Appendix A Safety in Design Register

Project Number	276460	Project Name	Brisbane Metro	Revision	3C
Project Particiopants	Brisbane Move, TMR, TransLink, BCC (TfB, TPO, CPO, Asset Services), PV				
Client	Brisbane City Council	Date	19/07/2022		

Hazard ID	Precinct	Location of Risk Exposure	Element	Discipline	Author	Project Phase	Hazard Group	Hazard	Description of Hazard and Risk Exposure	Base Risk Likelihood	Base Risk Severity	Base Risk Score	Control Measure	Initial control measure in phase	Residual Risk Likelihood	Residual Risk Severity	Residual Risk Score	Comment / Further Actions / Evidence	Date Due	Status	Current Responsibility	Date Agreed	Residual Risk Owner	Comment
BM-HA-954	End of Trip	Dutton Park	PUP	Public Utilities Plant	Ahmad Dorani	Operation	Services_Hazards	Electrocution and serious injury.	Risk of cable strikes. Substandard depths for PUP across structures / cable strikes.	Medium	High	High	Design suitable solution to protect cables including concrete encasement or protection slab on top of electrical assets.	Design Phase	Medium	Medium	Medium	Contractor to undertake detailed survey prior to construction to identify all existing infrastructure. Contractor to develop construction strategy which addresses working near live cables.	5/05/2022	Transferred	Designer	5/05/2022	Construction Team	
BM-HA-955	End of Trip	Dutton Park	PUP	Public Utilities Plant	Ahmad Dorani	Maintenance	Services_Hazards	Maintenance access for PUP, parking, pedestrian access	Dangerous situation for maintenance personnel adjacent road and busway.	Medium	Medium	Medium	Maintenance to be considered in the design process including ensuring proposed pits are not in the roadway. Construction procedures to include protection measures between live traffic and construction area that account for sequencing of works, passenger interaction and busway movements	Design Phase	Low	High	Medium	Construction procedures to include protection measures between live traffic and construction area that account for sequencing of works, passenger interaction and busway movements.	5/05/2022	Transferred	Designer	5/05/2022	Construction Team	
BM-HA-956	End of Trip	Dutton Park	PUP	Public Utilities Plant	Ahmad Dorani	Construction	Services_Hazards	Unidentified PUP	Risk of construction workers and general public being exposed to unidentified underground services during construction. If a service is hit there is a risk of explosion, electrocution or loss of connection.	Low	High	Medium	Warning note to be included in relevant design drawings.	Construction Phase	Low	Low	Low	Contractor to undertake their own DBYD request and survey as required to identify all existing services prior to undertaking any excavation activities. Unidentified PUP to be highlighted in the Contractor Briefing. Contractor to undertake a SWMS and Traffic Management plan to ensure there is emergency plan in place if explosion/electrocution happened.	5/05/2022	Transferred	Construction Team	5/05/2022	Construction Team	
BM-HA-957	End of Trip	Dutton Park	PUP	Public Utilities Plant	Ahmad Dorani	Construction	Services_Hazards	Deep PUP excavations	Workers and traffic will be operating in close vicinity to deep excavations during PUP construction. If a service is hit, there is a risk of explosion, electrocution or loss of connection.	Medium	High	High	Design development during detailed design phase will identify the depth of the excavation.	Construction Phase	Low	High	Medium	Undertake monitoring during construction.	5/05/2022	Transferred	Construction Team	5/05/2022	Construction Team	
BM-HA-958	End of Trip	Dutton Park	PUP	Public Utilities Plant	Ahmad Dorani	Construction	Health_Hazards	Trench installation of conduits poses potential risk to public.	Risk of pedestrian trip hazards and falling from heights.	High	Medium	High	Where trenching is undertaken, site to be delineated from surrounding public (adequate signage, barriers and supervision etc.).	Construction Phase	Low	Medium	Low		5/05/2022	Transferred	Construction Team	5/05/2022	Construction Team	
BM-HA-959	End of Trip	Dutton Park	PUP	Public Utilities Plant	Ahmad Dorani	Construction	Health_Hazards	Keeping existing services online during construction (e.g. levels of lighting).	Substandard lighting causes safety issues.	High	Medium	High	Temporary lighting to be provided to illuminate the station when in operation.	Construction Phase	Low	Medium	Low		5/05/2022	Transferred	Construction Team	5/05/2022	Construction Team	
BM-HA-960	End of Trip	Dutton Park	PUP	Public Utilities Plant	Ahmad Dorani	Construction	Services_Hazards	Trenching parallel to existing services	Risk of trenching works de-stabilising adjacent existing services, resulting in a loss of connection.	Medium	Medium	Medium	Design development during detailed design phase to achieve standard clearance from adjacent utilities where possible.	Design Phase	Low	Low	Low	Undertake monitoring during construction.	5/05/2022	Transferred	Designer	5/05/2022	Construction Team	
BM-HA-961	End of Trip	Dutton Park	PUP	Public Utilities Plant	Ahmad Dorani	Construction	Services_Hazards	Undermining, destabilising or damage to existing services during excavation works	Existing services compromised/ damaged	Medium	High	High	Construction sequence to install deeper services first, and shallower services later.	Construction Phase	Low	Medium	Low		5/05/2022	Transferred	Construction Team	5/05/2022	Construction Team	
BM-HA-962	End of Trip	Dutton Park	PUP	Public Utilities Plant	Ahmad Dorani	Construction	Temporary_Works_and_Sequencing_Hazards	Collapse of assets due to earth moving equipment loading	Risk of earth moving machinery for the trenching	Medium	Medium	Medium	Construction team to document construction methodology and install physical protecting measures between services and pile location.	Construction Phase	Low	Medium	Low		5/05/2022	Transferred	Construction Team	5/05/2022	Construction Team	
BM-HA-963	End of Trip	Dutton Park	PUP	Public Utilities Plant	Ahmad Dorani	Construction	Services_Hazards	Shallow cover to PUP	Risk of construction workers and general public being exposed to shallow underground services during construction. If a service is hit there is a risk of explosion, electrocution or loss of connection.	Medium	High	High	Construction team to identify all services prior to construction beginning and have contact details for all asset owners. In developing emergency plan, outline the plan for construction team if explosion/electrocution occurred.	Construction Phase	Low	High	Medium		5/05/2022	Transferred	Construction Team	5/05/2022	Construction Team	
BM-HA-670	End of Trip	Dutton Park	Location wide	Operation	Simon Gregg	Maintenance	Services_Hazards	Maintenance impact on operation of containerised substations.	Impacts on the EOT facility operations during planning maintenance of charging equipment.	Low	Medium	Low	Planned maintenance to occur at out-of-hours or during off-peak times to minimise potential impact on operations.	Design Phase	Low	Low	Low	Maintenance strategy to be coordinated with BCC.	5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-671	End of Trip	Dutton Park	Location wide	Operation	Simon Gregg	Maintenance	Services_Hazards	Maintenance impact on operation of containerised substations.	Impacts on the EOT facility operations during unplanned maintenance of charging equipment.	Medium	High	High	Unplanned maintenance strategy to be incorporated into O&M Strategy/Manual	Design Phase	Medium	Medium	Medium	Maintenance strategy to be coordinated with BCC.	5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-950	End of Trip	Dutton Park	Location wide	Geotechnical	Min Huang	Construction	Temporary_Works_and_Sequencing_Hazards	Stability of piling rig.	Piling on top of embankment which impacts the stability of the piling rig.	Medium	High	High	Contractor to check stability of piling rig during construction.	Construction Phase	Low	High	Medium		5/05/2022	Transferred	Construction Team	5/05/2022	Construction Team	
BM-HA-951	End of Trip	Dutton Park	Location wide	Geotechnical	Min Huang	Construction	Temporary_Works_and_Sequencing_Hazards	Stability of machinery.	Rollover of plant whilst undertaking construction of earthworks embankment.	Medium	High	High	Contractor to ensure safe working procedures (SWMS) to construct embankments.	Construction Phase	Low	High	Medium		5/05/2022	Transferred	Construction Team	5/05/2022	Construction Team	
BM-HA-672	End of Trip	Dutton Park	Location wide	Flooding	Simon Gregg	Operation	Site_Layout_Hazards	Flood impacts to structures	Impacts to containerised substation from flooding.	Medium	High	High	Structural design for fence and elevated platform structure has been developed in accordance with AS5100:2017 flood loading	Design Phase	Medium	Medium	Low	-	5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-725	End of Trip	Dutton Park	Location wide	Fire and Life Safety	Simon Gregg	Operation	Site_Layout_Hazards	Inadequate maintenance and emergency access points.	Inadequate maintenance (including day-to-day maintenance) and emergency access points increase the likelihood of a series injury occurring and impacts emergency response time. Additionally in the event of containerised substation failure, lack of adequate maintenance points could cause major operational delays to the network.	High	High	Extreme	Stage 3 has incorporated appropriate maintenance and emergency access points.	Design Phase	Low	High	Medium	-	5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-729	End of Trip	Dutton Park	Location wide	Environmental	Simon Gregg	Construction	Site_Layout_Hazards	Programme delays due to additional community and stakeholder engagement for the removal of additional trees and vegetation in the park.	Removal of additional trees for formalised maintenance / emergency access paths may not be well received by the community. Impact to community garden beneath bridge will also present the same risk. This could cause programme delays due to the need for additional community and stakeholder engagement.	High	High	Extreme	Design has been developed in consultation with arborists and the maintenance track has been aligned to avoid tree loss.	Design Phase	Low	High	Low	Arborist will be on site during construction.	5/05/2022	Transferred	Designer	5/05/2022	Construction Team	
BM-HA-673	End of Trip	Dutton Park	Location wide	Electrical Systems	Simon Gregg	Maintenance	Services_Hazards	Vehicles colliding with maintenance workers	Vehicles colliding with maintenance workers (Energex servicing RMU unit in car park).	Medium	High	High	Doors of RMU unit to be designed to open away from the road.	Design Phase	Low	Low	Low	-	5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-675	End of Trip	Dutton Park	Location wide	Electrical Systems	Simon Gregg	Maintenance	Confined_Space_Hazards	Confined access to pits feeding containerised substations.	Access to the pits feeding the containerised substations is confined.	Medium	Medium	Medium	Design to consider clearances around pits and inspection chambers.	Design Phase	Low	Low	Low	-	5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-679	End of Trip	Dutton Park	Location wide	Electrical Systems	Simon Gregg	Operation	Public_Hazards	Damage/vandalism of cables going from at-grade level to the bridge.	Vandalism to the ducts feeding the EOT facility will cause major operational delays.	Medium	High	High	Ducts and cables going from at-grade level to the structure to be routed through a vertical riser/cable ladder with appropriate cladding and protective measures.	Design Phase	Low	Low	Low	-	5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-724	End of Trip	Dutton Park	Location wide	Electrical Systems	Simon Gregg	Construction	Temporary_Works_and_Sequencing_Hazards	Maintenance/construction workers installing cable run under Eleanor Schonell Bridge to RMU being struck by bus/metro vehicles.	Installing cables under Eleanor Schonell Bridge puts maintenance/construction workers at risk and could impact bus operations if/when maintenance of this asset is required.	Medium	High	High	Planned installation/maintenance to occur at out-of-hours or during off-peak times to minimise potential impact on operations and to reduce risk of workers being struck by a bus/metro vehicle. Additionally, appropriate traffic management operations to be put in place prior to the commencement of works.	Construction Phase	Low	High	Medium	Consideration of traffic control plan and exclusion zones.	5/05/2022	Transferred	Construction Team	5/05/2022	Construction Team	
BM-HA-726	End of Trip	Dutton Park	Location wide	Electrical Systems	Simon Gregg	Operation	Site_Layout_Hazards	Damage to critical infrastructure (RMU)	Damage to critical infrastructure (RMU) located in the car park will cause major operational delays.	High	High	Extreme	Design to incorporate security bollards around RMU. The RMU is placed adjacent to a low speed environment.	Design Phase	Low	Medium	Low	-	5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-727	End of Trip	Dutton Park	Location wide	Electrical Systems	Simon Gregg	Operation	Public_Hazards	Electrocution causing serious injury or death.	Electrocution causing serious injury or death as a result of insufficient earthing of electrical systems causing earth rise potential, step and touch potential, etc.	High	High	Extreme	The site has been earthed to reduce risk of step, touch and transfer potentials - i.e. Hazardous potentials.	Design Phase	Low	Low	Low	-	5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-728	End of Trip	Dutton Park	Location wide	Electrical Systems	Simon Gregg	Operation	Site_Layout_Hazards	Serious injury or death to public climbing up cable ladders underneath the Eleanor Schonell Bridge.	The cable ladders underneath Eleanor Schonell Bridge may be accessed by the public and be used for climbing. Any falls from height could cause serious injury or death.	High	High	Extreme	Steel sheet provided over the bottom 3m of riser to prevent the public physically climbing onto the ladder.	Design Phase	Low	Low	Low	-	5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-730	End of Trip	Dutton Park	Location wide	Electrical Systems	Simon Gregg	Construction	Site_Layout_Hazards	Maintenance/construction workers installing new conduits and cables in existing pit adjacent to Eleanor Schonell Bridge being struck by bus/metro vehicles.	Installing new conduits and cables in existing pit adjacent to Eleanor Schonell Bridge puts maintenance/construction workers at risk and could impact bus operations if/when maintenance of this asset is required.	Medium	High	High	Planned installation/maintenance to occur at out-of-hours or during off-peak times to minimise potential impact on operations and to reduce risk of workers being struck by a bus/metro vehicle. Additionally, appropriate traffic management operations to be put in place prior to the commencement of works.	Construction Phase	Low	High	Medium	Consideration of traffic control plan and exclusion zones. Ensure that cyclist path is accounted for.	5/05/2022	Transferred	Construction Team	5/05/2022	Construction Team	
BM-HA-668	End of Trip	Dutton Park	Location wide	Construction	Simon Gregg	Construction	Falling_From_Height_Hazard_a	Working at height as part of operations or maintenance activities.	Fall risk during installation of cladding to containerised substations at high level.	Medium	High	High	SWMS to be developed by Contractor for installation of classing including adequate fall protection during construction.	Construction Phase	Low	High	Medium	Safe system of work to be implemented by Contractor on site. Working at heights permit.	5/05/2022	Transferred	Construction Team	5/05/2022	Construction Team	
BM-HA-948	End of Trip	Dutton Park	Location wide	Civil Structures	Lewis Healy	Operation	Site_Layout_Hazards	Trip Hazard	The concrete upstands for future fourth container presents tripping hazard.	Medium	Low	Low	Concrete upstands for fourth container to be left out of the project. Ferrules will be included in the base slab to later fix the concrete upstand in the future.	Design Phase	Low	Low	Low		5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-669	End of Trip	Dutton Park	Location wide	Civil Engineering	Simon Gregg	Operation	Public_Hazards	Electrocution	Unauthorised access to containerised substations.	Medium	High	High	Design of high fence structure with swipe card access around containerised substations to prevent access.	Design Phase	Low	High	Medium	-	5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-952	End of Trip	Dutton Park	Location wide	Environmental	Matt Soldatenko	Construction	Soil_Hazards	Contaminated Soil	Contaminated soils have been identified at the Dutton Park site. Risk of exposure posed to workers undertaking any civil / excavating works.	High	Medium	High	Piles for the architectural fence (noisewall) have mainly been located on embankment fill with limited penetration of existing ground. There is limited excavation for drainage, incoming services and subgrade preparation that could disturb contaminated material.	Construction Phase	Medium	Medium	Medium	Construction to be carried out in accordance with appropriate management plans Refer report BRISMETRO-BRM-GLOENEM00-RPT-000027 for further information regarding contaminated material.	19/07/2022	Transferred	Construction Team	19/07/2022	Construction Team	This construction risk was added post SID workshop.
BM-HA-674	End of Trip	Dutton Park	Location wide	Civil Engineering	Simon Gregg	Maintenance	Site_Layout_Hazards	Safe working area for crane access and use	Construction risks for crane and machinery use maintenance workers when working in heavily vegetated areas, near bridge structure and on sloped gradients.	Medium	Medium	Medium	Maintenance track and crane pad formalised as part of stage 3A	Design Phase	Low	Medium	Low	Maintenance plan to be put in place. Lifting plan to be in place for crane operations. Crane pad to be checked before using.	5/05/2022	Transferred	Designer	5/05/2022	BCC	Residual risk owners TfB / TPO.
BM-HA-676	End of Trip	Dutton Park	Location wide	Civil Engineering	Simon Gregg	Maintenance	Site_Layout_Hazards	Safe access for maintenance workers	Heavy vegetation may encourage antisocial and unwanted behaviour which may undermine the safety of maintenance workers.	Low	High	Medium	CPTED has been considered with Security consultant. CCTV to be reviewed in consultation with BCC. Low level planting has been provided adjacent to the access ramp to avoid people hiding in vegetation. Passive surveillance provided by pedestrians on bridge above.	Design Phase	Low	Medium	Low	CCTV design to be coordinated with BCC (TfB).	5/05/2022	Transferred	Designer	5/05/2022	BCC	Residual risk owners TfB / TPO.
BM-HA-677	End of Trip	Dutton Park	Location wide	Civil Engineering	Simon Gregg	Operation	Public_Hazards	Damage/vandalism of containerised substations.	Damage/vandalism to containerised substations from public throwing objects off Eleanor Schonell Bridge and cycle path east of the substations.	Low	High	Medium	Fence height to be appropriately designed to reduce the risk of objects being thrown from at height. The containers shield critical infrastructure.	Design Phase	Low	Medium	Low	-	5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-678	End of Trip	Dutton Park	Location wide	Civil Engineering	Simon Gregg	Maintenance	Services_Hazards	Safe working area for maintenance of cable tray/ladders for substations.	Cable ladder/tray could be damaged during maintenance due to limited accessibility.	Medium	Medium	Medium	The design has allowed for cable covers to protect cable tray/ladders.	Design Phase	Low	Low	Low	-	5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-703	End of Trip	Dutton Park	Location wide	Civil Engineering	Simon Gregg	Operation	Public_Hazards	Noise from Containerised substation	Noise from Containerised substation to affect adjacent property owners.	Medium	Medium	Medium	Assessed noise mitigation solutions (i.e. perimeter fencing to attenuate noise throughout the site). Solution provided that provides conservative noise attenuation due to lack of meaningful input data.	Design Phase	Low	Low	Low	Noise monitoring will be done before and after installation to assist with potential complaints from community	5/05/2022	Closed	N/A	5/05/2022	N/A	

Safety in Design Register

BRISBANE MOVE

Project Number	276460	Project Name	Brisbane Metro	Revision	3C
Project Particioants	Brisbane Move, TMR, TransLink, BCC (TfB, TPO, CPO, Asset Services), PV				
Client	Brisbane City Council	Date	19/07/2022		

