

Pipe Laying

Business Name:		ABN:	
Business Address:			
Contact Person:	Phone:	Email:	

THIS RISK ASSESSMENT IS APPROVED BY THE PCBU ON THIS PROJECT

Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a RISK ASSESSMENT is prepared before the proposed work starts.

Full Name:		
Signature:	Title:	Date:

CLIENT OR PRINCIPAL CONTRACTOR DETAILS

Client:	SCOPE OF WORKS
Project Name:	
Project Address:	
Project Manager:	
Contact Phone:	
Date Risk Assessment supplied to Project Manager:	



RISK MATRIX									
LIKELIHOOD	INSIGNIFICANT	MINOR	MODERATE	MAJOR	CATASTROPHIC	SCORE	ACTION	HIERARCHY OF CONTROLS	
ALMOST CERTAIN	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4 ACUTE			Elimination Remove the hazard.	
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED	Substitution Replace the hazard.	
POSSIBLE	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	4 ACUTE	3H HIGH	Review before work starts.	Isolation Isolate People from the hazard	
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	2M MODERATE	Ensure control measures in place.	Engineering Isolate the hazard	
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 HIGH	1L LOW	Monitor and keep records.	Administrative Change	
								PPE	

Risk Rating & Required Action:	
4A	Stop work. The risk is intolerable. Eliminate the hazard or redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or higher-level authorisation is required.
3H	Review and approve additional controls before task starts. Senior supervisor sign-off needed.
2M	Ensure all nominated controls are in place and effective. Proceed with caution; monitor conditions.
1L	Proceed, following standard operating procedures. Monitor and keep records.

Consequence Scale:			
Consequence	People (injury/illness)	Project / Assets	Compliance / Reputation
Catastrophic	Fatality or permanent total disability	project shutdown	Significant regulator intervention; criminal prosecution
Major	Serious injury/illness (hospital > 5 days)	critical delay	Improvement notice; major media coverage
Moderate	Medical-treatment injury; lost-time > 1 day	moderate delay	Minor breach; adverse client comment
Minor	First-aid only, no lost time	negligible delay	Isolated non-conformance
Insignificant	No injury	no schedule impact	Deviation caught and corrected on site

Notes on Hierarchy of Controls:
Remember to apply controls in the preferred order shown by the coloured pyramid:

1. **Eliminate**
2. **Substitute**
3. **Isolate**
4. **Engineering**
5. **Administrative**
6. **PPE**

Always document **why** a lower-order control is accepted if elimination or substitution is not reasonably practicable.

aligned with Safe Work Australia's Managing the risk of fatigue at work (2023) and ISO 45001:2018 clauses 6–8.

JOB STEP	POTENTIAL HAZARDS	IR	CONTROL MEASURES	RR
SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
1. WHS Governance, Roles and Consultation	<ul style="list-style-type: none"> Lack of clear WHS governance structure for pipe laying operations resulting in unclear accountability for safety-critical decisions Inadequate consultation with workers and health and safety representatives (HSRs) about trenching, pipelaying and road interface risks Failure to incorporate WHS Act 2011 and WHS Regulations trenching and excavation requirements into management systems Inadequate integration of WHS duties into contractual arrangements with principal contractors, subcontractors and labour hire providers No formal process for reviewing and approving construction methodologies involving deep trenches, pipelayer machines and road occupations Poor change management when designs, work sequences, plant selection or road traffic arrangements are altered Insufficient oversight of remote satellite crews undertaking trenching and pipe laying on dispersed road or subdivision projects 	High	<ul style="list-style-type: none"> Establish a documented WHS management system aligned with WHS Act 2011 and relevant WHS Regulations, clearly identifying PCBU duties for trenching, excavation, pipe laying and road works Define and document WHS roles, responsibilities and authorities for managers, supervisors, leading hands, engineers, project managers and HSRs including specific responsibilities for trench and excavation safety Implement a formal WHS consultation procedure that mandates pre-start and weekly toolbox talks focused on pipe laying hazards such as trench collapse, mobile plant interaction, road traffic and confined spaces Embed WHS requirements including trench support, traffic management and plant competency, into contracts and subcontractor agreements. Use clear escalation processes for safety concerns Require formal written approval of construction methodologies involving trenches greater than 1.5 metres deep, use of pipelayer machines, shoring systems and work in live road corridors by a competent person (e.g. project engineer or WHS advisor) Implement a documented management of change (MOC) procedure for any alteration to pipe routes, trench depths, support systems, road closures, plant types, or shift patterns, including risk review and communication to workers Schedule regular site leadership visits, inspections and WHS audits of all pipe laying sites, including remote locations, with documented findings and corrective actions Ensure a documented WHS policy is communicated to all workers and contractors, highlighting zero-tolerance for unsafe trench entry, working beneath suspended loads and unauthorised changes to traffic management Maintain a WHS legal register and compliance calendar referencing WHS Act 2011, relevant Codes of Practice (Excavation Work, Confined Spaces, Construction Work) and Australian Standards, with periodic review 	Medium
2. Design, Planning and Engineering Controls	<ul style="list-style-type: none"> Insufficient consideration of WHS requirements during design and planning of sewer, stormwater and road crossing works Designs that require deep trenches (>1.5 m) without adequate allowance for benching, battering or engineered shoring systems Lack of geotechnical assessment of soil type, groundwater and ground stability prior to specifying trench depths and methods Inadequate planning for services location (dial before you dig) leading to 	High	<ul style="list-style-type: none"> Integrate WHS design review into project planning, ensuring pipe routes, trench depths and road crossings consider safe construction methodologies, including use of trench boxes, shoring and pipelayer machines Require geotechnical assessments for relevant projects to determine soil conditions, groundwater presence and potential for trench wall collapse, with outcomes incorporated into trench design and support requirements Mandate documented services searches (e.g. Dial Before You Dig) and use of service plans in design and planning, with clear no-go zones and control measures specified in project documentation Develop standard engineering guidelines for trench geometry (battering, benching, shoring) based on soil type and depth, including specific controls for trenches greater than and less than 1.5 metres Include in design packages the requirement for safe access and egress (ladders, stairs, safe zones) for all trenches where personnel entry is required, with maximum spacing defined 	Medium

