, or dermal contact with, contaminants in surface water)	Negligible to minor negative (Not significant)	The Proposed Development is unlikely to effect these receptors and the impact magnitude is negligible based on compliance with the **CEMP** and investigation of the northern flowpath for groundwater, it is considered that the significance of effect will be negligible to minor negative (not significant).
	Controlled waters (groundwater)	Minor negative (Not significant)	Some localised additional groundwater impact is possible due to mobilisation of legacy radioactive contamination. This will be limited by the environmental monitoring measures, including monitoring of groundwater, in the **CEMP**, therefore it is considered that the significance of

			effect will be minor negative (not significant).
	Controlled waters (surface water – unnamed stream)	Negligible to minor negative (Not significant)	The Proposed Development is unlikely to effect these receptors and the impact magnitude is negligible based on compliance with the **CEMP** and investigation of the northern flowpath for groundwater, it is considered that the significance of effect will be negligible to minor negative (not significant).
	Controlled waters (surface water – Llyn Trawsfynydd)	Minor negative (Not significant)	The Proposed Development is unlikely to effect these receptors and the impact magnitude is negligible based on compliance with the **CEMP** and permitting requirements, it is considered that the significance of effect will be minor negative (not significant).
	Off-site ecology utilising surface water bodies (unnamed stream)	Negligible to minor negative (Not significant)	The Proposed Development is unlikely to effect these receptors and the impact magnitude is negligible based on compliance with the **CEMP** and permitting requirements, it is considered that the

			significance of effect will be negligible to minor negative (not significant).
	Off-site ecology utilising surface water bodies (Llyn Trawsfynydd)	Negligible to minor negative (Not significant)	The Proposed Development is unlikely to effect these receptors and the impact magnitude is negligible based on compliance with the **CEMP** and permitting requirements, it is considered that the significance of effect will be negligible to minor negative (not significant).
Construction vehicles and plant operation	People (off site)	Negligible (Not significant)	Due to the extremely unlikely likelihood and negligible impact magnitude based on measures within the **CEMP** it is considered that the significance of effect will be negligible (not significant).
	Controlled waters (groundwater)	Negligible to minor negative (Not significant)	Due to the unlikely likelihood and negligible impact magnitude based on measures within the **CEMP** it is considered that the significance of effect will be negligible (not significant).
	Controlled waters (surface water – unnamed stream)	Negligible to minor negative (Not significant)	
	Controlled waters (surface water – Llyn Trawsfynydd)	Negligible to minor negative (Not significant)	
	Off-site ecology utilising surface water bodies (unnamed stream)	Negligible to minor negative (Not significant)	

	Off-site ecology utilising surface water bodies (Llyn Trawsfynydd)	Negligible to minor negative (Not significant)	

Summary of effects for Flood Risk and Drainage

The Proposed Development results in no significant impacts in relation to flooding and drainage. The only required mitigation is for the proposed new drainage within the Application Site boundary to be subject to a routine maintenance regime.

Table 10.4 Summary of effects for Long Term Radiological and Non-Radiological Impact

Receptor	Summary of Effect
Doses to People from Future Land Uses	All the estimated future doses to "representative persons" using the land over or in the vicinity of the Proposed Disposals in the long term after release of the site are a small fraction of the background radiation experienced by all people. This includes the doses to any future site occupants.
Human Intrusion	The assessed human intrusion doses, both the doses to the persons undertaking the intrusion (the excavator or driller etc.) and to any persons subsequently affected by the use of any materials taken away, are considered to be acceptable.
Non-Human Biota	The peak dose rates to non-human biota are below all the commonly used dose rate thresholds for harm.
Non-radiological impacts on controlled waters	Two potential "pollutants" were identified as requiring quantitative assessment. These were chromium (VI) and groundwater alkalinity. Both are common issues with demolition arisings used to infill below-ground voids. Calculations have shown that chromium (VI) from concrete demolition arisings poses little likelihood of unacceptable inputs to groundwater or down gradient surface waters. It is not possible to show by calculation that groundwater alkalinity will be always acceptable in the future, because it is not possible at the present time to numerically model certain

	beneficial, naturally occurring chemical effects on concrete demolition materials. However, experience elsewhere on the site indicates that the alkalinity impacts will be acceptable.
Groundwater flows and levels	The pre-development blocking of some drains under the ponds complex buildings could, in theory, have some local impacts on groundwater flows and levels. Locally, the groundwater levels may rise slightly (though remain well below ground level), and some groundwater may flow in different directions (again, only locally). However, it is concluded that there will be no significant changes to the assessed radiological or non-radiological consequences of the Proposed Disposals. There would also be no impact on water resources.