Hazard ID	Precinct	Location of Risk Exposure	Element	Discipline	Author	Project Phase	Hazard Group	Hazard	Description of Hazard and Risk Exposure	Base Risk			Control Measure	Initial control measure in phase	Residual Risk			Comment / Further Actions / Evidence	Date Due	Status	Current Responsibility	Date Agreed	Residual Risk Owner	Comment
										Likelihood	Severity	Base Risk Score			Likelihood	Severity	Residual Score							
BM-HA-945	End of Trip	Dutton Park	Location wide	Civil Engineering	Matt Soldatenko	Operation	Services Hazards	Steep grade up access ramp.	Slip and loss of traction for vehicles driving up ramp due to wet conditions. This will be exacerbated if permeable paver is adopted and grass is not maintained.	Medium	Medium	Medium	Design stipulates slip resistance testing to be performed to meet performance criteria. Maintenance to be incorporated into O&M Strategy/Manual	Design Phase	Low	Medium	Low	Maintenance strategy to be coordinated with BCC.	5/05/2022	Closed	N/A	5/05/2022	N/A	19/7/22: Design updated post SID workshop, to remove permeable paver and go with a concrete option up the ramp. This all but neglaes this risk.
BM-HA-946	End of Trip	Dutton Park	Location wide	Civil Engineering	Matt Soldatenko	Operation	Services Hazards	Fall from top of embankment/ vehicle landing.	Vehicles will park adjacent to main container pad. The embankment is nominally 3m high, with no specific fall protection.	Low	Medium	Low	Timber bollards installed and due to the density of vegetation/planting/landscaping would prevent falling to bottom of earthworks batter.	Design Phase	Low	Low	Low		5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-667	End of Trip	Dutton Park	Location wide	Architecture	Simon Gregg	Maintenance	Falling_From_Height_Hazard s	Working at height as part of operations or maintenance activities.	Fall risk during cleaning and maintenance of cladding to containerised substations at high level.	Medium	High	High	Cladding is approximately 4m high, so most cleaning and maintenance will be possible from ground level. Maintenance strategy to be incorporated into O&M Strategy/Manual.	Design Phase	Low	Low	Low	Maintenance strategy to be coordinated with BCC.	5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-947	End of Trip	Dutton Park	Location wide	Architecture	Nard Buijs	Operation	Site_Layout_Hazards	Moving heavy access gate.	Injury due to contact with moving parts of automated gate.	Medium	High	High	This can be designed out / mitigated with active and passive safety features on the fence / operator.	Design Phase	Low	Medium	Low		5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-949	End of Trip	Dutton Park	Location wide	Architecture	Lewis Healy	Operation	Site_Layout_Hazards	Falling from heights.	No balustrade around elevated walkway on the side of the future fourth container.	Low	Medium	Low	Temporary balustrade has been included on this side of the walkway.	Design Phase	Low	Low	Low		5/05/2022	Closed	N/A	5/05/2022	N/A	
BM-HA-987	End of Trip	Dutton Park	PUP	Public Utilities Plant	Ahmad Dorani	Construction	Site_Layout_Hazards	Impacts to the operation of the busway during construction.	Potential for delays to commuters.	Medium	Medium	Medium	Construction staging to allow or adequate consideration of busway operation	Construction Phase	Low	Low	Low		5/05/2022	Transferred	Construction Team	5/05/2022	Construction Team	
BM-HA-1007	End of Trip	Dutton Park	Building	Civil Structures	Andrew Wood	Maintenance	Site_Layout_Hazards	Lifting in the 4th container in the future	Installing the 4th Container in the future over exising containers and feature wall.	Low	High	Medium	Lifting plans and competent operators to be used	Operational Phase	Low	Low	Low		5/05/2022	Transferred	N/A	5/05/2022	BCC	Residual risk owners TfB / TPO.

Risk Register

141-4248 - Brisbane Metro End of Trip Facilities Phase 2

Work Id	Job / Office Description	Number	Type	Category	Risk	Hazard / Aspect	Consequence / Impact	Unmitigated Risk Probability / Likelihood	Unmitigated Risk Consequence / Impact	Unmitigated Risk Level	Controls	Mitigated Risk Probability / Likelihood	Mitigated Risk Consequence / Impact	Mitigated Risk Level	Monitoring Methods	Owner	Assessment Date	Reviewed By	Reviewed Date	Date Closed
141	4248	RSK-141-4248-00001	Risk	Safety	Mobile Plant	People/plant interface; plant collision; unfit for purpose plant.	Personal injury; plant damage	4	4	16	Plant and Equipment Management COP, Isolation and Tagging Management COP, Training and Competency Management Standard, Vehicle Management Plan, Fitness for Work Management Standard, Project Safety Management Plan, Risk Management Standard, HSEQ Subcontractor Management, WMS General Earthworks, WMS Excavation and Trenching	2	4	8	Audits; Inspections; ABC; Pre-Site Acceptance for Plant; Plant Register; Daily Plant and Equipment Checklist; Plant Assessor, operator skills assessment	Rod McCluskey	30-Mar-2022	Rod McCluskey, Thomas Veitch, Maddy Walkington Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00002	Risk	Safety	Other (Subcontractor Management)	Inexperienced Personnel, Subcontractor Performance	Personal Injury, Plant Property Damage	4	4	16	Project Safety Management Plan, Subcontractor HSE Management Standard, HSEQ Training and Competency Management Standard, Work Method Statements, Plant and Equipment Management COP Isolation and Tag Out Procedure COP, Integrated Project Management Plan, Workplace Relation Management Plan, Project Induction, Competency Verification for operators	2	4	8	Audits; Inspections; ABC; Pre-award Evaluations, Post Evaluations; Contractor Database, Closeout Evaluation. pre-mob and monthly meetings	Vaughan Aujard	30-Mar-2022	Rod McCluskey, Thomas Veitch, Maddy Walkington Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00003	Risk	Safety	Electrocution	Injury or death from electrocution.	Personal injury	3	5	15	Project Safety Management Plan, HSEQ Training and Competency Management Standard, Subcontractor HSEQ Management Standard, Electrical Equipment Management COP, Plant and Equipment COP, Isolation and Tagging COP, Working Near Services COP, WMS Working Near Services, WMS Field Servicing and Maintenance, Service Control Plan including verification of existing services, competent and experienced electrical Subcontractor to carry out electrical works, including follow isolation procedure and test for dead, BMOVE Ground disturbance permits, BMD WNS permit	1	5	5	Audits; Inspections; ABC; Electrical Register, permit review	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Maddy Walkington Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00004	Risk	Safety	Other (Fatigue)	Excessive hours, driving times/distance, shift times / change in shift pattern	Personal Injury, Plant/Property Damage	3	4	12	Risk Management Standards, Fatigue Management Plan', Fitness for Work Management Standard, Journey Management Procedure, Project Safety Management Plan, Chain of Responsibility Management Plan, ensure breaks between change in shift time	1	4	4	Audits; Inspections; ABC; Journey Management Plans, Monitoring Timesheets	Vaughan Aujard	30-Mar-2022	Rod McCluskey, Thomas Veitch, Maddy Walkington Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00005	Risk	Safety	Other (Chain of Responsibility)	Excessive Hours, Dimensions, Mass, Breach of Responsibilities	Breach, Personal Injury, Plant or Property Damage, Financial	3	4	12	Subcontractor HSEQ Management Standard, Project Chain of Responsibility Management Plan, Plant and Equipment COP, Fitness for Work Management Standard, Project Safety Management Plan, Project Fatigue Management Plan, VMPs including designated load and unloading areas, plant/personnel separation	1	4	4	Audits; Inspections; ABC; Heavy Vehicle Checklist, Pre-award Evaluation	Vaughan Aujard	30-Mar-2022	Rod McCluskey, Thomas Veitch, Maddy Walkington Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00006	Risk	Safety	Excavation and Trenching	Trench / excavation collapse; engulfment of persons; plant rollover.	Personal injury; plant damage	4	4	16	Lifting Management COP, Trenching and Excavations COP, Plant and Equipment COP, HSEQ Training and Competency Management Standard, Project Safety Management Plan Project Emergency Response Plan, Project Temporary Works Management Plan, WMS Excavation and Trenching, Experienced subcontractor engaged for works, daily pre-start inspections on plant, Mobile Plant WMS, daily trench inspections	2	4	8	Audits; Inspections; ABC, Operator Skills Assessment and Safe Operating Procedures	Rod McCluskey	30-Mar-2022	Rod McCluskey, Thomas Veitch, Maddy Walkington Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00007	Risk	Safety	Manual Handling	Injury due to manual handling issues.	Personal injury	4	3	12	HSE Training and Competency Standard, Hazardous Manual Handling COP, Plant and Equipment Management COP, Fit for Work Management Standard, Project Safety Management Plan, WMS General Labouring and Manual Handling, Project induction, JHA card for works	2	3	6	Audits; Inspections; ABC; Manual Handling Assessment	Rod McCluskey	30-Mar-2022	Rod McCluskey, Thomas Veitch, Maddy Walkington Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00008	Risk	Safety	Fitness for Work	Workers/staff remove and/or apply the incorrect allocation of controls around hazard	Personal injury; property / plant damage	3	4	12	Fitness for Work Management Standard, Onsite Protocols - Internal Drug and Alcohol Testing, Project Safety Management Plan, Project Fatigue Management Plan, Journey Management Procedure, JHA card for works	1	4	4	Audits; Inspections; ABC; Journey Management Plan, Drug and Alcohol Testing	Vaughan Aujard	30-Mar-2022	Rod McCluskey, Thomas Veitch, Maddy Walkington Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00009	Risk	Safety	Working Near Services	Striking and damaging of services.	Personal injury; property / plant damage	4	5	20	Working Near Services Management COP, Plant and Equipment Management COP, Isolation and Tagging Management COP, Training and Competency Management Standard, Project Safety Management Plan, WMS Working Near Services, Service Control Plan including verification of existing services, BMOVE Ground disturbance permits, and/or BMD WNS permit	1	5	5	Audits; Inspections; ABC; Service Control Plan; Permit reviews; Permit to Work Near Services Register	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Maddy Walkington Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00010	Risk	Safety	Lifting Operation	Lifting Operation or Equipment Failure; Untrained / Incompetent Personnel; Unsuitable Ground Conditions.	Personal Injury; Property / Plant Damage; Load Shift; Exceeding Equipment Working Load Limit or Working Rated Lifting Capacity; Plant Rollover; Uncontrolled Release	4	4	16	Lifting Management COP, Training and Competency Management Standard, Plant and Equipment Management COP, Project Safety Management Plan, WMS Lifting Activities with Load Shifting Equipment, crane lift assessment, lifting equioment test and tag, operator skills assessment, daily plant pre-start inspection, JHA card	2	4	8	Audits; Inspections; ABC; Mobile Crane Checklist, Crane Lift Assessment, Lifting Equipment Register	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Maddy Walkington Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00011	Risk	Safety	Traffic Interface	Access and Egress; Interface with Public; Site People / Plant Interface; Plant Collision.	Personal injury;property / plant damage; Reputational Damage	4	4	16	HSE Training and Competency Management Standard, Traffic Management COP, Plant and Equipment Management COP, Project Traffic Management Plan, Project Safety Management Plan, Project Vehicle Management Plan, WMS Traffic Management (Sub-contractor), approved busway permits and TCPs in place and TCD as per approved plans	2	4	8	Internal / External Audits; Inspections; ABC; Daily Traffic Management Checklist;	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Maddy Walkington Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00012	Risk	Safety	Temporary Works	Work Failure / Collapse / substandard & non-compliant work.	Personal injury; property / plant damage	4	4	16	Formwork and Falsework COP, Project Safety Management Plan, Temporary Works COP, Confined Space COP, WMS General Labouring and Manual Handling, Hazardous Manual Tasks COP, approved temporary works designs (where applicable); ground/geotech inspections	2	4	8	Audits; Inspections; ABC; Temporary Works Coordinator; Confined Space Risk Assessment, Permit to work	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Maddy Walkington Vaughan Aujard	05-Apr-2022	06-Apr-2022

Project Risk Register

Risk Register

141-4248 - Brisbane Metro End of Trip Facilities Phase 2

Work Id	Job / Office Description	Number	Type	Category	Risk	Hazard / Aspect	Consequence / Impact	Unmitigated Risk Probability / Likelihood	Unmitigated Risk Consequence / Impact	Unmitigated Risk Level	Controls	Mitigated Risk Probability / Likelihood	Mitigated Risk Consequence / Impact	Mitigated Risk Level	Monitoring Methods	Owner	Assessment Date	Reviewed By	Reviewed Date	Date Closed
141	4248	RSK-141-4248-00013	Risk	Safety	Other (Emergency Response and Crisis Management)	Critical Event Escalation - Exacerbation of level of Harm to Workforce, Stakeholders, Environment and Commercial Position	Personal Injury; Financial Implications; Environmental Harm; Reputational Damage	3	5	15	Project Safety Management Plan, Project Emergency Response Plan, Crisis Management Standard, Site Set-up and Establishment Guidelines, Project Induction	1	5	5	Audits; Inspections; ABC, Emergency Drills	Vaughan Aujard	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00014	Risk	Safety	Work Environment Exposure	Exposure to Environmental Condition(s) (Heat Stress, Sun Exposure, Dehydration etc.).	Personal injury	3	4	12	Project Safety Management Plan, HSE Training and Competency Standard, Remote or Isolated Work COP, Fitness for Work Management Standard, Project Fatigue Management Plan, WMS General Labouring and Manual Handling, Appropriate site facilities. JHA cards	2	4	8	Audits; Inspections; ABC	Rod McCluskey	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00015	Risk	Safety	Hazardous Chemicals	Use and storage and handling	Personal Injury; Property / Plant Damage; Environmental Damage / Non-Compliance	3	3	9	Project Safety Management Plan, HSE Training and Competency Standard, Hazardous Chemicals Management COP, WMS General Labouring and Manual Handling, Site Set-up and Establishment Guidelines, Project Emergency Response Plan, storage and use as per SDS	2	3	6	Audits; Inspections; ABC	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00016	Risk	Safety	Other (Hot works)	Cutting, Welding, Oxy-Acetylene.	Personal Injury, Fire, Damage to Plant and Property, Engulfment, Explosion.	4	3	12	Project Safety Management Plan, Project Emergency Response Plan, Hot Works Permit, Risk Management Standard, HSEQ Training and Competency Management Standard, WMS Field Servicing and Refuelling, Plant & Equipment COP. WMS Quick Cut Saw, WMS Concreting Activities	3	3	9	Audits; Inspections; ABC; Hot Works Permit review	Rod McCluskey	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00017	Risk	Safety	Other (Mental Stress and Health Impacts)	Worker Mental Health and Wellbeing;	Health and Safety of Workers; Depression; Anxiety	3	3	9	Human Resources Standard, Project Safety Management Plan, Fitness for Work Management Standard, EAP Program	2	3	6	Audits; Inspections; ABC; daily pre-starts	Vaughan Aujard	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00018	Risk	Safety	Other (Vehicle or Plant Recovery)	Incorrect process or equipment failure,	Plant Damage, personnel injury	3	4	12	WMS Vehicle or Plant Recovery, Plant and Equipment COP, Risk Management Standard,	2	4	8	Audits; Inspections; ABC	Rod McCluskey	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00019	Risk	Environment	Flora and Fauna	.	Loss of species; injury / death of fauna	3	4	12	Brisbane Move's Environmental Management Plan; Project Construction Flora and Fauna Management Sub-Plan;pre-clearing inspections and HP approval prior to commencement of clearing, BMOVE vegetation clearing permit, NALL permits for tree pruning/removal	2	4	8	ABC, Inspections; Audits;	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00020	Risk	Environment	Weeds and Pests	Transport of weeds / pests species to / from site	Introduction of weed /pest species impacting on native species / amenity	4	3	12	Brisbane Move's Environmental Management Plan, Project Construction Pest and Weed Management Sub-Plan, Plant and Equipment COP; Soil and Land Management COP, plant inspections and wash down procedures in place; Pre-clearance Checklist, Brisbane Move's Restricted Matter Self Declaration Form	3	3	9	ABC, Inspections; Audits;	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00021	Risk	Environment	Water Quality	Erosion of soil from site during rainfall events; release of contaminants offsite	Pollution of waterways	3	4	12	Brisbane Move's Environmental Management Plan, Project Construction Soil and Water Management Sub-Plan;, Project Erosion and Sediment Control Plan, Water Quality COP, BMOVE dewatering permits, BMOVE EWMS	2	4	8	Inspections and audits against the plans, ABC	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00022	Risk	Environment	Noise	Operation of plant and vehicles onsite - Impact to sensitive receivers through the generation of noise (breach of limits or nuisance).	Nuisance to surrounding community - complaints, damage to hearing	3	3	9	Brisbane Move's Environmental Management Plan, Project Construction Noise and Vibration Management Sub-Plan., appropriate PPE for task, Project induction, BMOVE Out of hours permits, nosie monitoring if required / complaint received	2	3	6	Audits; Inspections; ABC	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00023	Risk	Environment	Air Quality	Operation of plant and vehicles onsite; exposure of soil areas to wind, excessive dust	Nuisance to surrounding community - complaints	3	3	9	Brisbane Move's Environmental Management Plan, Project Safety Management Plan, Project Construction Air Quality Management Sub-Plan; dampen down stockpiles or stabilise if long term, dust supression of access tracks as necessary, clean dirt on public roads/busways	2	3	6	Audits; Inspections; ABC	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00024	Risk	Environment	Waste	Generation of waste	Release of litter into environment; landfill use	3	3	9	Brisbane Move's Environmental Management Plan, Project Construction Waste Management Sub-Plan, minimise waste where possible by accurate procurement, recycle, dispose of waste at correct location (licensed facility where required)	2	3	6	Audits; Inspections; ABC	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00025	Risk	Environment	Contaminated Land	Management of known contaminated areas on site including ASS & PFAS	Release of contaminants to ground / surface water	3	4	12	Brisbane Move's Environmental Management Plan, Project Construction Hazardous and Contaminated Materials Management Plan, Project Asbestos Management COP; BMOVE soil disposal permits and EWMS	2	4	8	Audits; Inspections; ABC	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00025	Risk	Environment	Acid sulfate Soils	Disturbance of actual or potential acid sulfate material	Pollution of waterways; fauna death	3	4	12	Brisbane Move's Environmental Management Plan, Project Construction Hazardous and Contaminated Materials Management Plan, Project Asbestos Management COP; BMOVE soil disposal permits	2	4	8	Audits; Inspections; ABC	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00026	Risk	Environment	Fuel / Oil / Chemicals	Spill from storage and use of fuel/oil/chemicals	Release of contaminants to ground / surface water	4	4	16	Brisbane Move's Environmental Management Plan, , Project WMS General Earthworks; Project WMS Field Maintenance and Refuelling, HSEQ Training and Competency Management Standard (Plant Pre-starts / Pre-site Acceptance Checklist), Project Plant and Equipment COP, Project Hazardous Chemical COP, Project Safety Management Plan; SDS for hazardous substances, ensure spill kits on site are adequately stocked	2	4	8	Audits; Inspections; ABC	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00027	Risk	Safety	Other (Quick Cut Saws)	Quick Cut Saw Use	Personal Injury	3	3	9	HSEQ Training and Competency Management Standard, Mandatory Instruction Quick Cut Saws, (cutting pipes), Hazardous Manual Task COP, WMS Quick Cut Saw, Plant and Equipment COP	2	3	6	Audits; Inspections; ABC	Rod McCluskey	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022

