ID Concern [reg.]	Category / Element	Risk Short Title	Description	Desired Outcome	Current Situation	Proposed Strategy	Cause	Risk Event [uncertainty]	Consequence	Probability	Impact	Score (PxI)	Response	ID	Action	Action Owner	Due Date	Close Date	Manageability	Residual Risk	Risk Owner	Target Review Date	Close Date	Last Review Date / Notes
C00462	T1 Project Scope	Geotechnical Surprise / Ground Conditions	Unforeseen geology or groundwater conditions undermine design assumptions and productivity for tunnelling and shaft works.	Ground risks are understood early with mitigation and contingency aligned to realistic confidence levels. **Could Go Wrong?** Late discovery drives redesign, delay, cost escalation, safety exposure, and claims.	Ground model exists but uncertainty remains until works expose real conditions; interface between investigation and design can drift.	Define ground risk owners; ensure investigation findings are integrated into design; maintain a live ground risk log; set clear escalation triggers; link to schedule risk and contingency.	Incomplete/uncertain ground investigation and interpretation	Actual ground conditions differ materially from assumptions	Rework + delay + cost growth + increased safety risk	4	4 H-1 C-1 Q-1 S-4	16	Mitigate	#1	Define ground risk owners	Winter, David	30Mar26	Open	4	12	Winter, David	16Oct26	Open	01Feb26
														#2	Investigate ground conditions and ensure findings are integrated into the design.	Winter, David	30Mar26	Open						
														#3	Establish and maintain a live ground risk log with clear escalation triggers, and linked to scedule risk and contingency	Winter, David	30Mar26	Open						
C00463	T2 Design / Eng.	Design Maturity Not Reaching Construction-Ready	Design packages fail to reach stable issue-for-construction maturity in time for mobilisation and sequencing.	Design reaches agreed maturity gates with interface definitions locked before mobilisation. **Could Go Wrong?** Design churn causes rework, procurement delay, site stoppages, and interface conflict.	Multiple parties contribute to design; interface definitions can remain ambiguous; maturity gates may be weakly enforced.	Implement design maturity gates; track "open design decisions"; assign interface map ownership; tie design freeze to mobilisation readiness checks.	Unclear design maturity governance and interface ownership	Design remains incomplete/changing at mobilisation points	Disruption + delay + cost escalation + contractual friction	4	4 H-1 C-1 Q-1 S-4	16	Mitigate	#1	Implement design maturity gates	Winter, David	30Mar26	Open	4	12	Winter, David	11Oct26	Open	01Feb26
														#2	Track 'open design decisions'	Winter, David	30Mar26	Open						
														#3	Assign interface map ownership	Winter, David	30Mar26	Open						
														#4	Tie design freeze to mobilisation readiness checks	Winter, David	30Mar26	Open						
C00464	M2 Project Organisation	Interface Ownership Gaps (Multi-Party Delivery)	Risks at package boundaries fall between organisations leading to drift, duplication or unmanaged exposure.	Every interface risk has a nominated cross-package owner and closure plan. **Could Go Wrong?** Interface issues become late surprises; accountability disputes emerge; schedule impacts compound.	Multi-contractor environments create blurred boundaries; interface risks are often "everyone's problem".	Create explicit interface risk register view; assign cross-package owners; weekly interface review of top exposures; escalate decisions early.	Fragmented scope boundaries and unclear interface governance	Interface risks are not actively owned/closed	Late discovery + disputes + schedule/cost impacts	4	4 H-1 C-4 Q-1 S-4	16	Mitigate	#1	Create explicit interface risk register view, with assigned cross-package owners.	Winter, David	31Mar26	Open	4	12	Winter, David	19Sep26	Open	01Feb26
														#2	Establish weekly interface review of top exposures - objective to escalate decisions early.	Winter, David	31Mar26	Open						
C00465	R6 Approvals / Permits / Licenses	Consents / Stakeholder Constraints Delay Works	Permits, access agreements, environmental constraints or community impacts delay enabling works and construction sequencing.	Approvals and constraints are planned, tracked and cleared ahead of need dates. **Could Go Wrong?** Delayed access/consents block critical path activities; re-planning and idle resources inflate costs.	External approvals have long lead times and can change; constraints may be discovered late.	Create approvals tracker aligned to milestones; define lead times; establish escalation route; integrate constraints into schedule and risk reviews.	Stakeholder/permit dependencies not controlled to schedule	Approvals not received by need dates	Start delays + resequencing + cost increase + reputational risk	3	4 H-1 C-1 Q-3 S-1	12	Mitigate	#1	Create approvals tracker aligned to milestones	Winter, David	02Apr26	Open	3	8	Winter, David	24Oct26	Open	01Feb26
														#2	integrate constraints into schedule and risk reviews	Winter, David	02Apr26	Open						
C00466	M4 Project Resourcing	Mobilisation Readiness Failure (Sites/Logistics/Systems)	Sites, compounds, welfare, logistics, communications, and management systems are not ready when delivery ramps up.	Mobilisation is "green" only when readiness criteria are met and evidenced. **Could Go Wrong?** Productivity loss, safety incidents, and avoidable delay during ramp-up.	Mobilisation is often treated as admin; readiness checks may be superficial.	Define readiness checklist; hold mobilisation gate reviews; evidence-based sign-off; link readiness gaps to risks/actions.	Incomplete mobilisation planning and readiness verification	Delivery starts without full readiness	Reduced productivity + safety exposure + early schedule slip	5	4 H-1 C-3 Q-1 S-4	20	Mitigate	#1	Define Readiness Checklist with mobilisation gate reviews and evidence based signoff	Winter, David	02Apr26	Open	3	12	Winter, David	03Oct26	Open	01Feb26
