

Delcorp Rail Safety Project Internet Log for Sydney Metro
The Freungs Triangle Cross Next I SWI

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Associated Spring 1-15 Experience Street | Switch Str

	391-423 Pacific Highwa	ays Triangle Crows Nest, NSW ay / 3-15 Falcon Street / 8 Alexander	Street		Control Strategy			Exposed 0	Group Additional Risk Treatment and Response to Control Strategy						,	
Risk Main Event	Impact	Cause	Hazard	Risk Owner	Control Strategy Existing Controls	Risk Control	Risk Assessmen	1		Residua	M Task Owner	Notes and Comments	Action Statement	Timeframe	Status	Action Owner
Ref						Owner	equence of Rate	Publ george	A - Need remedial action	political	ē		Ref.			
							Cons	E P	Note: Employee refers to Sydney Trains and RailCorp staff	Cons						
Demotilion, escavati and consilvation on alse	on Movement of risil turnels acco- altowable tolerances	ending filterword of building load and adjacent ground support and approximation of building load.	Stochast damage to rail turnels and / damage to rail infrastructure	or Deicorp	1. No which submitted with First Particular Diseases 1. Only death with well read the Conference of	Deicorp			Construction Management Plan revoluted by Dythop Motor.		Deicorp	Large design portuents by theme is extended to design of hability institutes of an increase. Limitative of an efficient for hability institutes of an efficient for hability institutes of a commission of the com	11 Orden SMMS received for right selections per to successful right and employed to put to construct the state of all contains and emergency day must be contained to state of all contained to all the period of the contained to all the period of the contained to all the period of the contained to all the period of extrapolated and except to set and exception including beaution and exception and exception to a set and exception including beaution and exception and exception to a set and exception including beaution and exception and exception and exception including beaution and exception and exception including beaution and exception and	Prior to commencement of works. Prior to commencement of works. Prior to commencement of excavation Prior to commencement of excavation	Complete Pending Pending Pending Pending	Dalcorp Dalcorp Dalcorp Dalcorp
					Collectional assessment of a spiraled inpact from derivative, however an examine and application of building just based on procession desirated from procession desirated sensitives of the second of the secon	Delve Underground			Submission of grades from all this manifestion report and protectional assessment imports to Sydney Machine for independent received assessment imports to Sydney Machine for independent received. This result of a received interest of the section assessed with the second of the section assessed with the second of the section of the section assessed with the second of the section and the second of the section assessed with the second of the section assessed with the section as the second of the section as the section as the second of the section as th		Delcorp	Section 3.2 of the CRSP are taken that if all demellion works are to be understand in accordance with NSI O'Comments Conf. of Placetic Demiciliary Was 2019. Longian Perform (DIT) Report on Charakterian Investigation Nov. 1 dement 16 Approxime 2019. Longian Perform (DIT) Report on Charakterian Investigation Nov. 1 dement 16 Approxime 2019. Consciously and the Confedence and Proposition Investigation (Proposition Investigation Inv	hased commobine complaint to sign. The control of the control of the control or control of the control or con	Prior to commencement of works	In progress Pending In progress In progress In progress Complete	Douglas Partners Delcorp Delcorp Douglas Partners Delcorp Delcorp Delcorp Geodata Koda
							L4 C5 D	. 44	v	L4 C5	i D	Strategy Review De dand 15 August 2012 procises an undies of the monitoring strategy. Vision contemps decommend strategies location, enclosing beganness and tigge stress (high supplement shares) associated requirement for mentions corresponding beganness and tigge stress (high seal field and corresponding professional strategies and to access pressure 2014 for the contemps of t	1.12 Make arrangements for access to install convey prisms in rail bornel.	Prior to commencement of works	In progress	
					16. Contributes review of functions conjugar et along days; 11. Inspection of accessing fine and review of doing to regular stated measured against proficios reviewed for earlier stated for the set from the fine and reviewed doing to set from threads mentaled in the Proceedings of the contribute of the set	Douglas Partners			S. Submission of alle relatedon system structural drawings to Sydney Malto for		Deicorp	OF I beneficial Considerated Machining Plan (1900, Rev.) a date of 3 May 2000 commission discourant land surjected for each active plans. References in male follow Underground confideration and Machining shallowing a series and activities (1900 plans) that Machining Plans. Out 19 plans of Braumy 1900 of 1900 plans of 19	1.13 Underdake initial and progressive turnal dilagidation surveys	As directed by Turnel Structural	In progress	Douglas Pamters