Risk Register

141-4248 - Brisbane Metro End of Trip Facilities Phase 2

Work Id	Job / Office Description	Number	Type	Category	Risk	Hazard / Aspect	Consequence / Impact	Unmitigated Risk Probability / Likelihood	Unmitigated Risk Consequence / Impact	Unmitigated Risk Level	Controls	Mitigated Risk Probability / Likelihood	Mitigated Risk Consequence / Impact	Mitigated Risk Level	Monitoring Methods	Owner	Assessment Date	Reviewed By	Reviewed Date	Date Closed
141	4248	RSK-141-4248-00028	Risk	Safety	Asbestos Exposure	Contact with/exposure to known asbestos material on project site, or discovery of unknown ACMs	Personal illness	2	3	6	Asbestos Management COP, Risk Management Standard, Sub-contractor Management Standard, Task Specific WMS, Project Safety Management Plan, Asbestos Management Plan; licensed contractor to undertake sampling and removal of all ACMs to licensed disposal facility	2	3	6	Audits; Inspections; ABC, testing, sampling	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00029	Risk	Safety	Other (Silica Dust)	Personnel exposure to silica dust sources	Personal illness	3	4	12	Risk Management Standard, Project Safety Management Plan, Project Construction Environmental Management Plan, Project Air Quality Sub-Plan, Task Specific WMS as identified for exposure areas, Mandatory Instruction; water supression, dust extraction, dust monitoring, appropriate PPE including P2 respirator and fit testing for relevant personnel	2	4	8	Audits; Inspections; ABC,	Rod McCluskey	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00030	Risk	Safety	Other (COVID 19)	Contracting and spreading COVID-19 with a work crew	Spreading of virus amongst group and external parties, Site Shut down	3	4	12	COVID Safety Management Plan, Emergency Response Plan, isolate when unwell and notify close contacts	2	4	8	Monitor symptoms	Vaughan Aujard	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00032	Risk	Safety	Other (Night Works)	Lack of visibility, worker fatigue, out of hours works,	Personal Injury, plant damage, slips trips and falls, nusiance to community	3	4	12	Adequate lighting for site and tasks, nightly pre-start and site inspection including traffic control inspection, Busway and out of hours permits in place, TCP and TGS' in place, project and busway induction, PPE including high pants with reflective strips, BMOVE EWMS	2	4	8	Audits; Inspections; ABC	Rod McCluskey	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00034	Risk	Community & stakeholder	Client Relationships, public perception and reputation	Works or personnel behaviour Impact sensetive receptors / stakeholders	Financial Implications; Reputational Damage	3	3	9	ALAN, report all incidents or complaints to BMOVE community team, direct community members to use project Hotline; comply with all work permits, prior notification of upcoming works (via BMVE team); project inductions	2	2	6	Audits; Inspections; ABC	Vaughan Aujard	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00035	Risk	Environment	Severe weather event	Heavy rain or other inclement weather	events lead to site emergency, site closure or evacuation ,damage to plant / personnel	3	4	12	Project safety management plan, emergency response plan, severe weather management plan; regular monitoring of BOM forecasts prior to shift start and long term	2	4	8	Audits; Inspections; ABC	Rod McCluskey	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00036	Risk	Safety	Live busway	Inexperienced Personnel, Subcontractor Performance, changed drving conditions (busway), disruption to busvdrivers walkways	works impact on busway operations; traffic incident, personal injury or plant damage	3	5	15	Busway and out of hours permits in place, TCP and TGS' in place, project and busway inductios completed by all personnel, site inspections including traffic control each shift, advance notification of works via Acciona and Busway permit.	1	5	5	Audits; Inspections; ABC	Rod McCluskey	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00037	Risk	Quality	Rework	Work not done to specification, or defects arise after reopening works areas to traffic	Operational interruptions, time and cost	3	4	12	Follow ITPs, raise any concerns on the shift they arise, detailed shift handovers between staff, check all results prior to switching traffic / subsequent lots.	2	4	8	Audits; Inspections; ABC	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00038	Risk	Safety	Public Interface	Public entering work area	Personal injury or plant/equipment damage	3	4	12	Fencing, locking equipment & facilites out of work hours	2	4	8	Inspection & client notification	Rod McCluskey	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022
141	4248	RSK-141-4248-00039	Risk	Financial	Payment	Payment claims held due to quality documentation not complete on iTWOcx	Financial Implications; Reputational Damage	4	3	12	Follow ITPs, raise any concerns on the shift they arise, detailed shift handovers between staff, check all results prior to switching traffic / subsequent lots	2	4	8	Audits & QA report	Thomas Veitch	30-Mar-2022	Rod McCluskey, Thomas Veitch, Gina Crichton, Vaughan Aujard	05-Apr-2022	06-Apr-2022

Risk Management
Company Standard

RISK MANAGEMENT

Standard

Business Management Systems (BMS) Group

Document No.: HEQ-STD-00005

BMD constructions

BMD urban

Empower ENGINEERS & PROJECT MANAGERS

JMAC CONSTRUCTIONS

urbex

Document Version Control

Revision No.	Revision Date	Details of Revision	Approved By
29	15/12/2020	Update to reflect ISO 45001	Brian Olsen
28	28/05/2020	Addition of COVID-19 to the table in Section 7.1. Addition of Section 11.9 Infectious Disease (COVID-19)	Brian Olsen
27	12/02/2020	Update to Risk Register link in Sections 11.4 and 11.5	Louis Palm
26	17/01/2019	Inclusion of 11.8 Holiday Period Operations	Michael Dixon
25	24/08/2018	Inclusion of 11.7 Risk Based Departure	Michael Dixon
24	12/06/2018	Updates to Sections 11	Michael Dixon
23	17/10/2017	Updates to sections 6, 7, 12.1, 13.1, and 15.	Michael Dixon
22	17/10/2016	Amendments to Table in Section 7 to include Soil Movement Management and Vegetation Clearing.	Michael Dixon
21	29/01/2016	Amends to the following Sections: Section 7.1 Key Hazards and Core Operating Procedures Section 7.5 Delivery / Haulage / Cartage Vehicles Section 11.5.1 Construction Method Statement 11.5.2 Work Method Statement	Michael Dixon
20	20/05/2015	Amendments to Table in Section 7 and Document Owner	Michael Dixon
19	02/04/2015	Changes to Document Permissions	Laureen Constable
18	07/05/2014	Amendment to the wording of Section 11.5.2 Work Method Statement	Laureen Constable
17	26/02/2013	Minor wording corrections to Section 7.3.1	Laureen Constable
16	12/02/2013	Added Appendix 3 Group Risk Register and Feedback process	Laureen Constable
15	12/02/2013	Correction to Section 12	Laureen Constable
14	11/02/2013	Correction to Sections 9.1, 10.2 and 12	Laureen Constable
13	02/10/2012	Minor changes to hyperlinks	Laureen Constable
12	02/08/2012	Minor changes to the order of the reference	Laureen Constable
11	22/07/2012	Metadata amendment	Laureen Constable
10	20/06/2012	Inserted hyperlinks into the Association Documents area	Laureen Constable
9	01/06/2012	Minor changes to the Step 4	Laureen Constable
8	30/04/2012	Minor changes to the references	Laureen Constable
7	26/04/2012	Minor content amendment: Amended last bullet point ('Driving' to 'Diving') in Section 7.1 Key Hazards	Laureen Constable
6	18/04/2012	Minor changes to Risk Assessment Framework	Laureen Constable
5	22/03/2012	Corrected the page numbering in the footer	Laureen Constable
4	22/03/2012	Minor correction to the page numbering in the footer	Laureen Constable
3	17/02/2012	Minor content amendments; hyperlinked the Reference and Associated Documents area. Metadata amendments.	Laureen Constable
2	01/02/2012	Inserted Hyperlinks into 'Reference' area	Laureen Constable
1	22/12/2011	Inclusion into the BMS	Laureen Constable

Table of Contents

1. Purpose

The purpose of this Group Standard is to outline the methodology and process to ensure the 'Hazard Identification, Risk Assessment and Control' (HIRAC) processes are conducted, documented, and are in accordance with the relevant Health and Safety Acts, Regulations, Australian Standards and Codes of Practice.

In addition, provide an outline to assist in the identification assessment and control for risk associated with both environmental and commercial risk (financial, time and quality).

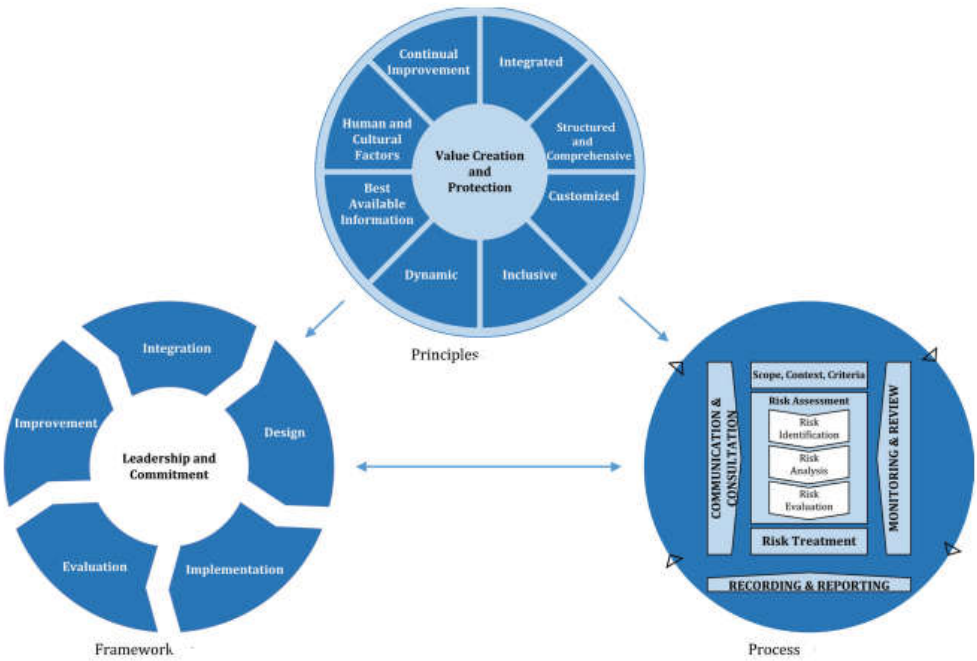
2. Scope

This document encompasses all BMD Group subsidiaries including BMD Constructions; BMD Urban; Empower; JMac Constructions; and, Urbex. This Standard applies to all risk assessment activities occurring in the course of activities associated with BMD operations and BMD Group administrative support. It also applies to plant, workers and subcontractors.

This standard addresses the methodology for assessing risk involved in any of the following phases within the BMD Group operations:

3. Introduction

Managing risk is based on the principles, framework and process outlined in AS ISO 31000:2018 and provides guidance for the efficient, effective and consistent risk management approach further content in this document.



Risk plays an inherent and expected role in the construction process. Construction projects are complex and unique, and by nature carry challenging and diverse risks affected by environmental protection; public safety regulation; economic instability; contractual relations; stakeholder (interested party) communication; design assumptions; site conditions; construction procedures; and, occupational health and safety "physical and psychological".

For the purposes of the AS/NZS ISO14001:2015 Environmental Management System, AS/NSZ ISO9001:2015 Quality Management System Standards AND AS/NSZ ISO45001:2018 Occupational Health and Safety Management Systems, 'Top Management' is defined as 'a person or group of people who direct and control an organisation at the highest level'. For the BMD Group 'Officers of the Company' as described in Section 8.2 HSEQ Leadership Commitment are defined as having responsibilities as 'Top Management'.

3.1. Principles of Risk Management

The principles provide guidance on the characteristics of effective and efficient risk management, communicating the value, intention and purpose of the process through the following:

- Integrated – risk management being an integrated as part of all BMD activities;
- Structured and comprehensive – approach to achieved consistent and comparable results;
- Customised – customised and proportionate framework or process to the BMD internal and external context;
- Dynamic – as risk can emerge, change or disappear, the process should be able to anticipate, detect, acknowledge and respond in an appropriate and timely manner;
- Best available information – should be based upon historical and current information, future expectations while understanding any limitation or uncertainties associated with this information;
- Human and cultural factors – significantly influence all aspects of risk management; and
- Continual improvement – through learning and experience

3.2. Framework for Risk Management

The framework assists in the integrating risk management into significant activities, with the effectiveness depending on governance and decision-making of the organisation which requires support from all stakeholders (especially Top Management).

Top management and oversight bodies (senior management) should ensure that risk management is integrated into all organisation activities and demonstrate leadership and commitment.

Top management is accountable for the management of risk, while oversight bodies (senior management) are accountable for overseeing the risk management process.

This framework consists of the following:

- Integration - Integration of risk management into a dynamic and iterative process forming part of the BMD's organisation & operational purposes, governance, leadership & commitment, strategy and objectives & targets;

- Design – The design of BMD's risk management framework takes into account:
  - Understanding the organisation and context;
  - Articulating risk management commitment;
  - Assigning roles, authorities, responsibilities, accountabilities;
  - Allocation of resources;
  - Communication and consultation;
  - Implementation;
  - Evaluation; and
  - Improvement.

3.3. Risk Management Process

The BMD risk management process provides a systemic approach to the following (this is further broken down in Section 5):

- Communication and consultation – with all relevant stakeholders;
- Scope, context and criteria – defining the scope of the process, understanding the external and internal context;
- Risk assessment – which covers identification, analysis and evaluation;
- Risk Treatment – which cover selection and planning & implementation treatment options;
- Monitoring and review; and
- Recording and reporting.

Note: a comprehensive breakdown of the below is available in AS ISO3100:2018

4. Roles and Responsibilities

The successful development of a proactive risk management culture in the workplace requires:

- Commitment, accountability and leadership;
- Consultation and active participation at all levels;
- An understanding of responsibilities;
- Documented procedures;
- Allocation of appropriate resources; and,
- Ongoing monitoring and evaluation of risks, and processes of control.

The overarching emphasis of risk management is to prevent workplace incidents, physical & psychological injuries, disease and harm to the environment.

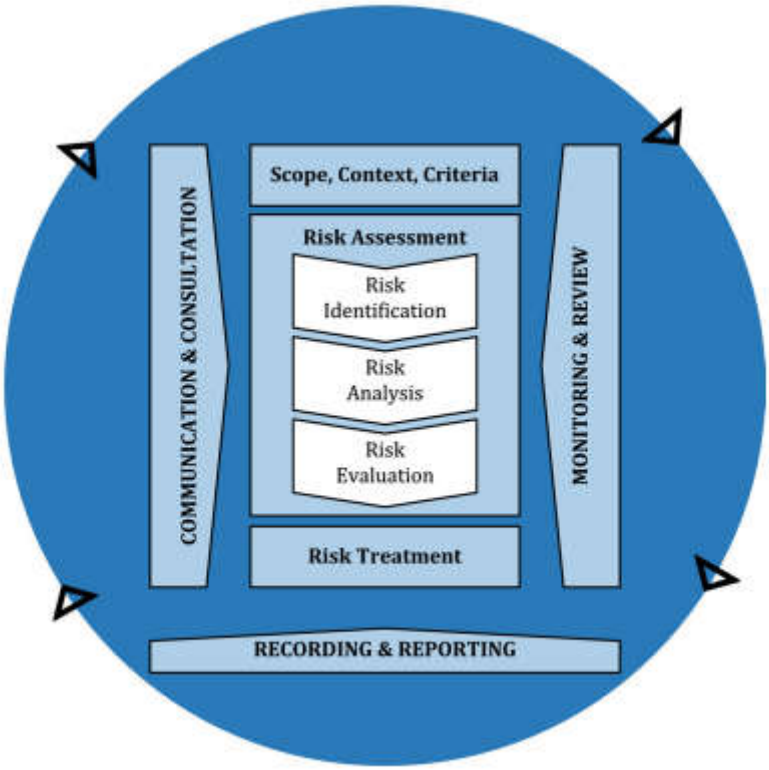
All senior and site management positions have a responsibility to ensure foreseeable workplace risks are identified; assessed; eliminated or controlled; and, comply with or exceed minimum requirements contained within legislation, standards and codes of practice.

Top Management
• Customising and implementing all components of the risk management framework; • Issuing risk management process; • Allocation of necessary resources; • Assigning authority, responsibilities and accountability at organisational levels.
Senior Management
• Develop effective risk management programs; • Support and promote risk management processes; • Allocate resources to implement risk management programs and activities; • Ensure workers receive training in risk management processes; and, • Audit hazard identification and control systems for effectiveness, as per review schedule.
Project Managers (including Subcontractor Managers)
• Facilitate the implementation of risk management in areas of responsibility, through effective consultation with all employees (workers); • Participate in risk assessment and control activities; • Identify workers to participate, where appropriate, in planning and design risk assessment processes; • Monitor the ongoing effectiveness of risk control strategies; • Ensure risks to health and safety and the environment are eliminated or controlled when planning the design of new projects, purchasing new equipment and prior to introducing new work processes; and, • Action / investigate hazards and enter corrective action/s when a hazard is reported.
Workers (Employees and Contractors)
• Participate in hazard identification, risk assessment and control activities; • Use the risk control measures, tools and procedures at all times; • Inform management of any risks to health and safety including the effectiveness of risk control systems; • Take reasonable care for the health and safety of themselves and others at the workplace; and, • Report, and where practicable, resolve hazards.

5. Risk Assessment Framework

The objective of this standard is to capture risks in the following areas: commercial; health and safety; and, environmental. The risk management process involves the following steps, as listed in AS/NZS ISO 31000:2018:

- communicate and consult with stakeholders (interested parties both internal and external);
- establishing the scope, context and criteria of the risk assessment and setting objectives;
- identifying the risks;
- analysing the risks to determine the level of risk (defined as the combination of the consequences and likelihood of the risk);
- Evaluating the risk, to decide if a risk requires further control measures (level of acceptance will be determined by the next level of management, High Risk work can only precede with written approval and reviewed by the Project Manager, Extreme Risk can only precede with the written authorisation at General Manager Level.)
- treating the risks, focusing on those risks which are intolerable; and,
- monitoring and reviewing, to continuously refine and improve assessment and risk treatments;
- record and report the outcomes and risk treatments.



5.1. Assessment Competency[1]

The process for project Hazard Identification, Risk Assessment and Control (HIRAC) must be undertaken by personnel competent in the use of the company's HIRAC methodology. Evidence of competency can be demonstrated as follows:

- details of competency assessment requirement in position / position descriptions;
- details of competency assessment recorded (after attending and passing a company conducted, or authorised, training session in using and applying the company's HIRAC methodology, or from on-the-job assessment);
- JHAs/WMS can only be signed-off by a person competent in assessing the content; and,
- when the HIRAC methodology changes, training is provided and recorded, and a record will be maintained at either a project level or higher[2].

