

Appendix 9.3

Scenario 1c: Application 4 & Committed

Schemes: CSM baseline and Construction Phase

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Conceptual Site Model				Baseline Assessment (Following completion of Application 2 remediation)			Construction Phase Assessment (Demolition, Groundworks & Construction Effects)				Impact Assessment		
Source	Pathway	Receptor	Sensitivity	Probability of Complete Linkage	Consequence if Linkage Present	Future Baseline Risk Level	Probability of Complete Linkage	Consequence if Linkage Present	Revised Risk Level	Comments	Effect on Risk	Magnitude of Impact	Significance of Effect
Travis Island: Asbestos (if present) within existing Made Ground / fill materials / buried obstructions / substructure Chemicals of concern associated with existing Made Ground / fill materials Chemicals of concern from spills / leaks from historical uses on site / off site Hazardous ground gases and vapours associated with chemical substances of concern in soil / Made Ground / organic soils. Contaminants associated with former land uses on adjacent sites which are identified in the Committed Developments table.	Dermal contact with and ingestion of contaminants in soil-derived dust and water. Inhalation of contaminants in soil-derived dust and ground gas / vapours derived from volatile contaminants. Inhalation of asbestos fibres.	Groundworkers & construction workers	Medium	Receptor not present.			Low	Medium	Low / Moderate	The contamination status of plots within committed developments is unknown; it has been assumed that contamination levels and mobility is no worse than within the Application 4 / 5 area. Completion of the Application 2 remediation works (source removal) will reduce the likelihood of impact. Mitigation measures will be adopted to reduce the probability of exposure to the identified sources e.g., use of COSHH assessments to prevent or control exposure to hazardous substances associated with construction works and use of appropriate RAMS to a) prevent direct contact, ingestion, dust / asbestos fibre inhalation associated with baseline conditions using PPE, RPE and hygiene best practice; and b) prevent the generation of dust / dispersion of asbestos fibres associated with baseline conditions using water sprays / local exhaust ventilation systems. Dust suppression measures and controls implemented on Site will mitigate the risk of exposure to offsite third-party neighbours. CEMP.	Risk changed due to introduction of receptor	Medium	Minor adverse
		Existing site workers	Medium	Low	Medium	Low / Moderate	Receptor no longer present			-	Risk removed due to removal of receptor	-	-
		Residents of semi-permanent caravan site	Medium	Likely	Medium	Moderate	Receptor no longer present					-	-
		Third-party neighbours	Medium	Low	Medium	Low / Moderate	Low	Medium	Low / Moderate	As above.	Risk increased during works	Medium	Minor adverse
Travis Island: Chemicals of concern associated with existing Made Ground / fill materials Chemicals of concern from spills / leaks from historical uses on site / off site. Contaminants associated with former land uses on adjacent sites which are identified in the Committed Developments table.	Leaching of contaminants in the unsaturated zone to groundwater in underlying aquifers. Migration of contaminated water through preferential pathways such as underground services, pipes and granular material to groundwater in underlying aquifers. Lateral migration of contaminated groundwater with discharge to surface watercourses as base flow. Discharge of contaminants entrained in surface water run-off followed by overland flow and discharge.	Controlled waters – Superficial Aquifers (Secondary A and Secondary undifferentiated Aquifers)	Medium	Likely	Medium	Moderate	Likely	Medium	Moderate	During the Construction Phase remediation will be conducted, and sources of contamination removed. This will ultimately result in long-term, local scale improvements to the quality of ground and surface water.	Temporary increase in risk during works	Medium	Minor adverse
		Controlled waters – Bedrock Aquifers (Secondary B and Principal Aquifers)	Medium	Likely	Medium	Moderate	Likely	Medium	Moderate	No change in contamination conditions are anticipated during the construction works due to the implementation of the CEMP and good site practices.	Temporary increase in risk during works	Medium	Minor adverse
		Controlled waters – Surface waters (River Irk)	High	Low	Medium	Low / Moderate	Low	Medium	Low / Moderate		Temporary increase in risk during works	Medium	Minor Adverse
Application 4 (excluding Travis Island) Asbestos (if present) within existing Made Ground / fill materials / buried obstructions / substructure Chemicals of concern associated with existing Made Ground / fill materials Chemicals of concern from spills / leaks from historical uses on site / off site. Contaminants associated with former land uses on adjacent sites which are identified in the Committed Developments table.	Dermal contact with and ingestion of contaminants in soil-derived dust and water. Inhalation of contaminants in soil-derived dust. Inhalation of asbestos fibres.	Groundworkers & construction workers	Medium	Receptor not present.			Low	Medium	Low / Moderate	The contamination status of plots within committed developments is unknown; it has been assumed that contamination levels and mobility is no worse than within the Application 4 / 5 area. Completion of the Application 2 remediation works (source removal) will reduce the likelihood of impact. Mitigation measures will be adopted to reduce the probability of exposure to the identified sources e.g., use of COSHH assessments to prevent or control exposure to hazardous substances associated with construction works and use of appropriate RAMS to a) prevent direct contact, ingestion, dust / asbestos fibre inhalation associated with baseline conditions using PPE, RPE and hygiene best practice; and b) prevent the generation of dust / dispersion of asbestos fibres associated with baseline conditions using water sprays / local exhaust ventilation systems.	Risk changed due to introduction of receptor	Medium	Minor adverse
		Existing site occupiers	Medium	Receptor not present.			Receptor not present.			Receptor removed on completion of Application 2 works.	Risk removed due to removal of receptor	-	-
		On-site site users at Plots RB01-05 and RB12b	Medium	Receptor not present.			Low	Medium	Low / Moderate	By Q4 2029, the Construction Phase will be completed at Plots RB01-05 and RB12b and it is assumed that shortly after, the plots will be occupied with residents. However, the Construction Phase at the onsite neighbouring Plots RB16 / 17 / 06 / 07 / 10 continues to Q4 2032. As such there is an introduction of a human health receptor at Plots RB01-05 and RB12b during this timescale.	Risk changed due to introduction of receptor	Small	Minor adverse
		Third-party neighbours	Medium	Unlikely	Medium	Low	Unlikely	Medium	Low	Completion of the Application 2 remediation works (source removal) will reduce the likelihood of impact on adjacent site occupiers.	No change	No change	Neutral
	Leaching of contaminants in the unsaturated zone to groundwater in underlying aquifers. Migration of contaminated water through preferential pathways such as underground services, pipes and granular material to groundwater in underlying aquifers.	Controlled waters – Superficial Aquifers (Secondary A and Secondary undifferentiated Aquifers)	Medium	Likely	Medium	Moderate	Likely	Medium	Moderate	Ground investigations have confirmed elevated concentrations of heavy metals (including manganese, nickel, zinc and lead), inorganic compounds (cyanide and ammoniacal nitrogen) and PAH (benzopyrene and fluoranthene) across superficial and bedrock aquifers. As such, contaminant linkages exist and the baseline conditions pose a risk to controlled waters.	No change	No change	Neutral
		Controlled waters – Bedrock Aquifers (Secondary B and Principal Aquifers)	Medium	Likely	Medium	Moderate	Likely	Medium	Moderate	No controlled waters improvements are to be completed as the Application 2 remediation works.	No change	No change	Neutral