					 Location of protection reserves around turnels shown on afte retartion system structural drawings. Excussion sequence documented in site reteriors system notes on structural drawings. Excussion involves and detailed excussion levels shown on after reteriors system structural drawings. 	abo Constultanta Earthworx			nodes.			Static survey diservings and sick Constitution size insection desirings allow footborn of breed production searces. Requirement for calculationate of light and ground and tools colorised occurrent color consumers for the colorise search of the colorise search of the colorise search of the colorise colorise of the c	Develop Work Method Statement, ITPs and submit for review.	Engineer Prior to commencement of excavation	Pending	Eartwoox
					25. But execution with and desired execution was for fundations recognise into Work Method Statement and The Statement and The Statement and The Statement S	Project			Specialists of intermediates debths and handles usedness to Surbay Mahro.		Deirom	Service 7.7 of the Service Makin Territorial Criticipus annaises the teneral discensar flavoral (a seath to	Submit details of survey prisms to be installed in turnel linings.	Prior to installation of prisers	Complete	Geordata Kryta
					So througe producted to conference location of an internet and examents. Lectural of advantaged in models to the largest approximate season and conferred by regular production seasons a season to conferred by program of the conference and the desired by the conference and the c	Project Surveyor (Surface) Geodata Koda (Turnels)			Schemister of informeration facility and baseline an edings is Spilery Mans. Rudmission of progressive monitoring readings to Spilery Mans.			Section 1.2 of the Springs Melon Technolous Calcidations requires his require Assessment Required (required formed the Springs date of Melonican cassary) has extend the distribution subsequent of select the automating ground. Cold Melondrings Frequencies and Tiggers I events Dessing 10: DLV 5468-0633-001 Revision—4 Virtually and the Springs of Sp	1.15 Irodal survey prisons is not branch and progressively on shoring wall as 1.15 Careful processed and underlied business surveys. 1.16 Escholar branch or sharing monitoring weaks to Sydney Metro. 1.17 1.17	Prior to commencement of works Prior to commencement of works. Prior to baseline surveys.	Pending Pending Pending	Project Surveyor (Surface) Geodate Koda (Tunnets) Delcorp Project Surveyor (Surface) Geodate Koda (Tunnets)
	Crisic relation and I or propag in all tunnel lining or joint with passage	gation Excessive deformation of nall turnel lining cross	Formation of joining crack patterns (or crack patterns and tunnel liming construction joint) nesulting in isolated concrete blocks	Deicorp	In this date progressive conditions surveys of all further inchrinkens and progressive conditions are progressive for the form of the progressive surveys and an area of the progressive surveys and an area of the progressive surveys of all furthers. Included connectors in markines all surveys surveys and passion between consorting passion. Included connectors in markines all surveys since an appeal to between consorting passion. Constitution and the progressive surveys are passion between consorting passion. Constitution and the progressive surveys are passion between consorting passion.	Delve Underground	L5 C5 C) 44	Submission of an Exercic continuous points in Sylveys Motion. Submission of the seal state of the resident assessment to Sylvey Malor for The seal for a condition revery of the seal burnels and measurement of crock criteria seasoned otherwise a Stop World exceedance for any monitoring parameter occurs.	L5 C5	Deicorp D	Indicate 2 of the Epiricy Mean T-food of disclores requires to large Assessment Report to Viction in septil the introduce stated of the producted face modeling federated to Collectional Management and exclored bullets for an included assessment on understanding to consider on the Management and exclored bullets for an included assessment on understanding to the consideration of the control of the state of the control of the state of the control of the state of the state of the control of the control of the state of the control o	1.16 Distretion extent of crasking in conjunction with hashine survey and momitted crasks for morehizing (in partialfield), solid label self-refull, which label self-refull, solid label self-refull, solid label self-refull, solid label self-refull self-refu	Prior to finalisation of monitoring Prior to finalisation of monitoring Regime.	Pending ey: Pending Complete	Douglas Partners Deicorp Delve Underground Deicorp
	Ingress of water into rail turning	th Waterlichtness of the nemast response	Dnijngoe pampe gjeveni havelia	Descorp	Mainter and terrel finer consists of occasive panels manufactured and installed under a quality manufactured and installed under a quality manufactured panels separated by gaskets that permit movement. Concrete panels separated by gaskets that permit movement.	Sydney Metro Delve			The need for a condition survey of the net knowsks and measurement of motor		Delve		Determine extent of seepage in conjunction with beseline dilapidation	Prior to commencement of assessment	In propriese	Douglys Parture.