6. Communication and Consultation

Communication and consultation with all relevant internal and external stakeholders is to be undertaken to gain an understanding of risks, decisions to be made, actions to be taken. This should occur throughout the whole risk management process with the aim to:

- provide input from varying levels of expertise and experience;
- define risk criteria and evaluating risks;
- source sufficient factual information;
- develop ownership and buy-in.

7. Establishing the Scope, Context and Criteria

Hazard Identification, Risk Assessment and Control is a structured, systematic, proactive approach aimed at early identification of hazards, evaluation of risk, and application of effective risk controls.

Establishing the context is determining the scope of the assessment:

- Which phase within the BMD Group operations are you assessing?
- Which site / location is being assessed?
- Who needs to be involved or consulted during the assessment (all stakeholder)?
- What details need to be recorded and retained?
- What needs to be communicated, and to whom?

- [1] OFSC Audit Criteria WH12.2
- [2] OFSC Audit Criteria WH12.2

Establishing the scope, context and criteria helps to clarify boundaries and identify tools required to assist with identification, assessment and recording of results and outcomes.

8. Identifying the Risks[3]

Risk and Hazard identification is the process of identifying all possible situations where people may be exposed to injury, illness or disease arising from all sources of potential harm (including emergency situations and responses). In addition, the identification of risks to the environment through the aspects and impacts of the business, and commercial risk needs to be considered. Risks are to be identified and assessed:

- At the time of tender and project selection: Site Visit Checklist and Risk Register;
- At the planning and design stage: Risk Register;
- Prior to the project commencing: a formal project specific risk assessment is carried out and includes the handover of the tender & design information as applicable, which is retained in the Risk Register and forms the foundation for the project sites specific HSEQ systems of work (including emergency preparedness planning); and,
- For the duration of the project at operational and task levels: Ongoing site-specific risk assessments are carried out and recorded in the Risk Register located in the Project's MYJOB page, by the project team.

Additionally, risk and hazard identification must also be considered and assessed:

- Before changes to work practices and systems of work are introduced;
- When planning work processes such as Work Method Statements (WMS);
- While work is being carried-out;
- Whenever new, or additional, information regarding work processes becomes available;
- Before changes are made to the workplace, the system or method of work, the plant used, or chemicals used;
- Before and during the installation, erection or commissioning of plant;
- Prior to hiring contractors and labour hire (refer to Subcontractor HSE Management Standard); and,
- Prior to the introduction of any plant, substances (review SDS where applicable), processes or work practices in the workplace to identify whether there is any potential for injury, illness or disease.
- During the development of any workplace specific emergency response plans

[3] OFSC Audit Criteria WH14

OHS risks and hazards may include, but not limited to, the following general categories:

Mechanical Hazards	Non-Mechanical Hazards	
▪ "drawing in" points ▪ shearing points ▪ impact and crushing areas ▪ cutting areas ▪ entanglement areas ▪ stabbing points ▪ abrasion areas ▪ flying particles ▪ any protrusions which could cause injury ▪ traffic and vehicles	▪ ergonomic hazards, including manual handling ▪ electrical shocks and burns ▪ chemical burns, toxicity, flammability ▪ noise ▪ vibration ▪ radiation ▪ mist, dust and fumes ▪ confinement and suffocation ▪ violence, harassment and workplace stress	▪ engulfment ▪ biological hazards and viral ▪ slipping, tripping and falling hazards ▪ falling objects ▪ high pressure fluid ▪ high temperature objects ▪ working in very hot or cold conditions ▪ fatigue

Environmental Aspects (i.e. aspects of the business that contain an environmental hazard) and Impacts (i.e. how the hazard impacts on the environment) may include, but not limited to, the following general categories:

Aspects	Impacts
▪ Clearing and Grubbing ▪ Earthworks ▪ PUP removal and replacement ▪ Drainage works ▪ Asphalt / Bitumen works ▪ Office and crib hut operation ▪ Bridgework ▪ Site establishment and demobilisation ▪ Major spills (emergencies) ▪ Approvals / Permits / Licences	▪ Decrease of water quality in waterways ▪ Loss of flora and fauna ▪ Contamination of land ▪ Noise / vibration / light / odour impacts on surrounding community ▪ Decrease in air quality in surrounding community ▪ Spread of weeds / pests / biosecurity items ▪ Disturbance of acid sulphate soils ▪ Generation of waste ▪ Ignition of bushfire ▪ Disturbance of cultural heritage ▪ Generation of greenhouse gas emissions

Key commercial risk may include, but not limited to, the following general categories:

Categories		
Financial	**Time**	**Quality**
▪ Contract conditions ▪ Excessive securities, including bank guarantees ▪ Excessive liquidated damages ▪ Large rewrite of Australian Standard as the contract condition ▪ Change in traditional definitions of items in contract conditions	▪ Weather conditions ▪ Unrealistic time period for the contracts	▪ Rework due to poor quality control

8.1. Key Hazards and Core Operating Procedures

As a business BMD has identified the following key hazards:

Key Hazard Identification		
Description	**Key Hazard**	**BMD Core Operating Procedure**
▪ Working at Heights	▪ Work involving heights greater than 2.0m; ▪ Falling from one level to another regardless of heights; or, ▪ An unmitigated risk assessment indicates a risk rating greater than low.	▪ Working at Heights Management
▪ Mobile Plant	▪ Operating mobile plant; ▪ Site deliveries and plant movement; ▪ Plant and people interaction; ▪ Plant and plant interaction; ▪ Loading of plant incorrectly; ▪ Incidents from utilising plant in poor working condition.	▪ Plant and Equipment Management ▪ Isolation and Tagging Management
▪ Fitness for Work	▪ Increase in likelihood and/or consequence of an incident affecting workers and/or the public from an impaired worker on site, or during transport of materials to and from site; ▪ Impairment from Drugs, Alcohol, Fatigue & Stress.	▪ Fitness for Work Management Standard
▪ Excavation	▪ Works involving trenching and/or excavation greater than or equal to 1.5m; ▪ With an unmitigated risk assessment indicates a risk rating greater than low.	▪ Trenching and Excavation Management
▪ Traffic	▪ Works near traffic with an unmitigated risk score greater than low.	▪ Traffic Management Standard ▪ Traffic Management Plan Template ***Note: The above documents have been created instead of a COP in this instance.***
▪ Structural Alternatives /	▪ Works requiring false work and temporary structures and design.	▪ Formwork and Falsework Management

Key Hazard Identification		
Description	**Key Hazard**	**BMD Core Operating Procedure**
Temporary Support Structures		▪ Scaffolding Management ▪ Temporary Works Management
▪ Electrical	▪ Working near or with underground and overhead services; ▪ Potholing and identification of underground services.	▪ Isolation and Tagging Management; ▪ Working Near Services.
▪ Confined Spaces	▪ Working in a confined space.	▪ Confined Space Management.
▪ Manual Handling	▪ Work with the risk of musculoskeletal injury. ▪ With unmitigated risk assessment indicates a risk rating greater than low.	▪ Hazardous Manual Task Management
▪ Working Near or Over Water	▪ Works that involve the risk of drowning. ▪ With unmitigated risk assessment indicates a risk rating greater than low.	▪ Working Near or Over Water Management
▪ Hazardous Chemical	▪ Works with the risk of injury from chemicals. ▪ With unmitigated risk assessment indicates a risk rating greater than low.	▪ Hazardous Chemical Management
▪ Remote or Isolated Work	▪ Increase in risk of injury, when no assistance is available. ▪ With unmitigated risk assessment indicates a risk rating greater than low.	▪ Remote or Isolated Work Management
▪ Water Quality	▪ Risk of degradation of water quality from the works. ▪ With unmitigated risk assessment indicates a risk rating greater than low.	▪ Water Quality Management
▪ Soil Movement and Management	▪ Works with a risk of unlawful movement of clean and contaminated soil ▪ With unmitigated risk assessment indicates a risk rating greater than low.	▪ Soil and Land Management

Key Hazard Identification		
Description	**Key Hazard**	**BMD Core Operating Procedure**
▪ Vegetation Clearing	▪ Risk of impact on ecological values ▪ With unmitigated risk assessment indicates a risk rating greater than low.	▪ Vegetation Clearing Management
▪ Infectious Disease (COVID-19)	▪ Worker in risk of infection and spread of COVID-19 ▪ Business Continuity risk due to impact of COVID-19	▪ COVID-19 Safe Management Plan ▪ Business Continuity Plan (BCP) – COVID-19

Where these key hazards are identified on a project, then the corresponding BMD Core Operating Procedure is to be used as a minimum requirement to address the risks. The requirements in these COPs are to be used to determine the works methodology and be communicated to the workforce in the Work Method Statement and Job Hazard Analysis Card.

Other hazards identified that need consideration if they arise are:

- Demolition;
- Tilt-up / Precast Concrete;
- Asbestos;
- Explosives;
- Construction Work In, Over or Adjacent to Water / Liquids Where Risk of Drowning;
- Tunnels;
- Pressurised Gas;
- Chemical, Fuel or Refrigerant Lines;
- Telecommunication Towers;
- Contaminated / Flammable Atmosphere;
- Artificial Extremes of Temperature; and,
- Diving.

As a final check the development of control measures for hazards requires a comparison to be carried out against the criteria outlined in the OFSC document, Audit Criteria Evidence Guide, as applicable.

8.2. Consultation[4]

Consultation with workers and others who may be affected by the risks in the workplace is essential at all stages of the risk management process. Workers and others are encouraged to participate and suggest ways to effectively manage the risks and to allow them to operate efficiently in their jobs.

8.3. Client or Other Entity [5]

8.3.1. Client or Other Entity Controlled Workplace

When required to provide services within a client's or other entity's workplace, a risk assessment shall be conducted to ensure all health, safety and environmental hazards that could affect the workers and public at the workplace are identified, assessed and controlled. This is to be documented in the project's Risk Register. The identified hazards and associated controls must be communicated and reviewed by all stakeholders through interface meeting or other forums

In addition, the commercial risks need to be considered in these circumstances as well.

8.3.2. BMD Controlled Workplace

When the client or any other entity's is required to provide services within, or has the potential of impact on, a BMD workplace, an interface meeting or other forums must be conducted to ensure health, safety and environmental hazards that could affect the workers and public at the workplace are identified, assessed, controlled and documented in the project's Risk Register. The identified hazards and associated controls must be communicated and reviewed by all stakeholders and workforce that may be impacted by this works.

As a minimum, all people within or accessing through a BMD controlled site must have completed the BMD site induction which must communicate all site requirements, identify hazards and appropriate control measures, prior to the commencement of work and/or accessing site.

8.4. Plant and Equipment Risk Assessment

Prior to the induction of any plant or equipment to the workplace, a risk assessment must be conducted to identify any possible situations where people may be exposed to injury, illness or disease arising from its operation or use. The detail requirements when purchasing (including risk assessment) BMD plant or equipment's is contained the BMD's Purchasing and Supplier Commercial Procedure.

- [4] OFSC Audit Criteria WH12.4
- [5] OFSC Audit Criteria WH 12.4

The risk assessment process should be followed when identifying the plant which is fit for purpose (e.g. use of long-reach excavator). Prior to mobilisation or commencing work a plant risk assessment and site checklist must be conducted on each individual piece of mobile plant (either BMD owned or Hire-in) This includes but is not limited to pinch points, exposure to fuel and lubricates, refuelling process, service history, legislative and manufacturer's operational requirements (refer to Plant and Equipment COP).

8.5. Delivery / Haulage / Cartage Vehicles

The arrival, departure and the journey of heavy vehicles in association with BMD's works is viewed as a key risk, and must be controlled through the following actions:

- Complying with Chain of Responsibility requirements, and hence, BMD requirements as detailed to ensure BMD, and/or its contractors do not drive or promote a behaviour that contributes to an unsafe act.
- Utilising contractors that are compliant with the Heavy Vehicle National Law (HVNL), or alternatively, instructing contractors without a compliant system to operate with BMD set requirements or to take appropriate corrective action to ensure compliance before use.
- Ensuring delivery drivers receive a Deliver Driver Induction.
- Ensuring the loading of heavy vehicles meet set requirements regarding mass and size, and that the transport route and vehicle selection is appropriate for the task.
- Monitoring deliveries to ensure compliance, and that drivers and other parties in the Chain of Responsibility are acting in a safe manner, with key processes in place to ensure drivers are not impaired due to drug, alcohol or fatigue.
- Controlling access onto the vehicle and / or load in a safe manner during loading and unloading.
- Complying with biosecurity protocols for set regions, such as regarding dieback, fire ants and noxious weeds, to ensure no environmental harm occurs.

The above will be addressed through the identification of HVNL requirements as part of key tasks for the project. Where assessed as 'High Risk', these shall be recorded in the risk register, then managed through the Subcontractor selection and the Risk Management process by identifying and communicating controls in items such as the Construction Method Statement, Work Method Statement and/or Job Hazard Analysis risk management process. Consideration should be made through key phases of the project such as during:

- The establishment phase;
- Any heavy material reliant activities (such as precast and pavements); and
- During the disestablishment phase.

8.6. Hazardous Chemical Risk Assessment

Similar to the above, prior to bringing any chemical or substance to the workplace the risk assessment process must be followed. If a chemical or substance is determined to be hazardous, the Hazardous Chemical COP must be followed.

9. Analysing the Risks

Analysing the risks means determining outcomes associated with the hazards; what can happen for the hazard to cause harm or loss? The analysis of risks involves considering the likelihood (probability) and consequence of the identified risks, to calculate the overall level of risk (extreme, high, moderate or low).

The BMD Risk Matrix tool is used to determine probability and consequences.

Please refer to Appendix 2: Risk Matrix.

Note: ***At tender phase the Risk Register is used to assess and identify major hazards and high-level risks.***
For small scale projects that have uniformity, there is an allowance with the approval of Senior Management to analyse risk as one project.

9.1. Determining Probability

The first step is to determine the probability of the risk occurring. This involves determining the frequency of exposure and the probability of an incident occurring. The basic premise is the more often an individual is exposed to a hazard, the more likely it is for an incident to occur.

9.2. Determining Consequences

The second step is to analyse the potential consequences (impacts/effects) by identifying all possible outcomes or severity and any associated impacts. Consideration must be given during any risk management process to events that while having a low probability, the actual occurrence of the event would have a high consequence.

A person competent to assess risk must review all proposed changes for:

- technical capability;
- hazards; and,
- loss potential.

Note: ***The identified risks and ratings shall be recorded in the risk register.***

9.3. Specific Safety Legislative Requirements

Legislation requires employers to assess risks posed by hazards (initial and residual) in their workplace, and to determine how best to modify their work processes to effectively eliminate or control risks. These requirements are documented in the appropriate Occupational Health and Safety Regulation (AS/NZS 4801:2001).

The *Regulations* require “a Person Conducting a Business or Undertaking (PCBU) to consult with the Health and Safety Representative of a designated work group, if practicable, when undertaking hazard identification, risk assessment or control of risk processes that may affect the health or safety of any member of the designated work group.”

9.4. Environmental Compliance Obligations

Each project needs to consider any environmental regulatory requirements from the Federal, State and Local Government authorities; this may also depend on the scale, nature, location and sensitivity of the surrounding environment. As there may be a number of permits, authorities, etc. that need to be addressed by the project, these are required to be factored into the risk assessment. Additionally, Client requirements and specifications, and the interests of stakeholders (e.g. community), need to be considered when undertaking the risk assessment.

9.5. Other Available Information

Other areas to be considered when analysing a risk includes information from the construction industry and other relevant industries; organisational and project incident reports; hazard information; specifications and approved drawings; manufacturers or suppliers' guidelines; inspection and audit reports; bulletins and alerts; and, change notices can also be considered during the HIRAC processes. If used as a means of supporting a decision for a risk analysis, the reference should be recorded on the appropriate project specific Risk Register.

10. Evaluating the Risk[6]

Risk evaluation, as defined in *ISO 31000:2018* involves comparing the results of the risk analysis with risk criteria, to determine whether the level of risk is acceptable, tolerable or intolerable, with intolerable risks requiring treatment as a priority. Given finite resources, it will not be possible to treat every risk, and indeed, there is a point where the cost of implementing a treatment far outweighs the benefit (or risk reduction) gained.

The BMD Risk Matrix tool calculator is used to determine the rating for the risk.

Please refer to Appendix 2: Risk Matrix.

10.1. Assigning a Risk Rating and Control Priority

When the consequence and the likelihood have been decided, the risk rating is determined at the point where the consequence and probability meet; the greater the assessed risk is, the greater the effort and level of control required. Using this process, all hazards associated with the task can be assessed and prioritised according to the risk rating.

Note: ***The risks ratings and control priorities shall be recorded in the relevant Risk Register and transferred to any relevant JHAs/WMS[7]. This also includes sub-contractors who must have access to this information, and have it included in their WMS.***

- [6] OFSC Audit Criteria WH12,5
- [7] OFSC Audit Criteria WH12.3

Note: ***Any major hazards and high-level risks identified at tender phase via tender handover are to be transferred to the Risk Register for management within the project.***

An extreme risk rating requires further planning and notification to the next level of management, an analysis of the control measures to reduce this risk score through the re-evaluation using the HIRAC process is then conducted. All work associated around this risk must also stop during the re-evaluation, until all potential controls have been explored, implemented and/or ruled out and presented to and given written authorisation by General Manager Level; consideration may be given but not limited to such things as redesign, changing high level work practices.

A high-risk rating requires that all work associated around the risk must stop, and the HIRAC process re-used until all potential controls have been explored, implemented, ruled out and presented to and given written authorisation by the Project Management Level; consideration may be given but not limited to such things as changing site work practices, increase supervision, permit to work system.

11. Treating the Risk[8]

In identifying risk control measures, there is a legal requirement to **eliminate** potential foreseeable risks to health and safety, if reasonably practicable. If elimination is not reasonably practicable then there is the requirement to identify effective measures to reduce the risk. Similarly, the same approach should be applied to environmental risk management with all reasonable and practicable controls applied to minimise environmental harm.