														#2	Link readiness gaps to risks/actions	Winter, David	02Apr26	Open						
C00467	C5 Suppliers / Vendors	Specialist Plant / TBM / Long-Lead Supply Chain Constraints	Specialist equipment procurement, commissioning, maintenance, or spares strategy fails, constraining tunnelling output.	Critical plant is procured, commissioned and supported with spares/maintenance plans aligned to production needs. **Could Go Wrong?** Equipment delays or downtime become critical path; cost and programme confidence deteriorate.	Long lead items and specialist supply chains have limited slack; maintenance planning can be optimistic.	Map long-leads; set procurement maturity gates; define spares/maintenance strategy; track commissioning readiness; integrate into schedule risk.	Constrained specialist supply chain and optimistic readiness assumptions	Plant delivery/commissioning/downtime disrupts production	Schedule slip + cost increase + claims risk	4	5 H-1 C-1 Q-1 S-5	20	Mitigate	#1	Map long lead items in register with procurement maturity gates.	Winter, David	02Apr26	Open	4	15	Winter, David	17Oct26	Open	01Feb26
														#2	Define spares and maintenance stratefy	Winter, David	02Apr26	Open						
														#3	Track commissioning readiness and integrate into schedule risk	Winter, David	02Apr26	Open						
C00468	M1 Project Management	Risk Register Drift (Reporting Over Control)	Risk management becomes a static register update exercise instead of a live control system.	Risk reviews drive ownership, action closure, and measurable reduction in exposure. **Could Go Wrong?** Actions remain open; risks become stale; late surprises increase; leadership loses trust in controls.	Without a strict cadence, registers grow but closure does not happen.	Weekly action closure session; enforce owner/date/evidence rules; escalate stuck items; monthly "Risk Health Snapshot" focusing on trend + closure.	Weak governance rhythm and accountability for closure	Register updates do not translate into mitigation action	Risk exposure persists + late surprises + delivery confidence loss	4	4 H-1 C-3 Q-3 S-4	16	Mitigate	#1	Arrange weekly sessions for action closure, assignment and stagnation.	Winter, David	02Apr26	Open	4	12	Winter, David	24Oct26	Open	01Feb26
														#2	Implement a Risk Health Snapshot focusing on trend and closure.	Winter, David	02Apr26	Open						

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C00469	M1 Project Management	Action Closure Failure (Owners/Authority/Resourcing)	Mitigation actions are not closed due to unclear authority, competing priorities, or insufficient resourcing.	Actions are owned by accountable leads with dates, evidence and escalation routes. / Open actions accumulate; risks remain untreated; programme drift accelerates.	Owners may be nominated but not empowered; actions may be under-resourced.	Define "action owner" vs "support"; set escalation triggers; require evidence of closure; track closure performance metrics.	Lack of empowered ownership and resourcing	Actions repeatedly slip or remain open	Risk exposure persists + delay + cost impacts	3	3	9	Mitigate / S-3		Define escalation triggers for closure.	Winter, David	02Apr26	Open	3	6	Winter, David	19Dec26	Open	01Feb26
															Implement performance metrics.	Winter, David	02Apr26	Open						
C00470	M8 Project Quality	Programme Controls Not Integrated (Risk/Schedule/Change)	Risk, schedule, cost, and change control operate in parallel rather than as one decision cycle.	Integrated controls provide consistent forecasting, early warning, and decision traceability. / Forecasting becomes unreliable; decisions are late; change impacts are underestimated.	Different teams/tools with weak integration; reporting cycles misaligned.	Link key risks to milestones; maintain change-impact mapping; use common reporting cadence; ensure decision log ties to controls.	Siloed controls and misaligned reporting rhythms	Decisions and changes are made without integrated impact view	Surprises + unstable baseline + reduced confidence	4	4	16	Mitigate / S-4		Link risks to key milestones and integrate programme controls into Risk reporting.	Winter, David	02Apr26	Open	4	12	Winter, David	08Aug26	Open	01Feb26
C00471	T4 Construction	Commissioning / Verification Readiness Late	Testing/commissioning sequence, evidence packs, or operational acceptance requirements are not ready near handover.	T&C readiness is planned early with clear evidence requirements and gate criteria. / Late rework and delay at the most expensive project stage; acceptance disputes.	Handover requirements can be treated as "later"; interfaces between construction and operations are complex.	Define T&C readiness gates; map evidence requirements; track readiness actions; include in risk cadence well before handover.	Late definition/control of acceptance evidence and readiness	Commissioning/acceptance delayed or fails first pass	Delay + rework + cost increase + reputational risk	4	4	16	Mitigate / S-4		Define T&C readiness gates.	Winter, David	02Apr26	Open	3	12	Winter, David	19Sep26	Open	01Feb26
															Map and track evidence requirements.	Winter, David	02Apr26	Open						
															Integrate commissioning within risk drumbeat.	Winter, David	02Apr26	Open						