	The same of the sa	ils Waterlightness of the precisit concrete panel joints in mainline rail turnal comprensied as consequence of gasket decompression	Drainage pumps cannot handle additional inflow of groundwater result in flooding of nail tunnets	ing	Existing personnel levels described as not conjunction with generalization and investigation. Existing personnel described as part of the baseline confidence of in all baseline. Visual moretaining of seepangs understaken in conjunction with progressions condition surveys. Real barrants errospositated in waterproof membrane.	Delve Underground Sydney Metro	L5 C5 E	2 44	The need for a condition survey of the nell harvels and measurement of eather ingress assessed whenever a Stop Work exceedance for any monitoring parameter occurs.	L5 C5	Underground		Submit initial and progressive seepage condition surveys to Sydney Metro.	Prior to commencement of excavation	Pending	Deicorp
			Groundwater flows onto electrical equipment resulting in failure of	Deicorp	Esting groundwater levels determined in conjunction with gesterbrised who investigation. Esting seegge determined as part of Initial baseline condition soway of all humans. Votal monitoring of seegge servicines in conjunction with progressive condition surveys.	Delve Underground			The need for a condition survey of the rail turnels and measurement of ender ligrass assessed elementer a Stop Work exceedance for any morehorin parameter occus.		Delve Underground					
2 Franchand	Movement of rail typesh some	action trademate centerbring sits in the second	equipment	or Deiron	Rail turnels encapsulated in waterproof membrane.	Sydney Metro Doubles	L6 C4 E	44	parameter occurs.	LB C4	4 D					
2 Encountered ground conditions were than parameters modelled geolechnical assessment		, , , , , , , , , , , , , , , , , , , ,	Structural damage to rail turnels and / damage to rail infristructure		Contractional model developed from boreviols information with further boundates planned. Execution for lawngring planses the bounded depths or all time intervals nominates in the modeling. Read policy for command first. Read policy for command first command for command first plant on 5 grifting Martin. Initial and progressive condition surveys undertaken.	Douglas Partners	L5 C5 D	4 4	4							
 Construction loads applied to rail turnels 	Movement of rail turnets excel allowable tolerances	eding Loading applied from construction traffic and tower crane to reil tunnels	Compression of gaskets between concrete parels exceeds design limb with potential spalling and ingress of groundwater	Delcorp	Impact of building loads and tower cases assessed in geotechnical modelling. Construction loading across located as far as possible from Systemy Marto turnals.	Delve Underground Delcorp	LS CS C	2 4 4	4			Section 2 of the Systemy Makes Technical Classificies expesses contributions being including based come basing to be fame into considerational composition with the Composition being including based contributions to be determined and robusted in general-rate modelling. The Earlier Physio Starret Combustion Environmental Management Plan dated 21 August 2022 Approach Anticolous to Sala Management Plan. Communication communication on the Public Highway	3.1 Confirm impact of tower crane loading	Prior to commencement of works.	Pending	Delve Underground
												and Alexander Street.				