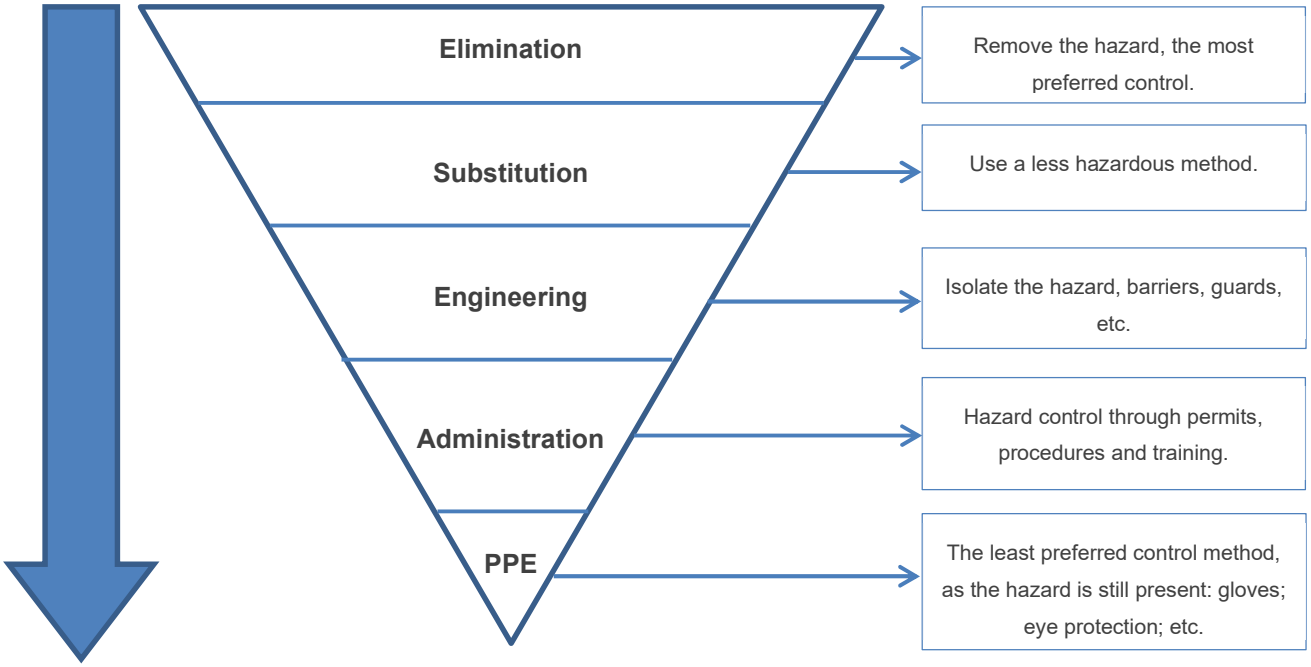
The selection of risk control measures should be based on a comprehensive understanding of the risk issues (and hazards) concerned. This understanding comes from an appropriate level of risk analysis. It is particularly important to identify the causes of the risks so that these are treated and not just the symptoms. If there is an immediate risk to health or safety, the process/activity in question must cease until appropriate measures are taken to remove the immediate risk.

For risk control measures, consideration should be given to the severity of injury, illness or disease that could occur. If the severity is high (i.e. fatality, serious injury, etc.), a higher hierarchy order of control (i.e. elimination, substitution, engineering controls and isolation) should be used.

11.1. Hierarchy of Control

The hierarchy of control is a legislative approach to controlling risk and, is a list of control measures in order of priority that can be used to eliminate or minimise exposure to hazards.

- [8] OFSC Audit Criteria WH12.5 & 12.6



OHS legislation specifies not to depend solely on the use of administrative controls or personal protective equipment (PPE) to reduce the risk, unless you have established the following practicable measures:

- Eliminate or remove the hazard;
- Substituting the plant or substance with another one that is less hazardous;
- Using engineering controls (e.g. modifying the design of the workplace or plant, or environmental conditions);
- Isolating people from the source of exposure;
- Changing the objects used in the task involving manual handling;
- Using mechanical aids for manual handling tasks.

If elimination is not reasonably practicable, consideration should be given to each of the other control measures in priority order until a control measure or combination of control measures are identified which can achieve the required reduction in risk exposure to the hazard/risks.

The Risk Assessment identifies the Hierarchy of Control after the control type to ensure the most effective controls are considered.

The control measure for the hazard/risk must be and remain:

- fit for purpose;
- suitable for the nature and duration of the work;
- installed, set-up and used correctly; and,

- comply with legislative requirements.[9]

Note: ***These risks and their control measures must be recorded and managed in the relevant project risk register.***

11.2. Risk Rating

If upon the completion of the risk assessment process the residue risk rating is identified as 'Extreme' or 'High' the follow must be followed:

Extreme – Authorisation from the BU's General Manager is required. Further planning and notification to the next level of management is required to analyse control measures to reduce the risk score. Work associated around this risk must stop, and the HIRAC process followed until all potential controls have been explored, implemented and if necessary, ruled out. The assessment will be submitted and written authorisation by a General Manager obtained before the activity commences. Consideration may be given to such things as redesign, changing high level work practices etc.

High – Authorisation from the Project Manager is required. Work associated around this risk must stop, and the HIRAC process followed until all potential controls have been explored, implemented, and if necessary, ruled out. The assessment shall be submitted to the Project Manager for written authorisation before the commencement of the activity. Consideration may be given to such things as changing site work practices, increased supervision, etc.

12. Implementing Management Strategies[10]

12.1. Group Risk Management

A Risk Register shall be generated and maintained identifying the high levels risks for the entire BMD Group. This will involve the roll up of risks from the project level through the Business Units to the Group. The Group Register shall also include risks from the Corporate Office. Each of the Business Units shall maintain their own Risk Register. Risks associated with regional offices shall be recorded within the Business Unit Register.

The process involves reviewing the risk registers from the projects and combining the high-risk items to form a Business Unit Risk Register. The Business Unit General Manager (or delegate) is responsible for ensuring that this is undertaken on a minimum of an annual basis. Senior Managers and HSE and / or System Representatives from within each Business Unit shall be involved in the review of the Risk Register.

Similarly, the high-risk items from the Business Units will be merged into a Risk Register for the BMD Group. The Group Risk Register shall be reviewed on an annual basis as a minimum by the HSEQ Steering

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- [9] OFSC Audit Criteria WH12.6
- [10] OFSC Audit Criteria WHS 12.7

Committee. Both the frequency and severity of the risks will be utilised to ascertain the risks that are to be rolled up from one level to the next.

At the commencement of a new project the Business Unit and Group Risk Registers will be consulted to ensure that any activities and their controls applicable to the project are transferred to the project level. Additionally, if following the development of a Project Risk Register extreme or high risks are identified, these are transferred up to the Business Unit Risk Register.

A schematic of the risk rollup and feedback process is outlined in Appendix 3.

Responsibilities for each of the Risk Registers shall be as follows:

Risk Register	Person Responsible
Group	Group Director - Chief Executive Officer
Northern Region Construction	General Manager
Southern Region Construction	General Manager
Urban	National General Manager – Urban
JMac	General Manager
Urbex	General Manager
Empower	General Manager
Project	Project Manager

Copies of the Business Unit and Group Risk Registers shall be stored on the BMS with current versions available to the Group.

12.1.1. Communication of Group Risk

Communication of current risks is required up from projects through to Board Level. To facilitate this process the top 3-5 risks are listed in each Project's HSE Overview on a monthly basis. Business unit HSEQ Representatives collate and review this information and adjust the Business Unit Risk Register as required. Subsequently the monthly reports and risk registers for each business unit are reviewed by by Functional Leads and Group Systems Manager. This information is included in the monthly Board Report and HSEQ Steering Committee Meeting minutes.

12.2. Project Risk Management

Risk management is a continuous process through all stages of a project including tender, design and construction. The key document for demonstrating the risk assessment process on a project is the risk register. This register is a live document within the project's MYJOB site which is progressively reviewed and updated throughout the life of the project. It ensures a record of all risks, and the means adopted to control them, is maintained throughout the life of the project. The risk register is considered a mapping document that records

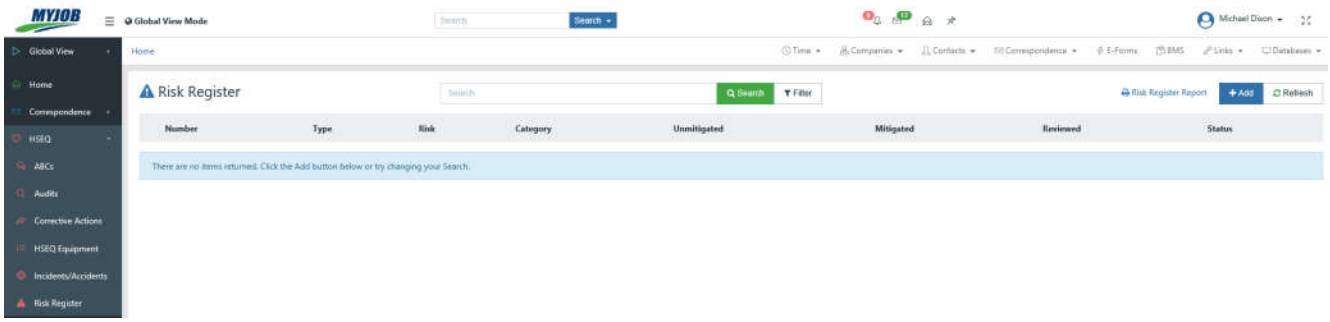
all identified risk and can also reference to documents that are developed to detail the risk control measures to be implemented.

The Risk Register should be reviewed and updated at each phase change of the project life cycles (e.g. transferring from tender to construction). During the construction phase this review should as scope works changes or as a minimum on a 6 months basis.

The risk register shall contain information about:

- the risks identified;
- their causes;
- the nature and extent of the potential impacts associated with the risk issues;
- any additional control action required to further control risk to an acceptable level;
- the immediate risks, expressed in terms of consequence and probability factors (the risk rating), and the residual risk rating after the application of controls;
- the existing controls being relied upon to control risk to an acceptable level; and,
- an assessment of risk control effectiveness, through the consideration of the Hierarchy of Controls.

The project risk register is generated within the project's MYJOB page and allows for the consideration of safety, environmental and quality risks and opportunities. The risk register has been formulated to initially exclude the cost consideration around Safety and Environment as this should not be the primary consideration. Commercial risk shall be documented and managed through Jobpac.



12.3. Opportunity

Although the Risk Register is substantially focussed on addressing risk, it also includes the ability to record and manage project opportunities.

12.4. Tender Phase

During the tender phase of a project HSEQ risks shall be identified, assessed and recorded in the BMD Estimating Risk and Opportunity Register. Following the successful completion of the tender, risks and opportunities identified during the tender phase shall be communicated to the project team during the tender handover meeting.

12.5. Safety in Design

Where BMD are involved in Design and Construct (D&C) projects, safety hazards shall be identified and eliminated at the design stage wherever possible. Engineering contractors providing design, procurement, and construction management services, will ensure their scope for design criteria covers OHS buildability issues during construction.

Outcomes from design stage risk assessments and treatment processes and any required actions shall be recorded in the BMD Estimating Risk and Opportunity Register and monitored until closed-out or implemented.

Any design changes shall be reviewed against current project documents and risk assessed where applicable. Design change amendments shall be document controlled and retained for reference. When there are design amendments the Project Manager may include request of design risk assessments from the client / designer. The design project team must ensure certification and approval from the required authorities is approved and signed-off for all documentation.

All changes / amendments shall be discussed at project meetings and communicated to the wider team as appropriate. For Construct only projects, BMD are to be provided a Safety In Design report from the Client that has been prepared by the designer. This shall be done prior to the commencement of construction activities and included in the project's risk register.

12.6. Construction Phase [11] [12]

Prior to establishment of a site the Project Manager, Engineers and Field Supervision are to review the construction methodology of the project. This includes examining and evaluating all sections of the construction sequence and breaking them down to all relevant activities.

For all BMD projects, a site-specific risk assessment shall be completed before work commences and recorded in the project Risk Register. It shall include:

- a review of the risk register prepared by others at time of tender and during the design phase:
- evaluation of key HSEQ hazards as detailed in Section 7.1 *as* applicable to the site;
- all stages of the project, including purchasing, hire and supply of goods and services, and subcontractor works;
- reasonably foreseeable emergency incidents;
- stakeholder and community impacts; and
- legislative requirements and compliance obligations.

- [11] OFSC Audit Criteria WH12.1, 12.3 & 12.4
- 1

The Risk Register is prioritised and addressed based on extreme to low risk. An owner shall be assigned to each risk during the development of the register.

The project team including the risk owner will regularly (each stage or 6mth minimum) review and update the Risk Register to ensure controls are adequate and applied. Following the completion of activities involving a particular risk, the risk may be closed in the register.

12.6.1. Construction Method Statement (CMS)

Where activities have been identified as complex or high risk by the project team, a Construction Method Statement (CMS) will be generated. This is to be done at the discretion of the project team as CMSs are not a requirement for every project. The CMs shall be developed in consultation with the Project Manager engineering team, field supervision and HSEQ representatives.

A Construction Method Statement (CMS) shall consist of, but not limited to:

- methodology;
- timing;
- plant and equipment;
- risks and hazards, introduced and inherent;
- chain of responsibility requirements;
- commercial risk;
- resources;
- safety;
- legal compliance;
- environmental;
- training;
- materials;
- associated WMS and BMD Core Operating Procedures.

Hazards and aspects identified on the Construction Method Statement will be recorded in the project risk register.

12.6.2. Work Method Statements (WMS)

Work Method Statements (WMS) are developed for all activities containing hazards and risks including consideration of Chain of Responsibility requirements. The purpose is to identify risks and control measures and communicate these to the workforce undertaking the activity.

Note: BMD's Work Method Statement (WMS) is equivalent to any reference made to Safe Work Method Statement (SWMS) under any legislation. As the WMS encompasses all safety and environmental hazards, aspects and control measures for the activity, the reference to 'Safe' in the beginning has been removed for simplification and to avoid confusion.

WMS Development

The WMS breaks down the activities into defined tasks and identifies any associated safety hazards and environmental impacts and assigns a risk score. The WMS must be developed in consultation with workers conducting the activity (or their representative). Project team members (eg engineers, supervisors, HSEQ reps, workers) are to develop project specific WMS from the BMD template. These are to be reviewed by the HSEQ Reps and approved by the project manager prior to the activity starting onsite.

During the development of WMS additional sources of information to identify potential hazards must be considered, these sources may include but not limited to:

- legislation and industry alerts;
- previous work history;
- incident trends:
- industry knowledge.

Example WMS can be used as a guide; however, a full review of the project specific risks and hazards is to be completed to reflect the actual site details and activities. For further information consult the BMD WMS Guideline.

Hazards and Controls identified in the WMS should be specific to activity and not generic statements (e.g.: in case of trenching – shoring to be used instead of the generic batter, bench or shore),

Communication of WMS

It is the responsibility of the project manager (or delegate) to ensure all workers onsite have read an understood the WMS(s) related to their work. All workers are to sign on to the WMS prior to starting the activity onsite.

Review of WMS

Hand written changes to existing WMS are acceptable, this document must have the version number changed, also details of changes, update version number and date of change recorded in ‘Review and Monitoring” section of the WMS, all persons involved in the activity must reviewed and re-signed the WMS.

Note: ***If the activity risk is determined to meet the criteria of extreme risk, the activity shall not progress until a full review is conducted by a Senior Manager.***

12.6.3. Job Hazard Analysis (JHA) Cards

Job Hazard Analysis (JHA) Cards are to be completed prior to any task on site by the work crew in the field. The work task shall be broken down to individual steps for greater understanding. Work crews are required to identify any safety and environmental hazards that may exist within the work area, especially hazards that may be introduced into the area, e.g. plant, equipment and specific work environment. (Refer to the JHA template).

JHA cards have a maximum life of one week before needing to be re-written and are to be reviewed daily by crews or when there are changes to activities or conditions in the work area.

Note: The JHA cards shall be used in conjunction with the WMS for any activity and does not replace the requirements of the WMS.

12.7. Risk Based Departure

During construction activity there may be circumstances where it is reasonable for teams need to utilise a methodology which may vary from the BMD System requirements.

Prior to adopting an alternative methodology, a risk assessment must be undertaken to ensure that the alternate methodology delivers the same level of protection / risk mitigation and in no way removes any requirements set by legislation.

Requirements around alternative methodology:

- The reasons for the proposed departure from BMD's systems regarding safety, environmental and quality considerations need to be clearly documented as follows:
    - A detailed risk assessment has been completed in the form of an activity specific work method statement in consultation with the relevant workforce team. This is only valid for a defined period which is to be documented within the WMS
    - The new risk assessment WMS must be recorded in the Project Risk Register.
    - The Project Manager must review the proposed Work Method Statement (WMS) with the workforce team and HSE Representative to confirm legislative requirements are being met.
    - The Project Manager is to consult with Senior Management prior to approving the alternative methodology.
    - Work must not commence until the Project Manager has signed off on the WMS, and the closure of this WMS is after the completion of the nominated activity.
    - Project Management must increase the frequency of supervision and method of monitoring of works conducted under the alternative methodology.
- Where an alternative methodology is sought from a client's set process, all aspects of the procedure above apply, with the additional need to consult and obtain approval from the client.
- Following the completion of the subject activity, the alternative methodology is not to be adopted for future activities either on that project or other projects without the above process being followed. If similar circumstances arise again where an alternate methodology is optimal then the process outlined above must be restarted and followed through.

Note: Departures to a higher standard due to Regional or Client requirements are considered business as usual when undertaking the risk management process and are hence not part of this procedure.

12.8. Holiday Period Operations

During project shutdown due to holiday periods a number of risks need to be managed when staff are not onsite. To identify and manage these risks a Holiday Period Operations Plan shall be developed by each

project. This plan shall identify risks, mitigation measures and responsibilities for the project during this period where works are shutdown. Within the plan is a Pre-Holiday Inspection Checklist for projects to complete prior to shutdown period. It shall also detail plans of how projects start-up works on the site following the break.

12.9. Infectious Disease (COVID-19)

The crisis arising from the COVID-19 pandemic poses risks that threaten the viability of BMD and has the potential to impact the safety or wellbeing of workers and others, and/or the integrity, performance, or reputation of the company. BMD recognises that COVID-19 is a potential source of emergency in the workplace and has created a COVID-19 Response Team. The Group has developed and implemented both a COVID-19 Safe Management Plan and Business Continuity Plan (BCP) – COVID-19 to recognise and manage the overall business risks.

13. Monitoring and Reviewing[13]

The monitoring and review of project safety and environmental risks consists of the following:

- Activity Based Conservations (ABCs);
- internal and external audits;
- regular inspections;
- monitoring;
- testing; and,
- reviewing.

These are carried-out to verify the project management plan requirements (e.g. SMP, EMP) have been implemented and controls are in place. Additionally, these are conducted and to ensure the hazard identification, risk assessment and risk control process is subject to an evaluation to ensure the effectiveness of the process. This also provides the opportunity to identify and amend any controls as a result of another risk being identified.

Any major safety hazards and high-risk work associated with the project / site is controlled in accordance with the *Major Hazard Guidelines* designed to meet the *Federal Safety Commission (FSC)* and legislative requirements.

- [13] OFSC Audit Criteria WH12.7

13.1. Inspection and Review

The following table details the communication and reviews conducted to ensure effectiveness of the process and controls including the frequency of review, the responsible person and the checklist or tool used for the activity.

Checklists located within the BMS are designed to assist people who are involved in the hazard identification process and systematic identification of hazards.