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Source	Pathway	Receptor	Sensitivity	Probability of Complete Linkage	Consequence if Linkage Present	Future Baseline Risk Level	Probability of Complete Linkage	Consequence if Linkage Present	Revised Risk Level	Comments	Effect on Risk	Magnitude of Impact	Significance of Effect
	Lateral migration of contaminated groundwater with discharge to surface watercourses as base flow. Discharge of contaminants entrained in surface water run-off followed by overland flow and discharge.	Controlled waters – Surface waters (River Irk)	High	Low	Medium	Low / Moderate	Low	Medium	Low / Moderate	The River Irk has an overall ‘moderate’ WFD classification. Elevated concentrations of heavy metals (mercury and zinc) and PAH (fluoranthene) have been identified at the River Irk (upstream, central and downstream) during ground investigations. No increase in reported concentration downstream of the site was identified, indicating that the site does not currently represent a source of surface water contamination. No controlled waters improvements are to be completed as the Application 2 remediation works.	No change	No change	Neutral
Application 4 (excluding Travis Island) Hazardous ground gases and vapours associated with chemical substances of concern in soil / Made Ground / organic soils Contaminants associated with former land uses on adjacent sites which are identified in the Committed Developments table	Inhalation of ground gas / vapours associated with volatile contaminants.	Groundworkers & construction workers	Medium	Receptor not present			Low	Medium	Low / Moderate	As above.	Temporary increase in risk during works	Medium	Minor Adverse
		Existing site occupiers	Medium	Receptor not present			Receptor not present			It is assumed that the units which are currently occupied in the southern area of Application 4 will be vacated prior to completion of the Application 2 HIF works.	Risk removed due to removal of receptor prior to Application 4.	-	-
		Third-party neighbours	Medium	Unlikely	Medium	Low	Unlikely	Medium	Low	Reported ground gas conditions are unlikely to affect off-site receptors in the current site condition; the Application 2 remediation is not designed to address potential ground gas issues and therefore additional assessment / design mitigation will be carried out.	No change	No change	Neutral