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Delcory Rail Safely Project Hazard Log for Sydney Metro The Fiveways Triangle Crown Nest, NSW 391-423 Pacific Highway / 3-15 Falcon Street / 8 Alexander Street Na Mentification				Constitution of the Consti		TrinsW Safet		op Additional Risk Treatment and Response to Control Strategy 1	Paristral Dischar							GKA	
Risk Main Event	Impact	Cause	Hazard	Risk Owner	Control orangy Estating Controls	Risk Control Owner	Consequence	Passonger Employees Confractor	A A Need remetted and response to Control Greategy 5 B. Need reviewiscion 5 C. Only cost letter/use action 6 C. Only cost letter/use action 6 Most: Employee refers to Sydney Trains and RailCorp staff	Consequence	Task Owner	Notes and Comments	Action Ref.	Action Statement	Timeframe	Status	Action Owner
4 Agreed work method and procedures not followed	Movement of rail turnels exceeding allowable tolerances	Personnel not inducted into work method	Compression of gaskets between concrete panels exceeds design limits with potential spalling and ingress of groundwater	Векотр	Induction records to be mainfained.		L5 C4 D										
		Personnel inexperienced	Compression of gaskets between concrete panels exceeds design limits with potential spalling and ingress of	Deicorp	Personnel compelancy reviewed prior to commencement.	Deicorp	L5 C4 D	4									
		Inadequate supervision	groundwater Compression of gaskets between concrete panels exceeds design limits with potential spalling and ingress of groundwater	Deicorp	Full time alte supervisor allocated to project. Inspections by afructural engineer and oxolectrical engineer of shoring well construction including	Deicorp abc Consultant	15 C4 D		Surveillance / audit of work activities undertaken by Delcoro to ensure	L5 C4 D	Deicorp	Examples and shoring wall work method, inspection reasonabilities and Hold Points documented on	4.1	Document work method, inspection responsibilities and Hold Points on	Prior to commencement of shoring	Complete	abc Consultant
5 Innerrent vihitation limits	Emassive wheating transmitted to	Rid time construction material and		Deirom	Impactions by structural engineer and geolectrical engineer of shoring wall construction including ground anchors. Hold Poets established. Action Level and Alarm Level established for peak perticle velocity based on shtucturally sound.	Douglas Partners		Ш	Durwällance / audit of work activities understaten by Delocop to ensure documented work methods are being followed and appropriate records generalized. Weekly swenzige maximum and forfrightly graphical reports submitted to Sydney Mateo.		Deicorn	Exercation and shoring wall work method, inspection responsibilities and Held Points documented on abor Consultants Site Retention Notes Drawing No. 500-505 Revision 1 dated 12 November 2024. DLIMostorino Exercatories and Trioner Levels Drawing No. DLY-6466-MMY-001 Revision 4.	51	Document work method, inspection responsibilities and Hold Points on structural drawings. I Indicately accounts assessment construction works and set warning.	works. Prior to commencement of works.	Complete	Accustic Loric
established for work activities		Rail tunnel construction material and condition of tunnets not taken into consideration	Compression of gaskets between concrete panels exceeds design limits with potential spalling and ingress of groundwater		1. Addin. In value and Alami Level satisfables for pask prictic wisotoph based on shockaraly bound 2. Responses to secretions obcommend. 2. Advanced monotology against epipermented by initial works. 3. Advanced monotology against explanation of the shockaral control of		L5 C4 D	4 4 4		L5 C4 D		DU Monitoring Frequencies and Trigger Levels Drawing No. DLV-9466-8033-001 Revision 4 nominates an Action Level for Stemis PPV and an Alarm Level for 20mmb PPV. Those limbs are also specified in the Acoustic Logic Metro Turnel Construction Vibration Management Plan Revision 5 dated 11 April 2025.		Undertake accusific assessment construction works and set warning and stop work limits			
6 Vibration exceeds specified limits	Excessive vibration transmitted to nail tunnel linings and infrastructure	Incorrect plant selected for work activity	Compression of gaskets between concrete panels exceeds design limits with potential spalling and ingress of groundwater	Deicorp		Deicorp	L4 C5 D	4 4 4	Saw out strategic areas to dampen transmission of vibration if required.	L4 C5 D	Deicorp	Proximity working limits for machinery documented in Table 3 of Acoustic Logic Metro Tunnel Construction Vibration Management Plan.	6.1	Inform site staff of responses to vibration warning and stop work.events.	Prior to commencement of works.	Pending	Delcorp
		Plant and equipment working too close to nall turnets	Compression of gaskets between concrete panels exceeds design limits with potential spalling and ingress of groundwater	Deicorp	Sydney Metro maintine tunnel location and plant operational limits form part of also induction.	Deicorp	L4 C5 D	4 4 4									