Item / Details	Review Cycle	Responsible Person	Checklist / Tool
Communication			
Site Induction	On Start	Foreman	Prestart Talk and Site Induction Attendance record
Construction Method Statements and Work Method Statements	At commencement of a project and at a maximum of 6 months	Project Manager	Not applicable
Job Hazard Analysis	Weekly / Daily	Field Supervisor	JHA Card
Prestart and toolbox meetings - communicate additional hazards or risks introduced since the previous shift	Daily	Foreman	Prestart / Toolbox Talk record - signed by all attendees, HSE Alerts
Major hazards and high-risk activity reviews	Monthly Random	Engineers and Foreman in their respective work areas	Project Risk Register
Key Project HSE Risks	Monthly	Project Manager	HSE Overview
Review			
Identify, controlling and reporting of hazards	As identified	Site employees and sub-contractors	ABC Card

Item / Details	Review Cycle	Responsible Person	Checklist / Tool
Activity Based Conversation	Weekly	PM / Engineers / HSE Reps and Foreman	ABC Card
Weekly inspection	Weekly	PM / Engineers / HSE Reps and Foreman	Inspection Checklist
Monthly site inspections	Monthly	Project Manager or his delegate	Not applicable
Audits	Minimum of once every six months	Internal or appropriate external body/external systems audit as per project requirements	Audit Report

Note: All relevant documents may be reviewed if there is a significant injury or incident requiring revisiting the construction methodology, in which case any or all of the documents may be changed.

13.2. Reporting Hazards

Hazard identification is communicated and reported to assist in reducing the exposure to hazards and potential for illness, injury, environmental harm and commercial. Reporting hazards provides an opportunity to establish proactive measures to control the risk that the hazard presents.

It is the duty of all workers, sub-contractors and visitors to verbally report any hazard they may observe to their immediate supervisor, or escort in the first instance. Hazards identified during the course of work are to be formally reported using the Activity Based Conversation (ABC) card.

Note: If the issue involves an immediate risk to health, safety or environment, work shall cease until the issue is resolved and corrected or controlled.

13.2.1. Immediate Hazard Response

All HSE hazards and hazardous conditions should be rectified immediately. If unable to do so, the hazard shall be isolated, signposted and secured to warn other personnel of the danger. As soon as practicable, the hazardous condition shall be reported, rectified, controlled or eliminated.

13.3. Corrective Action

Corrective actions raised shall be entered into the Corrective or Improvement Actions database and tracked until implemented / closed-out. All hazards are assigned corrective action priorities and subject to risk assessment and control strategies.

13.4. Managing Changing Risks

Managing risk extends to identifying and assessing risks associated with change which can include, but not limited to:

- changes to processes (temporary or permanent);
- changes to competency requirements;
- modifications to plant and equipment;
- changes to the operating parameters of plant and equipment;
- relocation of plant and equipment;
- changes to procedures for plant and equipment;
- introduction of hazardous substances;
- change in weather conditions;
- temporary works / support structures;
- changes to existing works /support structures;
- adding to, or re-routing, existing piping, cables / hydraulic lines etc.;
- new knowledge or technologies; and,
- changes to legislation, Codes and Standards should also instigate a review of procedures/WMS.

The level of risk assessment undertaken must be suitable for the potential implications of the change. Relevant members of the workforce must be involved when assessing risks posed by change. The following points need to be considered when evaluating the process:

- a more detailed risk assessment should be performed, and details recorded, if required;
- a description of the change/s must be recorded and detailed;
- any changes to processes must be communicated to all persons affected by the work; and,
- The expected outcomes of the proposed changes must be identified and can be used to assess whether the changes were effective.

14. Record Keeping

Documentation demonstrates risk management has been conducted properly and systematically. Risk management records provide an accurate record of decisions made and actions taken to effectively manage workplace risks.

Site records are retained to reference:

- Compliance with OHS and environmental legislation;
- When and where hazard identification was carried out;

- Summary of identified hazards and associated management and mitigation controls;
- The risk assessment method used;
- Implementation and consultation in the risk control methods; and,
- New measures implemented.

All completed risk assessments and registers shall be kept in an electronic format for the duration of the project and stored within the SharePoint Project Site.

15. Definitions

Top Management	BMD Group 'Officers of the Company' as described in Section 8.2 HSEQ Leadership Commitment
Operational Senior Management (General / Operations / Construction Managers)	Off-site regional Senior Management team for BMD Constructions, BMD Urban, JMac Constructions, Empower and Urbex
PCBU	Person Conducting a Business or Undertaking.
Project Manager	Person in direct control of project (e.g. Area Manager, Site Engineer in lieu of Project Manager).
Consequence	Outcome or impact of an event.
Control	The means used to manage risk, i.e. policy, procedure, device, physical barriers, system, communication or other action.
Hierarchy of Control	A legislated method for controlling risk, from elimination of the hazard, substitution, engineering or administrative controls, to the wearing of PPE.
Exposure	The frequency at which persons could be exposed to consequences of a specified severity.
Hazard	Any condition, situation or action (behaviour) which, when left uncontrolled, has the potential to cause harm.
Hazard Identification	The process of recognising a source of potential harm or detriment.
HIRAC	Hazard Identification, Risk Assessment and Control.
Incident	Any unplanned event or situation, that has caused or has the potential to result in (i.e. near miss), adverse consequences to people, the environment, property, reputation or a combination of these.
JHA	Job Hazard Analysis.

MSDS	Material Safety Data Sheet.
WMS	Work Method Statements.
Likelihood	A description of probability or frequency, in relation to the chance that something will occur.
Residual Risk	The remaining level of risk; typically used to describe the risk left after risk treatment/control measures have been implemented.
Risk	Exposure to the consequences of uncertainty and/or the likelihood or probability a hazard may cause harm. It has two dimensions: the likelihood of something happening and the consequences and severity if it were to happen.
Near Miss	An incident that may have led to an injury or to affecting the health of an individual but did not.
Analysis	Systematic use of available information to determine how often specified events may occur and the magnitude of their probability/likelihood and consequence.
Probability	The likelihood of a specific outcome. Usually measured by a ratio against the total number of possible outcomes.
Risk Assessment	A process used to determine risk management priorities by evaluating and comparing the level of risk against pre-determine factors, target risk levels or other data.
Risk Management	The systematic application of management data; policies; procedures; practices to the tasks of identifying; analysing; assessing; treating; and, monitoring risk and hazards.
Workers	Employee, contractor, sub-contractor, labour hire, etc.

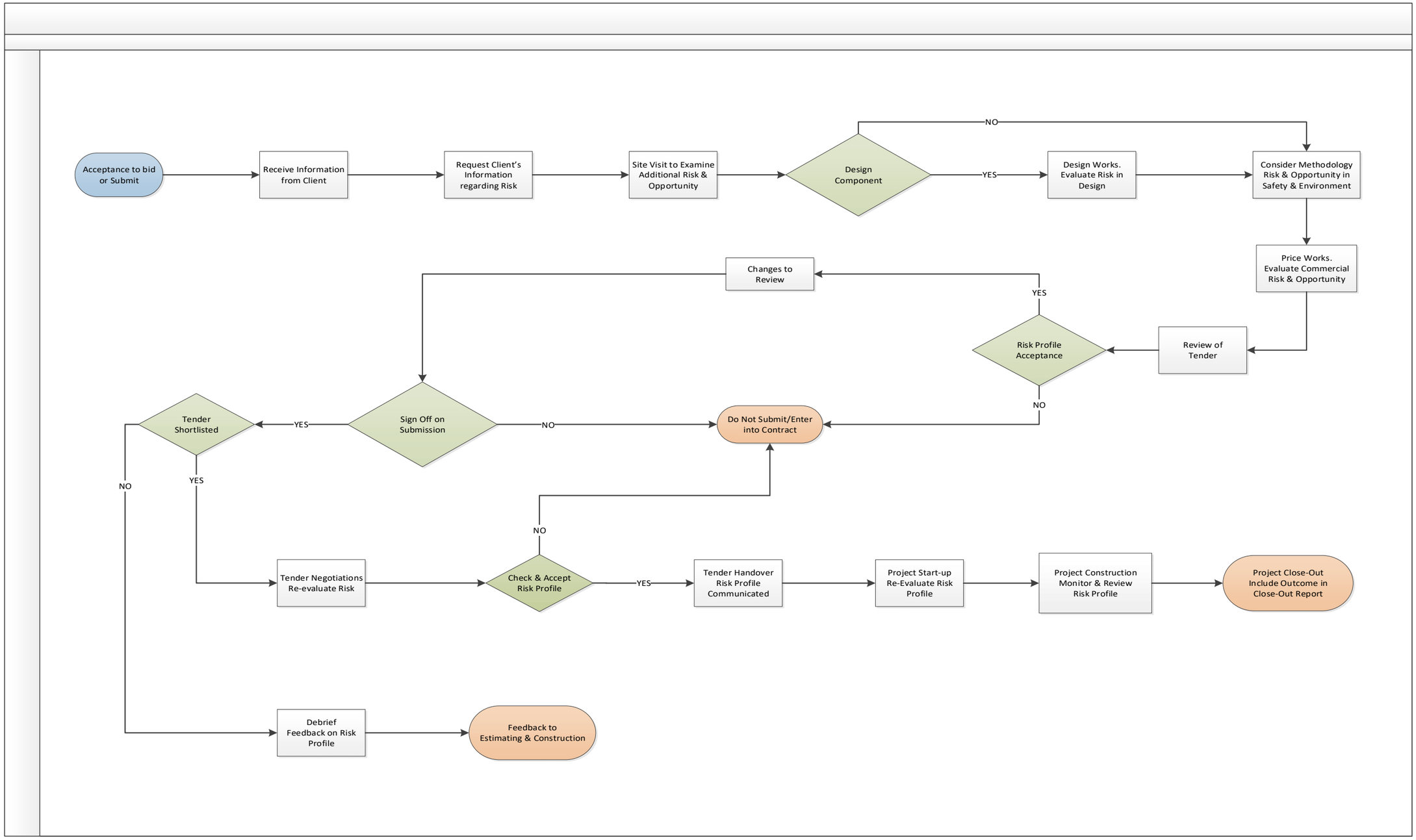
The terms "hazard identification", "risk assessment" and "risk control" are commonly used to summarise the systematic approach for undertaking the above activities for managing workplace health and safety.

The term "reasonably practicable" has a particular meaning under the OHS legislation. It means practicable having regard to:

- the likelihood of a hazard or risk occurring (i.e. the probability of a person being exposed to harm);
- the degree of harm that would result if the hazard or risk occurred (i.e. the potential seriousness of injury or harm);
- what the person concerned knows, or ought to reasonably know, about the hazard or risk and any ways of eliminating or reducing that hazard or risk;
- the availability and suitability of ways to eliminate or reduce the hazard or risk; and
- the cost of eliminating or reducing the hazard or risk.

The risk control process must be carried out in consultation with the relevant health and safety representatives and workers.

16. Appendix 1: Risk Management Process Map



17. Appendix 2: Risk Matrix[14]

Step 1 – Identification

What is a risk?
Risk is a threat, not a weakness or current problem. Risk is an undesirable event that, if it occurs, will have an adverse effect on people's health, the environment, the quality of products, schedule, costs or performance.
Consider if there are any existing regulations, advisory standards, industry codes, BMD documents, guideline materials that are relevant to the hazard that you have identified, and if this is the case use them to assess the risk and decide on the control measures.

What is an opportunity?
Opportunity is a benefit or saving. Opportunity could be a pro-active strategy or innovation which, if implemented, leads to improved health of workers, condition of environment, quality of products, reduction in project cost, schedule or to improved performance.

Step 2 – Assessment of Impact

		Consequence				
		Negligible (1)	**Minor (2)**	**Moderate (3)**	**Major (4)**	**Substantial (5)**
Risk	**Cost (Project <$75M)**	Additional cost to project $0 - $10k	Additional cost to project $10k - $50k	Additional cost to project $50k - $250k	Additional cost to project $250k-$500k	Additional cost to project >$500k
	Cost (Project >$75M)	Additional cost to project $0 - $10k	Additional cost to project $10k - $100k	Additional cost to project $100k - $500k	Additional cost to project $500k-$1M	Additional cost to project >$1M
	Time	Minimal or no impact to schedule; 0 - 2 days slip	Extra resources / replanning required to meet date; 2 - 7 days slip	Moderate slip in key milestone; 1 - 2 weeks slip	Major slip in key milestone or critical path; 2 - 4 weeks slip	Cannot achieve major program milestone; > 1-month slip
	Safety	Slight Injury; First Aid Injury (Class 3)	Minor Injury; MTI (Class 3)	Lost Time Injury; (Class 2)	Permanent Injury (Class 1)	Fatal Accident (Class 1)
	Quality	Negligible reduction in product quality; nil reduction in service life	Minor quality issue raising a Non-conformance (NCR) to accept as is	Moderate quality issue raising a Non-conformance (NCR) with some re-work	Project team receives poor reputation for quality works. Some re-work	Poor final product with substantial re-work required. Reduced service life
	Environment	Short term damage	Limited but medium-term damage	Major but recoverable ecological damage	Heavy ecological damage; costly restoration	Permanent, widespread ecological damage
	Stakeholder	Minor stakeholder dissatisfaction	Major dissatisfaction amongst a minority stakeholder	Key stakeholders are dissatisfied and threaten to disrupt works	Multiple stakeholders publicly denounce the project and prevent progress	Stakeholders initiate legal proceedings

[14] OFSC Audit Criteria WH12.1

		Consequence				
		Negligible (1)	**Minor (2)**	**Moderate (3)**	**Major (4)**	**Substantial (5)**
Opportunity	**Cost (Project <$75M)**	Saving to project $0 - $10k	Saving to project $10k - $50k	Saving to project $50k - $250k	Saving to project $250k-$500k	Saving to project >$500k
	Cost (Project >$75M)	Saving to project $0 - $10k	Saving to project $10k - $100k	Saving to project $100k - $500k	Saving to project $500k-$1M	Saving to project >$1M
	Time	Minimal or no impact to schedule; 0 - 2 days saved	2 - 7 days saving to critical path	Moderate improvement in key milestone; 1 - 2 weeks saving	Major improvement in key milestone; 2 - 4 weeks saving	> 1 month saving to key milestone or critical path
	Safety	Slight or First Aid Injury prevented (Class 3)	Minor or Medical Treated Injury prevented (Class 3)	Lost Time Injury prevented (Class 2)	Permanent Injury Prevented (Class 1)	Fatal Accident Prevented (Class 1)
	Quality	Minimal quality issues encountered, resulting in time and cost saving, as well as Project flow	Quality issues causes no interruption to works	All works completed right the first time, resulting in no-rework	Outstanding quality of works resulting in Project being nominated for Quality Awards	Outstanding quality of works resulting in Project receiving Ministerial Recognition
	Environment	Short term enhancement	Limited but medium-term enhancement	Medium to long term enhancement	Long term and important enhancement	Permanent, widespread ecological enhancement
	Stakeholder	Community feedback neutral	Community queries about the Project	Community Project acceptance	Community support and willingness to be involved with the Project	Positive form of feedback and Ministerial praise Full community involvement

Probability				
Rare (1)	**Unlikely (2)**	**Possible (3)**	**Likely (4)**	**Almost Certain (5)**
Can be expected to occur in exceptional circumstances 0-10%	Can be expected to occur infrequently 10-25%	Can be expected to occur occasionally 25-50%	Can be expected to quite commonly occur 50-75%	Is expected to occur 75-99%

Step 3 – Prioritisation

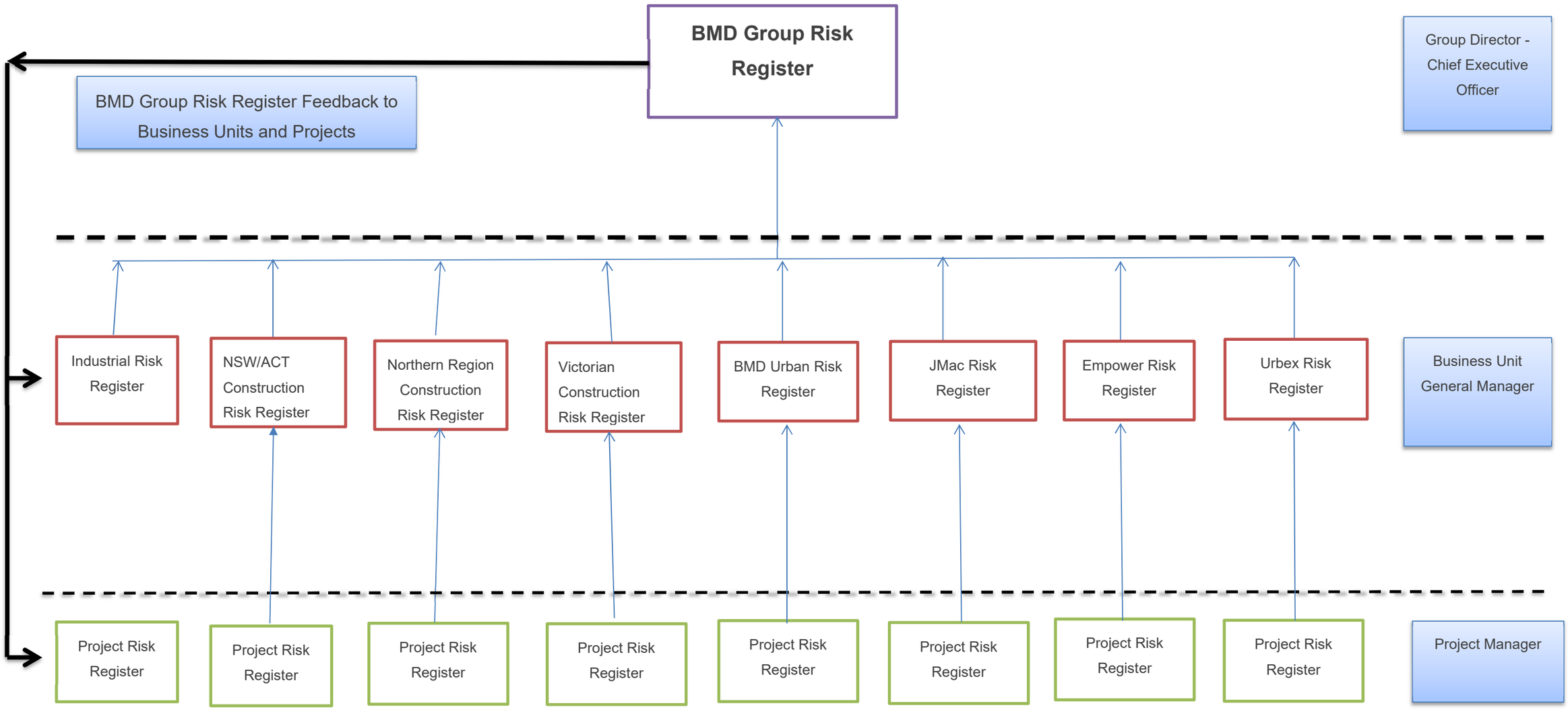
	Consequence				
Probability	**Negligible (1)**	**Minor (2)**	**Moderate (3)**	**Major (4)**	**Substantial (5)**
Rare (1)	**1 (L)**	**2 (L)**	**3 (L)**	**4 (L)**	**5 (M)**
Unlikely (2)	**2 (L)**	**4 (L)**	**6 (M)**	**8 (M)**	**10 (H)**
Possible (3)	**3 (L)**	**6 (M)**	**9 (M)**	**12 (H)**	**15 (H)**
Likely (4)	**4 (L)**	**8 (M)**	**12 (H)**	**16 (E)**	**20 (E)**
Almost Certain (5)	**5 (M)**	**10 (H)**	**15 (H)**	**20 (E)**	**25 (E)**
Extreme	Further planning and notification to the next level of management is required to analyse control measure(s) and reduce this risk score. Work associated around this risk can only proceed with written authorisation at a General Manager level. (refer sect. 10.2 Risk Standard)				
High	Work can only proceed with written approval & reviewed by the Project Manager. (refer sect. 10.4 Risk Standard)				
Moderate	Managed by specific monitoring or response procedures.				
Low	Manage by routine procedure, no formal approval required.				

Step 4 – Management

Risk Score	Risk Rating	Action Needed
16-25	**Extreme**	Further planning and notification to the next level of management is required to analyse control measure and reduce this risk score. Work associated around this risk can **only** proceed with written authorisation at a General Manager Level. (refer to Section 11.2 risk rating)
10-15	High	Work can only proceed with written approval & review by the Project Manager. (refer to Section 10.2 risk rating)
5-9	Moderate	Managed by specific monitoring or response procedures
1-4	Low	Manage by routine procedures, no formal approval required.

Opportunity Score	Opportunity Rating	Action Needed
16 – 25	**Extreme**	Capitalise on the opportunity and identify with the next level of Management. In addition, Management to identify the opportunity with the Business System Manager to analyse suitability in alternatives applications.
10 – 15	High	Capitalise on the opportunity and identify with the next level of Management.
5 – 9	**Moderate**	Identify with the next level of management, to analyse whether the score can be raised with more resources.
1 – 4	Low	Consider whether the opportunity is worth pursuing.

18. Appendix 3: Group Risk Register Rollup and Feedback Process



BMD

BMD constructions

BMD urban

Empower
ENGINEERS &
PROJECT MANAGERS

JMAC CONSTRUCTIONS

urbex

Activity - Risk Assessment

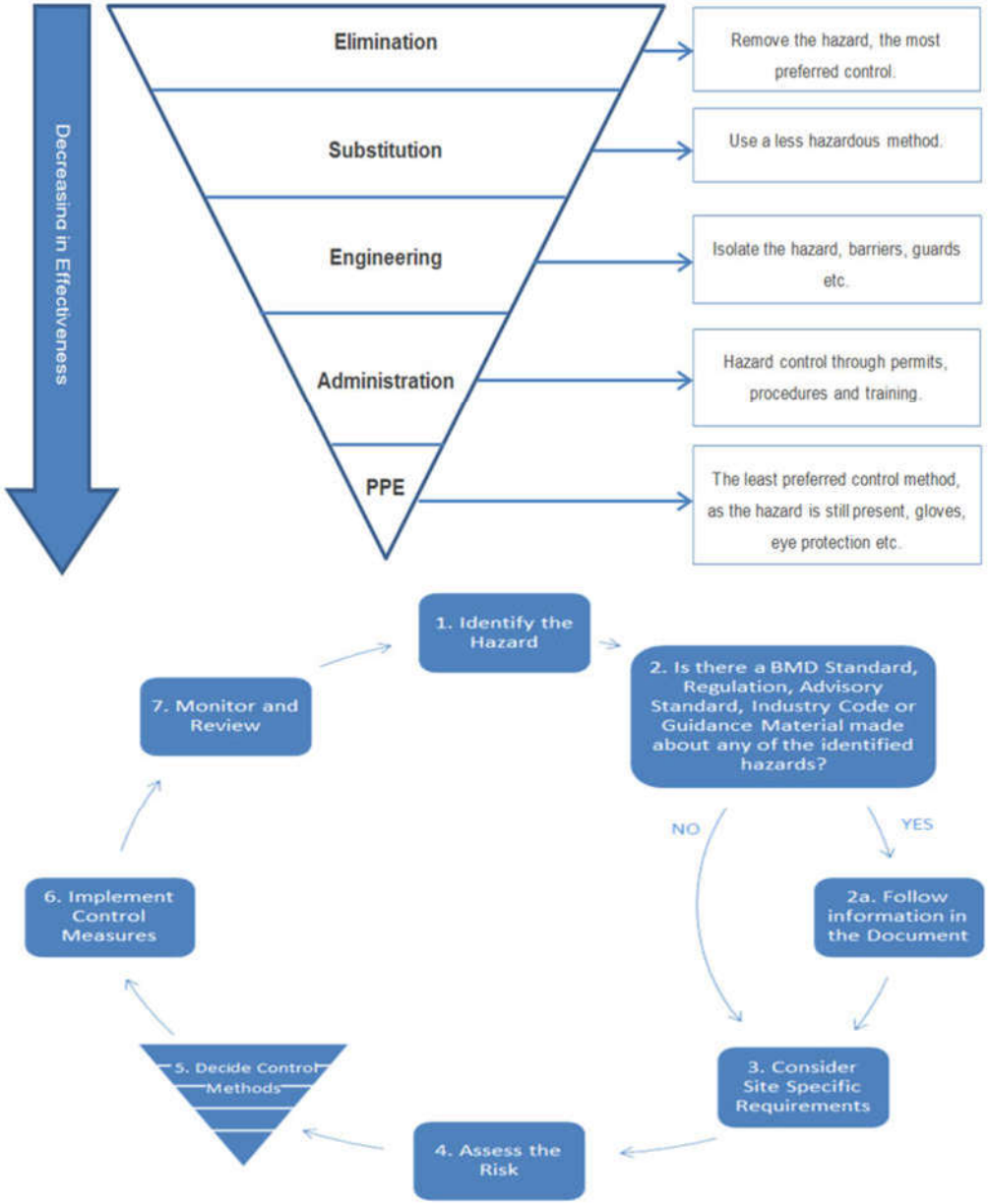
Risk Assessment [Incorporating Health, Safety and Environmental Risks as identified]

Risk Assessment No.:	RA-DP-01	**Activity:**	Excavation and Install of Conduits along TJ Doyle Memorial Drive near OH lines
Risk Assessment context:		The aim of this assessment is to identify the risks and controls associated with installation of electrical conduits from within the height limit zone as per BMD's WNS COP	
BMD Project No.:	4248	**Risk Assessment Review Date:**	10/02/2023
Project:	Brisbane Metro End of Trip Facilities	**To be Reviewed By:**	Construction Manager, Project Manager, Safety Representative
Site Address:	SP4 Dutton Park - TJ Doyle Memorial Drive	**Personnel Responsible for Monitoring this Activity:**	Service Advisor, Direct Supervisors, Permit Holders, Spotters, Engineers and Foreman/Subforeman
Employer:	BMD Constructions	**Monitoring and Review Timeframe:**	The stated controls are to be continually monitored and reviewed as new hazards are identified, or conditions change.
ABN:	59 010 126 100		
Plant and Equipment Required for this Activity:	5T Excavator with height limiter, 2T Tip Truck, Mini Concrete Agi Truck		
Is this a risk assessment for environmental?	No		
Is this a risk assessment for safety?	Yes		
Control Categories:	☐ Design / Redesign ☒ Substitution ☒ Engineering ☒ Administration ☐ Personal Protective Equipment		

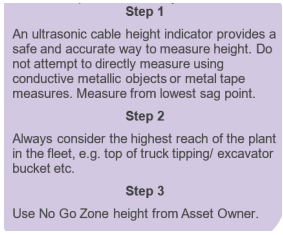
Project Approval	**Site Safety / Environmental Representative(s):**	*Alan Mua / Peter Douglas*	*Signature(s):*	Date:	
	Site/Project Manager:	*Vaughan Aujard*	*Signature:*	Date:	
	Construction Manager:	*Matthew Quy-Verlander*	*Signature:*	Date:	

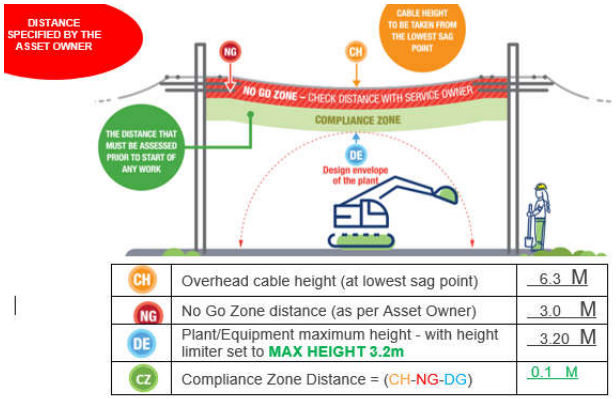
CONSULTATION - Personnel Consulted during the initial development of this WMS

Position	Name	*Signature*	Date
Service Advisor	Madeline Walkington		
Superintendent	Rod McCluskey		
Foreman	Sid Scarth-Johnson		



Probability	Consequence				
	Negligible (1)	Minor (2)	Moderate (3)	Major (4)	Substantial (5)
Rare (1)	1 (L)	2 (L)	3 (L)	4 (L)	5 (M)
Unlikely (2)	2 (L)	4 (L)	6 (M)	8 (M)	10 (H)
Possible (3)	3 (L)	6 (M)	9 (M)	12 (H)	15 (H)
Likely (4)	4 (L)	8 (M)	12 (H)	16 (E)	20 (E)
Almost Certain (5)	5 (M)	10 (H)	15 (H)	20 (E)	25 (E)
Extreme	Further planning and notification to the next level of management is required to analyse control measure(s) and reduce this risk score. Work associated around this risk can only proceed with written authorisation at a General Manager level. (refer sect. 10.2 Risk Standard)				
High	Work can only proceed with written approval & reviewed by the Project Manager. (refer sect. 10.4 Risk Standard)				
Moderate	Managed by specific monitoring or response procedures.				
Low	Manage by routine procedure, no formal approval required.				

Task	Hazard/Aspect (Procedure Step)	Impact (What can go wrong)	RISK SCORE without Controls			Management Controls (Controls to be in place in order to manage Health, Safetyand Environmental Risks)	RISK SCORE with Controls			Person Responsible(to ensure controls are applied)
			Cons	Prob	Risk		Con	Prob	Risk	
This Risk Assessment to be read in conjunction with BMDSWMS 005 Earthworks and Plant Movements, BMD SWMS 008 Excavation, Trenching and Drainage Installation and subcontractor SWMS. The following controls must also be implemented when working within 10m of overhead powerlines:										
Working within Height Limit Zone	works required within the Height Limit Zone in which plant can reach the No – Go Zone as described in the BMD Working Near Services Core Operating Procedure.	Personal injury and/orplant and property damage dueto service strike	**5**	**3**	**15**	All services within ten (10) metres of the vicinity of the work area shall be located and proved, the services are to be clearly marked and height limit zone established and delineated. Visually marking the services and height limit zones shows the actual location of the service for all personnel working onsite. Prior to undertaking the works, all overhead services must be marked by the following:  Yellow cut out person (day) Placing under the overhead services. Height & voltage of the overhead service is to be physically assessed and marked on site and reviewed by BMD Direct Supervisor and the designated spotter prior to the excavator entering the Height Limit Zone (HLZ). Lowest height of the overhead service has been assessed as 6.3m using an ultrasonic cable height indicator  Step 1 An ultrasonic cable height indicator provides a safe and accurate way to measure height. Do not attempt to directly measure using conductive metallic objects or metal tape measures. Measure from lowest sag point. Step 2 Always consider the highest reach of the plant in the fleet, e.g. top of truck tipping/ excavator bucket etc. Step 3 Use No Go Zone height from Asset Owner.  DANGER OVERHEAD SERVICES VOLTAGE_____ REQUIRED CLEARANCE _____m MINIMUM HEIGHT OF SERVICE _____m MAXIMUM OPERATING HEIGHT_____m	**5**	**1**	**5**	Service Advisor, Foreman, Workers, Controllers

Conduit Install - Working within Height Limit Zone	Conduit Installation works required within the Height Limit Zone in which the excavator can reach the No – Go Zone as described in the BMD Working Near Services Core Operating Procedure.	Personal injury and/or plant and property damage due to service strike	**5**	**3**	**15**	• All plant/machines working within the Height Limit Zone shall not encroach into the NO GO ZONE (i.e. 3m per Energex Safety Advice - see attached) • Excavator is to have a clearly visible sticker stating the max height of the machine (without restrictions).  • 5T Excavator is to have a Height Limiter set a MAX HEIGHT 3.2m – operational height of the excavator shall not enter the no go zone of the service. This detail is to be captured on the PTW.  • A Controller (Spotter) is to be always in place whilst the excavator is operating within the Height Limit Zone (HLZ). The controller's sole task is to spot the excavator. At any time that the controller is not solely focused on the activity the operator shall cease works.	**5**	**1**	**5**	Service Advisor, Foreman, Workers, Controllers

- Manual checks are to be undertaken outside of Height Limit Zone to ensure limits are correct and accurate. This is to be completed at the beginning of each shift and every time the machine is isolated or turned off to ensure limits are operational. This check is to be completed by the CONTROLLER (SPOTTER) in conjunction with the plant operator. Record of this check is to be made onto the JHA by the controller (spotter) each time the Check has been Completed.

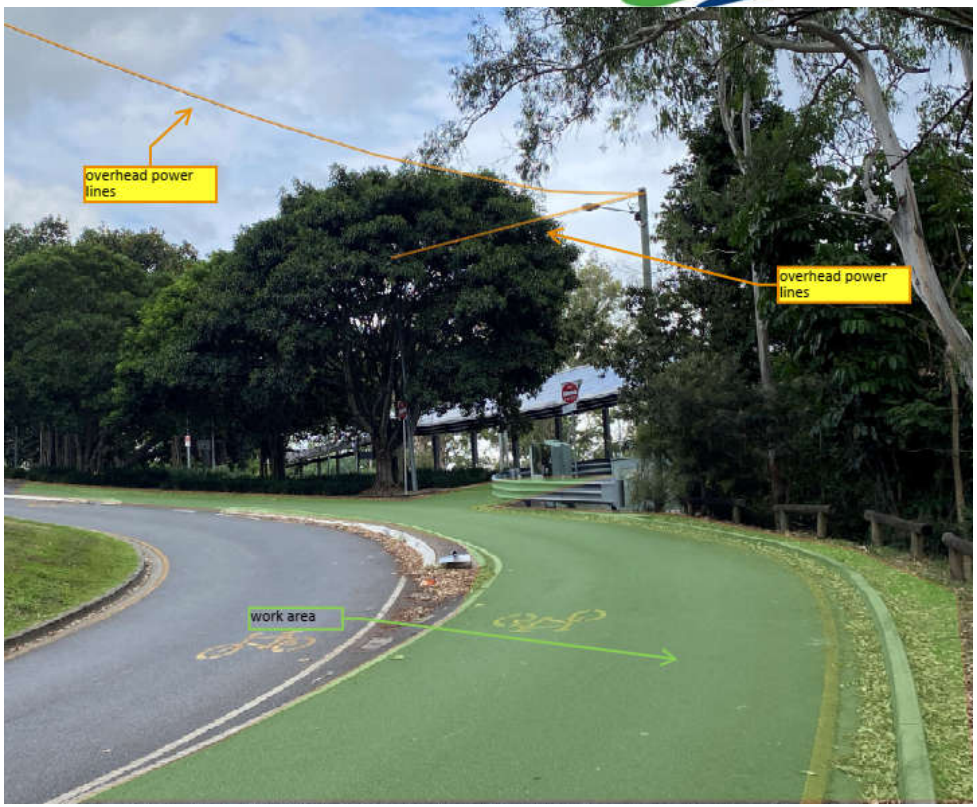
- Removal of spoil from trench and delivery/placement of bedding sand into the trench is to occur using a 2T tipper only. This activity is to only occur when in direct control by the CONTROLLER (SPOTTER) and with the height limited excavator i.e. loading of spoil/placement of bedding shall not reach >3.2m.

- Tipper is to have a clearly visible sticker stating the max height of the machine (without restrictions). Height of the tipper at its highest point must be less than 3m (height of 2T tipper = approx. 2.5m).

- Tip Trucks are not permitted to tip within the Height Limit Zone (HLZ).
- Placement of stabilized sand backfill is to occur using concrete agi mini's only, when working within height limit zone. Mini to have a clearly visible sticker stating the max height of the truck (<3.5m)

NO WORKS are to occur within the Height Limit Zone unless all above controls are in place.


Overhead power lines
Conduit & trench reinstatement alignment
Conduit & trench reinstatement alignment
Height Limit Zone - 10m either side of overhead power lines within work zone *operate under Risk Assessment*
Overhead power lines
nearmap


overhead power lines
overhead power lines
work area

Employee's Acceptance

We, the undersigned, confirm that we have been consulted on the development and given opportunity to provide inclusions of the Risk Assessment nominated above and the details have been explained and clearly understood. We also confirm that our required qualifications to undertake this activity are current. We also clearly understand that the controls in this Risk Assessment must be applied as documented, otherwise work is to cease immediately.

Date	Name	Employer	Signature

Chemical Risk Assessment

Hazardous Chemical Risk Assessment

Project No.: 141-4228 **Project Name:** Brisbane Metro

Chemical/Substance Details

Chemical/Substance Name: AJAX SPRAY N WIPE -LEMON

Chemical/Substance description: All purpose cleaner for house hold use.

Is the chemical/substance a Hazardous Substance as defined by Worksafe Australia criteria? **Yes** ☐ **No** ☒
Note: *Please refer to substance (SDS)*

Is SDS available / reviewed? **Yes** ☒ **No** ☐ SDS Issue Date: 19-02-2018

Is the chemical/substance prohibited substance as per relevant OH&S or Environmental regulations?

Yes, don't use ☐ **No** ☒

Is this chemical/substance able to be substituted by a less hazardous chemical?

Substitute chemical: _____ **Yes, use this chemical identified** ☐ **No** ☒

Hazardous Properties

Risk Level	Characteristics				
	Toxicity	Flammability	Reactivity	Contact Risk	Chronic Risk
Very Low					
Low	X	X	X		X
Moderate				X	
High					
Very High					

Chemical/Substance Use and Exposed

Activity resulting in exposure to the substance: Cleaning around site.

Frequency of Exposure: ☐ Daily ☐ Weekly ☐ Monthly ☒ Other: Occasional use

Period of exposure per frequency: Minimal exposure

Is the substance released or emitted into the work area? ☒ Yes ☐ No

Possible Absorption routes: ☐ Inhalation ☒ Skin ☒ Eyes
☐ Ingestion ☐ Injection

Control Measures Required During Exposure

IF IN EYES rinse cautiously with water for several minutes,remove contact lenses,if present and easy to do,continue rinsing,Immeadly calla poison center or doctor/physician.