		Plant and equipment vibration limits incorrectly assessed	Compression of gaskets between concrete panels exceeds design limits with potential spalling and ingress of groundwater	Deicorp	Vibration from plant activities measured on site away from rail turnels to validate assumptions. Vibration loggers installed in rail turnels.	Acoustic Logic	L4 C5 D	4 4 4				DU Proposed Minimum Monitoring Requisements Drawing No. DLV-8486-M01-001 Revision 3 shows plan location of vibration logger in rail turnels.	6.2	Irretall vibration loggers and take baseline readings.	Prior to commencement of works.	Pending	Acoustic Logic
		Oversized elements of demolition materia dropped from height and / or transmission of vibration from hydrautic hammers	groundwater Compression of gaskets between concrete parels exceeds design limits with potential spalling and ingress of groundwater	Deicorp	Demonstration measurement (size protested and implementate). Litatives with accounts employee on equipment and parenissades also of demonstrate to be dropped from a count or employee or equipment and parenissades also of demonstrate to be dropped from the Location of all control communicated and parenissades and extended to the control communicated and extended and protected and communicated and extended and protected and communicated and extended and protected and protected and extended and protected and protecte	Demolition Contractor	L4 C5 D	444	Two way radio used for emergency communication.	L4 C5 D	Demolition Contractor	Demolition Contractor to produce demolition plan.	6.4	Develop demoition plan. Review demoition plan and nominate location of vibration logger if required.	Prior to commencement of demolition Prior to commencement of demolition	Pending Pending	Demolition Contractor Acoustic Logic
		Vibration from passing trains not taken into account	Compression of gaskets between	Deicorp	 Localizen of risi control communicative at project induction. Two way reads communicative at project induction. Two way reads communicative and or energiency shop work alert and procedure communicated at induction. Westion limits from plant adjusted to allow for vibration from passing twins. 	Acoustic Logic							6.6	Communicate location of rail contidor and emergency stop work procedure at induction. Measure vibration from passing teams and adjust warning and stop work limbs.	Prior to commencements of demolition Prior to commencement of works.	Pending Pending	Demolition Contractori Acoustic Logic
7 Multurctioning vibration	Excessive vibration transmitted to rail turnel linings and infrastructure	Communication cable damaged		Deicorp	Equipment inspected when installed Daily remote check that equipment is operational.	Acoustic Logic	L5 C4 D	4 4 4	Failure of vibration monitoring equipment treated as a stop work event.		Deicorp			WOOK IPTIES.			_
montoring equipment		Back up battery not charged when power	Compression of gaskets between concrete panels exceeds design limits with potential spalling and ingress of groundwater Compression of gaskets between concrete panels exceeds design limits	Deicorp	Dally remote check that equipment is operational. Equipment inspected when installed. Dally remote check that equipment is operational.	Acoustic Logic	L5 C4 D	4 4 4	Failure of vibration monitoring equipment treated as a stop work event.	L5 C4 D	Deicorp						
		SMS text message provider has system	with potential spalling and ingress of	Deicorp	Dally remote check that equipment is operational. Equipment inspected when installed. Daily remote check that equipment is operational.	Acoustic Logic	L5 C4 D	4 4 4	Failure of vibration monitoring equipment treated as a stop work event.	L5 C4 D	Deicorp						
8 Vibration intervention	Excessive vibration transmitted to rail turnel linings and infrastructure	failure Person responsible for activating alarm not on site	groundwater Compression of gaskets between concrete parelie screeds design limits with potential spatting and ingress of groundwater Compression of gaskets between concrete parelie screeds design limits with potential spatting and ingress of	Deicorp	Daily remote check that equipment is operational. At least two personnel on site and two Sydney Metro personnel receive SMS text message from vibration monitor.	Acoustic Logic	L5 C4 D	4 4 4		L5 C4 D							4
8 Vibration intervention limits not communicated on site	nail tunnel linings and infrastructure	not on site Failure of two way radio communication		Deicorp		Deicorp	L5 C4 D	4 4 4									4
9 Incorrect vibration levels monitored	Excessive vibration transmitted to nall turnel linings and infrastructure	system	grounsweer Compression of gaskets between concrete parells exceeds design limits with potential spalling and ingress of groundwider Compression of gaskets between concrete parells exceeds design limits	Deicorp	1. Multiple chapting poth available on site. 2. High capting highestics used. 3. Space butleries kept on site. 4. Contract cleaved regularly 1. Vibusion monitor bocated where nominated in the monitoring plan. 2. Vibusion monitor bocated where nominated with the monitoring plan. 4. Vibusion monitor bocated where nominated with the monitoring plan. 5. Vibusion monitor bocated in both monitoring was the provision during during excession and	Acoustic Logic	L5 C4 D	4 4 4									
		Vibration monitoring equipment not located in vicinity of work activity	with potential spalling and ingress of groundwater		Whaten monitors located in both Muton maintine sall turnissis during securation and constitutions. Baseline monitoring undertaken one week prior to commencement of works. Confinance monitoring undertaken until building ground level constructed.		L5 C4 D	4 4 4									
Track-alignment outside of maintenance standards	Speed restrictions and possible track rectification	Removal of existing building basis and ownsyling ground and application of building load	Rail referent operates in a diegraded state	Deicorp	2. Videolor members boarder broth More mether set bromb brond dring recention and 3. Beauthan mortaling receivable mere was byte incommonwement of works. 8. Beauthan mortaling receivable mere was byte incommonwement of works. 1. But beauth based to broad flow. 2. But beauth based to broad flow. 2. Broad problem beauth of problem beauth beauth and or was passage and tradition. 3. Broad problem beauth of problem beauth or broad or was passage at tradition. 3. Broad problem beauth or broad problem beauth or broad mortaling by Deskinsted Engineer.	Delicorp	L5 C5 D	4 4 4	Economic or Sh unification or a record marks according to the incommend monitorine of East Sampon to Signapsy and Sampon to Sampon Tragger for accounts on the Sampon to Signapsy Sampon Tragger for accounts on the conducting with Springs Males and at some measure. Malestrating differentiation lenth have been set by Males Trains Springsy	L5 C5 D	Deicorp	Leading 1.1 of the Spring Mont. Technical Conference spears to be considered by a secretion with Proc. 2007 Technical Monte Springersons Anni Technical Spring Conference Springerson Anni Technical Conference Springerson Anni Technical Conference Springerson Anni Technical Springerson Anni Technical Springerson Anni Marcal Springerson Anni Marcal Ma	10.1	Months Junes reviewed and ridinal discussions with Sydney Mohito of movement at the Junes I have a costed down.	Ongoing	Pending	Geodata Koda
					Surveys undertaken as prescribed and reports provided to the Geolechnical Engineer. Meto Trains Sydney regular maintenance track inspections. Speed restriction introduced by Meto Trains Sydney for sudden movements.	Geodata Koda Metro Trains Sydney											1
		False survey result due to survey prism being attrack by track maintenance personnel or train wheel	Rail network operates in a degraded state	Deicorp	Mount survey prisms clear of train wheel rim.	Geodata Koda	15 C5 D	4.4									\pm
		Measurements do not take into account natural movements and survey tolerances	Rail network operates in a degraded state	Deicorp	Meto Trains Sydney maintenance section advised that works are in progress and that survey primar are not to be disturbed. Review track design to determine operational characteristics. Besalins survey undertaken to establish ambient range of movements within nail tunnel.	Metro Trains Sydney Geodata Koda	16 06 0	4.4									+
		Incorrect track survey or miscalculation of track parameters	Rail network operates in a degraded state	Deicorp	Project Rail Surveyor engaged based on TINSW Assets Management Branch Technically Assured Organisation status.	Deicorp	L5 C5 D	4 4									+
11 Damage to or dislodgement of services in rail tunnels	Disruption to communication and signating, leakage of water and compressed air	Removal of existing building load and overlying ground and application of building load	Rail network operates in a degraded state	Deicorp	Routine Metro Trains maintenance inspections. Meto Trains Sydney maintenance section to be advised that works are in progress.	Metro Trains Sydney	L5 C5 D	4 4 4									
12 Failure of excavation support system	Movement of rail turnels exceeding allowable tolerances	Imadequate design	Compression of gaskets between concrete panels exceeds design limits with potential spalling and ingress of groundwater	Descorp	Design by chartened and experienced origineer based on geotechnical recommendations. Independent variation unsefaciation. Design provided to Geotechnical Engineer for review. Movement limb established and monitored during excavation.	abc Consultanta	L5 C4 D	4				section 2 of the Styling Makes Technical Chaldrines requires a hirring systems to be dregated by a competitive prices on independently whether the qualified prices red to did the Chesterhead New white Styling Makes and has been been been been found to did the Chesterhead New white Styling Makes and has been been been been been been been bee	12.2	Request Sydney Metro to advise if approval of independent verifier is required. Submit shoring design to Geotechnical Engineer for review. Nominate location of survey monitoring prisms together with Action and Alami	Prior to commencement of shoring design. On completion of shoring design. Prior to commencement of excavation	Pending Pending Complete	Deicorp Deicorp abc Consultants