Health Surveillance

Does relevant legislation require health surveillance for the chemical/substance type? ☐ Yes ☒ No

If yes, what is the health surveillance method to be used and at what intervals:

Environmental Monitoring

Does relevant legislation require environmental monitoring for the chemical/substance type? ☐ Yes ☒ No

If yes, what is the environmental monitoring to be conducted and at what intervals:

Storage

Total Quantity: _____Max 10 _____ Storage Containers 500ml_____

Storage Location: __Chemical Container_____ Storage containment requirements:

Does substance type have any Fire Fighting Hazards? ☐ Yes ☒ No

If yes, what are the Fire Fighting Hazards:

Risk Conclusion

With consideration to the nature of the substance, how it is being used, the degree of exposure, and the control measures required during its use, what is the probability of substance absorption and/or an unplanned release of energy through the use of, or exposure to, this substance?:

☐ Very Low ☒ Low ☐ Medium ☐ High ☐ Very High

Therefore considering all of the factors involved in this risk assessment, the following risk conclusion is made:

☒ Risk **IS NOT SIGNIFICANT** now and not likely to increase

☐ Risk **IS SIGNIFICANT** but effectively controlled

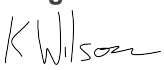
Any other comments regarding the risk conclusion: _____

Retention Period

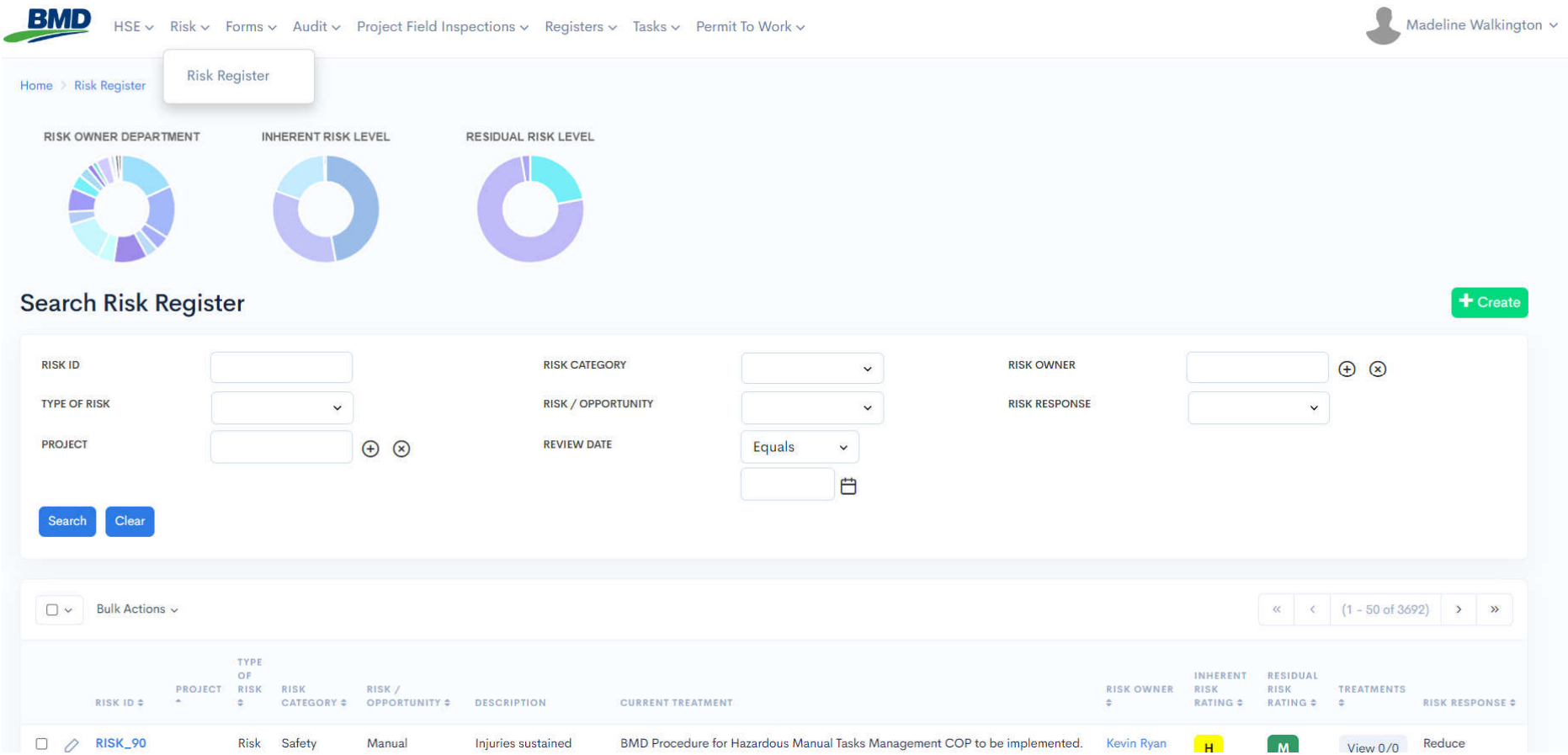
This risk assessment is to be retained for:
☒ 5 Years (Risk **IS NOT SIGNIFICANT)**
☐ 30 Years (Risk **IS SIGNIFICANT)**

Authorisation

This risk assessment has been assessed and approved by the following persons:

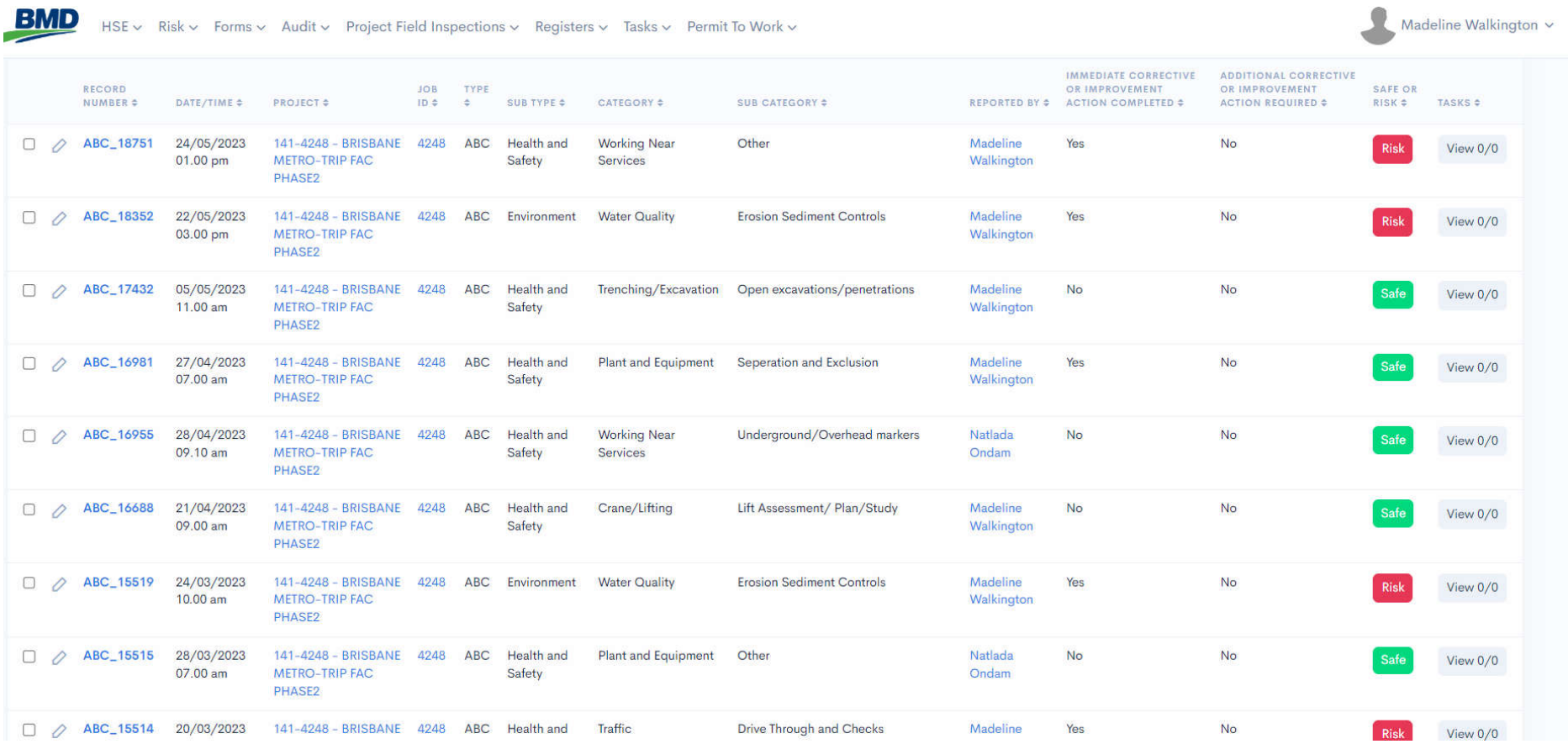
	Name	Title / Role	Signature	Date
H&S Assessor:	Peter Douglas	Safety Advisor		05/05/2022
Environmental Assessor:	Kathryn Wilson	Environment Manager		03/06/2022
Project Approved:	Maddy Walkington	SPE		03/06/2022

ONLINE RISK IDENTIFICATION / CORRECTIVE ACTIONS / REPORTING



						worn as a minimum onsite as per mandatory PPE requirements.						
☐	RISK_102	Risk	Quality	Subcontractor Management	Ensure all subcontractors have the required permits, drawing	Clear directions/instructions of all task to be carried out	Jason Zimmer	H	M	View 0/0	
☐	RISK_162	Risk	Environment	Waste	Litter dispersal into neighbouring areas, pollution of water	Provide waste education to all project personnel as part of	Liam McGarry	H	M	View 0/0	Reduce
☐	RISK_163	Risk	Environment	Permits and Licences	Impact on local environment or community; potential notices	Develop and maintain a project Compliance Obligations Regist	Liam McGarry	E	M	View 0/0	
☐	RISK_217	Risk	Environment	Water Quality	Audits; Inspections; ABC, visual inspections of causeway and	• No storage of hazardous material within 50 metres of water	Tony Maydew	H	M	View 0/0	
☐	RISK_291	Risk	Environment	Water Quality	Erosion of soil from site during rainfall events; release of	Project IPMP Water Quality Management Core operating Procedu	Tammy Cooper	E	M	View 0/0	
☐	RISK_368	Risk	Safety	Working at Heights	Working at heights.	Working at heights permit issued. Work crew trained in worki	Jessica Grant	E	M	View 0/0	Reduce
☐	RISK_372	Risk	Environment	Water Quality	Develop and implement a procedure within the CEMP for the un		Liam McGarry	H	M	View 0/0	

HAZARD REPORTING



RECORD NUMBER	DATE/TIME	PROJECT	JOB ID	TYPE	SUB TYPE	CATEGORY	SUB CATEGORY	REPORTED BY	IMMEDIATE CORRECTIVE OR IMPROVEMENT ACTION COMPLETED	ADDITIONAL CORRECTIVE OR IMPROVEMENT ACTION REQUIRED	SAFE OR RISK	TASKS
ABC_18751	24/05/2023 01.00 pm	141-4248 - BRISBANE METRO-TRIP FAC PHASE2	4248	ABC	Health and Safety	Working Near Services	Other	Madeline Walkington	Yes	No	Risk	View 0/0
ABC_18352	22/05/2023 03.00 pm	141-4248 - BRISBANE METRO-TRIP FAC PHASE2	4248	ABC	Environment	Water Quality	Erosion Sediment Controls	Madeline Walkington	Yes	No	Risk	View 0/0
ABC_17432	05/05/2023 11.00 am	141-4248 - BRISBANE METRO-TRIP FAC PHASE2	4248	ABC	Health and Safety	Trenching/Excavation	Open excavations/penetrations	Madeline Walkington	No	No	Safe	View 0/0
ABC_16981	27/04/2023 07.00 am	141-4248 - BRISBANE METRO-TRIP FAC PHASE2	4248	ABC	Health and Safety	Plant and Equipment	Seperation and Exclusion	Madeline Walkington	Yes	No	Safe	View 0/0
ABC_16955	28/04/2023 09.10 am	141-4248 - BRISBANE METRO-TRIP FAC PHASE2	4248	ABC	Health and Safety	Working Near Services	Underground/Overhead markers	Natlada Ondam	No	No	Safe	View 0/0
ABC_16688	21/04/2023 09.00 am	141-4248 - BRISBANE METRO-TRIP FAC PHASE2	4248	ABC	Health and Safety	Crane/Lifting	Lift Assessment/ Plan/Study	Madeline Walkington	No	No	Safe	View 0/0
ABC_15519	24/03/2023 10.00 am	141-4248 - BRISBANE METRO-TRIP FAC PHASE2	4248	ABC	Environment	Water Quality	Erosion Sediment Controls	Madeline Walkington	Yes	No	Risk	View 0/0
ABC_15515	28/03/2023 07.00 am	141-4248 - BRISBANE METRO-TRIP FAC PHASE2	4248	ABC	Health and Safety	Plant and Equipment	Other	Natlada Ondam	No	No	Safe	View 0/0
ABC_15514	20/03/2023	141-4248 - BRISBANE	4248	ABC	Health and	Traffic	Drive Through and Checks	Madeline	Yes	No	Risk	View 0/0

Home > ABC/

- Incident Reporting
- ABC/Hazard Reporting
- HSEQ Alert

ABC_18

+ Create

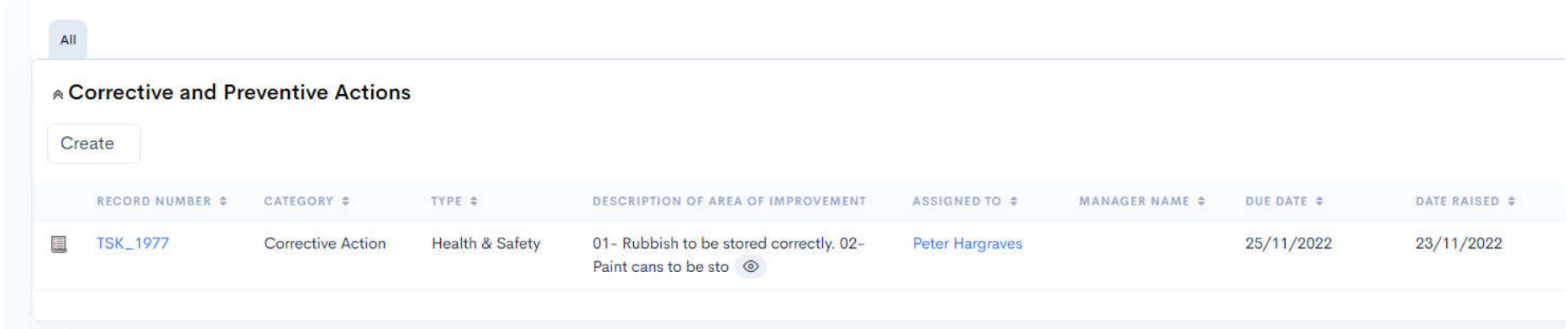
Edit

Type:	ABC	Date/Time:	24/05/2023 01.00 pm
Sub Type:	Health and Safety	Reported By:	Madeline Walkington
Category:	Working Near Services	Project:	141-4248 - BRISBANE METRO-TRIP FAC PHASE2
Sub Category:	Other	Specific Location:	
What ABC activity/Hazard did you observe?:	Works within QUU watermain - vac exploration extent had exposed too much of the watermain close to the watermain/thrust block. Area needed to be backfilled until permit and risk assessment could be completed.		
Immediate corrective or improvement action completed:	Yes	Additional corrective or improvement action required:	No
Comments:	Area backfilled		
Attachment:			

ABC Details

Observer Type:	Employee
Observer 1:	Madeline Walkington
Observer 2:	Rod McCluskey
Observer 3:	
Number Workers observed /communicated with:	1

RAISING CORRECTIVE ACTIONS



RISK INSPECTION

General Information

Type:	• Excavations & Shoring	Date / Time:	26/05/2023 02.00 pm
Lead Assessor:	Madeline Walkington	Project:	141-4248 - BRISBANE METRO-TRIP FAC PHASE2
Participant 1:		Additional Notes:	
Participant 2:		Location Description:	RMU excavation area - TJ Doyle memorial Drive
Participant 3:			
Attachments:			

Excavations & Shoring

Has the excavation been assessed by a Geotechnical Engineer?:	N/A **Comments:** excavation less than 1.5m - confirmed during inspection	Has the excavation been inspected / risk assessed prior to entry after a rain event?:	Yes **Comments:**
If assessed by a Geotechnical Engineer, is the report available at the work area and are stated controls / conditions being followed?:	N/A **Comments:**	Are the walls of excavations free of any exposed large fragments (rocks) that may dislodge and fall exposing workers to the risk of injury?:	Yes **Comments:**
Has the Manufacturers / Suppliers installation guide	N/A **Comments:**	Has a Temporary Works design been undertaken for	N/A **Comments:**

being managed during the installation process?:	**Comments:**	minimum 900mm above the ground to facilitate edge protection?:	**Comments:** shoring not required
Are personnel trained for working at heights?:	N/A **Comments:**	Are all excavations identified with appropriate signage?:	Yes **Comments:** signed appropriately on fencing.
Are all excavations barricaded?:	Yes **Comments:** barricaded full way around with ATF - signed appropriately.	Is there signage on all sides of the excavation stating DEEP EXCAVATION?:	Yes **Comments:**
Are there information tags attached to the barricading?:	No **Comments:** barricaded full way around with ATF - signed appropriately.	Is there suitable access to and from the excavation area?:	Yes **Comments:**
Are there people working in the excavation?:	Yes **Comments:**	Is the excavation shored?:	N/A **Comments:**
Is the excavation benched on all sides (maximum of 1.5m steps)?:	N/A **Comments:** excavation less than 1.5m - confirmed during inspection	Is the excavation battered no more than 45° from the horizontal?:	N/A **Comments:** less than 1.5m deep excavation
Has a risk assessment been undertaken for the work in the excavation?:	Yes **Comments:** JHA card completed and signed on	Is there a rescue plan in place and tested?:	N/A **Comments:**
If the excavation is a trench and access is by ladders, are there access points no greater than every 9	N/A **Comments:**	Are ladder access platforms being used?:	No **Comments:**

1m above the shoring / landing and are they secured?:	**Comments:**	excavation while there is mechanical digging in progress?:	**Comments:**
Is there an excavation permit in place for the excavation?:	Yes **Comments:** Permit in place and current	Is the excavation permit current?:	Yes **Comments:**
Does the permit reflect the activity being undertaken?:	Yes **Comments:**	Is there a welding generator or plant working nearby (omitting exhaust fumes into the excavation or trench)?:	No **Comments:**

Corrective Action Questions

Immediate corrective or improvement action completed:	No	Additonal corrective or improvement action required:	No

All

Tasks

Create

« ‹ (0 - 0 of 0) ›

SUBJECT	STATUS	CONTACT	RELATED TO	DATE MODIFIED
No Data				