		Failure during installation	Compression of gaskets between concrete panels exceeds design limits with potential spalling and ingress of groundwater	Deicorp	Development of Wich Markod Statements and imspection and Test Plans (TPs) for installation of storing-stall statements. Indication of personnel into Work Milledo Statement. Progressive completion of TPs as work progresses. A school of statement in the Statement. Additional installation but not statement. Additional installation but not such	Earthworx	L5 C4 D		Surveillance / matt of not activities undertaken to ensure documented work methods are being followed and approprists record a generated:	L5 C4 D	Deicorp						
					Construction inspections of shoring system structural elements by designer. Inspection of pile founding material by geotechnical engineer.	abc Consultanta Douglas Partners						Work methods, inspection responsibilities and Hold Points documented on abc Consultants Drawing No 500-005 Site Retention Notes. Work methods, inspection responsibilities and Hold Points documented on abc Consultants Drawing No 500-005 Site Retention Notes.					_
		Support system struck by construction plant	Compression of gaskets between concrete parells exceeds design limits with potential spalling and ingress of groundwater. Damage to rail tarnel lining and passing train shock by drilling equipment.	Deicorp	7. Inspection of pile founding material by geotechnical engineer. 8. Archir installation mortinos by geotechnical engineer. 1. Use of engineering departed with his world on a initial projects. 2. Review of subconteactor Work Method Statement and ITPs.	Deicorp	L5 C4 D	1		+		The same with the same of the	12.4	Review shoring subcontractors Work Method Statement and ITPs.	Prior to commencement of shoring works.	Pending	Deicorp
Shoring place and / or ground support systems not installed at design locations, angles and / or lengths	Penetration of first protection reserve and rail turnel firing	First protection reserve and rail turnel locations not identified corectly or error in setting out	groundwider Densige to noil turned lining and passing train struck by drilling equipment	Deicorp	1. But brand son's as executed dearings and survey dearings referenced during design. 2. Strong just fourthing bean bugster and grows destroyed during seven some seven and seven some seven se	abic Consultanta Project Surveyor Earthworx	L8 C1 C	4 4 4				Startic survey develops and die Corealizates also selection develops alread location of same junctions wasterns. Resignationally located and project and provide an included in continuous continuous continuous continuous control and c	13.1	Gewitty Work Method: Statement and 11Ps for installation of shoring system elements and submit for review.	Prior to commencement of shoring	Pending	Eartwoox
					Lection and region about on stockhold shoring drawings incorported into Work Method Statument and TIPs. 10 Pilling in With depth indicator rands. 11. Exaight of deling sold for ground arthronic conferred. 12. Installation of shoring system sequenced. 13. Installation of shoring system sequenced.							Inserves. Nequivements for exhibitalment of piling and ground archor locations documented on abo Consultants site intention drawings.	13.2	system elements and submit for seview. Nominate proposed piling sig and drilling equipment in WMS.	works. Prior to submission of WMS.	Pending	Earthworx

	The Fiveways	oject Hazard Log for Sydney Met Triangle Crows Nest, NSW 3-15 Falcon Street / 8 Alexander					TINSW Safe	oty Risk Ra	anking									*	
Risk Identification	91-423 Pacific Highway /	3-15 Falcon Street / 8 Alexander	Street		Control Strategy	Ris	sk	Exposed	d Grou	ap Additional Risk Treatment and Response to Control Strategy	Residual	Risk				Ac	tion		
Risk Main Event Ref	Impact	Cause	Mazard	Risk Owner	Existing Controls	Risk Control Owner	Consequence Risk Rating	Pub gue	Confract	a A - Need romadial action E - Need romadial action C - Cody cost effective action C - Cody cost effective action About: Employee refers to Sydney Trains and RailCorp staff	Likethood	Task Own	wner	Notes and Comments	Action Ref.	Action Statement	Timeframe	Status	Action Owner
14 Plooding of excevation	Ingress of water into rail turnels	Exposed escavated surfaces and fractured rock zones	Water penetration through gaskets between mainline rail turnel precast concrete panel joints	Deicorp	But a recomment west shows by or of a transit. Turnels encognished by swingered layer. Ecology drawing sighten with real furnels. Purply mediations on tale.	Deicorp L5	s Cs D	1 4 4	4										
15 Devaderheing of excavation	Movement of rail funnels exceeding allowable tolerances	Destablisation and / or unequal settlemeth of foundation	Rail network operates in a degraded state	Deicop	Mobility of ground water ingress. Pallet transit in makin root material.	Deicorp L5	5 C4 D	1 44	4.4				202 resi	Jacobs of the Docquie Portione Report Constructing Management Prior Portionies Code (Colocus) 2012 (Diel Priorsees) and an international Colocus States that have not be recomplished in smaller, groundwater drawdown will occur selbor the rook with around the parimeter of the site and that coccordingly the diseasons in not expected to impact any surrounding bites.	er.				
16 Access to rall turnels	Exposure to hazerds in rail tunnels	installation of monitoring equipment and inspections	Personnal struck by rail mounted vehicle f electrocution f slip trip fall	Deicop	1. Out of our flow hashing being a consistent with management of the control of	Douglas Purtners Geodata Koda	3 C4 D		4				wor Cor Cor	Consider ten ser complex and submits 1 (b) policy billion on application for pass inserts and exeminates the first continue the Consideration of the Consideration for the Consideration of the Consideration and apply for power obligate and permission to correct to 5 (phry Moto services consideration correct commences without 5 (phry Moto services consideration correct correct commences without 5 (phry Moto services consideration correct corre					
17 Strike of Sydney Metro services located in adjacent streets	Loss of power or back up power to nell infrastructure	Location of services unknown	Rail network operates in a degraded state	Deicorp	Conduct survey of all utility service providers and Council services within and adjacent to the site. Undertake non destructive testing and pot hole exploration where required.	Deicorp L4	C5 D	4.4	4 4				Sur Sep	SureSearch Underground Sentices Utility Locating - Report & Sentice Docket - NEW 09/22 dated 1 September 2023 documents known services.	17.1	Confirm currency of services search,	Prior to commencement of excavation	Pending	Deicorp
18 Project cancelled during course of excavation works	Ingress of water into rail turnels through exposed surfaces and through fractured rock zones	Developer or builder become insolvent	Roal metwork operates in a degraded state	Deicorp	Excavation face stabilised ground archors prior to excavation continuing. Cecural archors have minimum 3 year design life. Confinency plan to seal exposed forticonal surface areas with blinding concrete layer and shotcrate exposed vertical surfaces.	Deicorp L5	5 C6 D	П	4	4			Sec	Section 9.2 of the Sydney Metro Technical Guidelines nominates a 3 year design life for ground nichors.					
19 Stray electrical traction currents emanating from the rail consider	Services and building structure disteriorate	Electrolysis	Conssion of underground metallic flams around the site	Delcop	Deales study of any currents to be undertaken and recommendations made to presiduals impact on holding shouldness and in-ground services. Include recommendations to practical electrolysis in the design.	Control Engineering Delcorp	5 C4 D	4					Sec	Jacobs et de Boconsum Cornel Engineering Electrospin Risa Dashtop Study dated 9 May 2022 Jacobs et de Boconsum Cornel Engineering Electrospin Risa Dashtop Study dated 9 May 2022 Jacobs et de Section (1998) de Sec	19.1	Incorporate electrolysis prevention recommendations into the design.	Prior to completion of design.	Pending	Deicorp
20 Building maintenance	Impact on rail operations	Proximity of building to rail turnels	Roal network operates in a degraded state	Owner's Corporation	Complete separation between building and nal conidor. Maintenance activities understaten from public areas on ground surface. Another points installed to allow absalling or use of swinging stage for cleaning and maintenance.	Deicorp L6	3 C4 D	444	4										