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	<p>contact with underground services during pipe laying</p> <ul style="list-style-type: none"> Poor planning for access/egress from trenches, resulting in unsafe worker entry and exit for installation of PVC pipes and columns Failure to design work sequencing to minimise time workers spend in or adjacent to open trenches or under roads Inadequate planning for intersection with vehicle routes, pedestrian routes and existing road infrastructure during road pipe laying Insufficient planning for lifting logistics of large diameter PVC pipes, precast components and columns leading to unsafe ad hoc lifting solutions 		<ul style="list-style-type: none"> Plan construction sequencing to minimise open trench length at any one time, reduce duration of worker exposure in the trench, and avoid concurrent high-risk activities such as lifting over workers in trenches Ensure road pipe laying and under-road crossings are designed with consideration of road closures, detours, traffic staging, and temporary road plans, and that these requirements are incorporated into traffic management plans Develop standard lifting plans and engineering lifting points for large PVC pipes, manholes and columns, including specification of appropriate lifting equipment, spreader bars and exclusion zones Require formal pre-start planning meetings (e.g. pre-construction risk workshops) for major pipelaying projects to review design hazards and determine high level controls before work commences 	
3. Procurement of Plant, Equipment and Materials	<ul style="list-style-type: none"> Procurement of pipelayer machines, excavators, lifting gear and trench support systems that do not meet Australian standards or are unsuitable for the specific pipe laying environment Acquisition of PVC pipes, fittings and columns without considering manual handling and mechanical requirements (weight, dimensions, rigidity) Lack of standardisation of shoring systems, trench boxes and shoring equipment leading to inconsistent set-ups and increased risk of incorrect use Hiring plant or equipment without access to maintenance history, inspection records, safety features or load charts Procurement processes driven solely by cost or availability rather than suitability and safety performance Inadequate assessment of noise, vibration and emissions from selected plant used in trenches and roadworks 	High	<ul style="list-style-type: none"> Develop and implement procurement procedures that require WHS assessment of all plant, equipment and trench support systems before purchase or hire, ensuring compliance with relevant Australian Standards and Codes of Practice Specify minimum safety features for pipelayer machines, excavators and lifting plant (e.g. ROPS/FOPS, emergency stops, load indicators, reversing alarms, cameras, quick hitch safety) in purchasing and hire contracts Standardise selected trench shields, shoring systems, lifting gear, and pipe handling attachments across projects to simplify training, inspections and safe operating procedures Include in procurement criteria the requirement for documentation from suppliers and hire companies such as operator manuals, service records, inspection reports, test certificates and load charts Ensure procurement of PVC pipes and columns includes consideration of lengths, diameters and bundle sizes that align with the organisation's lifting and handling systems to reduce manual handling risks Assess noise and vibration levels of plant prior to procurement and preference lower noise/vibration options, incorporating these considerations into the organisation's plant register Include clauses in supplier and hire agreements requiring adherence to WHS requirements, timely provision of safety documentation and participation in incident investigations where their plant is involved 	Medium

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4. Contractor, Subcontractor and Labour Hire Management	<ul style="list-style-type: none"> • Use of subcontractors or labour hire workers who are not competent or experienced in trenching, pipelaying and road works • Inconsistent WHS standards between principal contractor, subcontractors and labour hire providers leading to gaps in controls • Inadequate verification of high-risk work capabilities such as trench support installation, traffic management implementation and pipelayer machine operation • Poor communication channels between multiple PCBUs regarding shared trenching and road interfaces • Lack of induction to project-specific risks such as deep trenches, stormwater/sewer alignment, road occupations and heavy traffic • Driving production pressures by contract terms (e.g. piece rates) that incentivise overlooking safety controls 	High	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	Medium
5. Training, Competency and Supervision	<ul style="list-style-type: none"> • Inadequate training of supervisors and workers in trenching, excavation, pipelaying and road works • Workers operating pipelayer machines, excavators or lifting equipment without appropriate high-risk work licences or VOC (verification of competency) • Insufficient competency in reading plans, identifying sewer and stormwater alignments and understanding design tolerances for pipe gradients and cover • Lack of awareness of legal requirements for trenches greater than 1.5 metres, confined space entry for sewer connections and road traffic controls 	High	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	Medium

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	<ul style="list-style-type: none"> Poor supervision of new or young workers engaged in pipe laying in trenches and on busy road corridors Inadequate training on emergency procedures for trench collapse, underground service strike, plant rollover or traffic incidents 		[REDACTED]	
6. Trenching and Excavation Management Systems	<ul style="list-style-type: none"> Systemic failure to identify and control the risk of trench wall collapse for trenches greater than and less than 1.5 metres Inconsistent application of shoring, shielding, benching or battering across sites leading to unprotected trenches No formal process for classification of soil types and assessment of ground stability, including during adverse weather or groundwater conditions Lack of standard procedures for inspection of trenches at the start of each shift, after rainfall, or following use of heavy machinery adjacent to the trench Absence of formal exclusion zones and barricading around open trenches resulting in falls into excavations or vehicle encroachment Poorly managed spoil placement and stockpiles at the trench edge increasing surcharge loads on trench walls 	Extra	[REDACTED]	Medium
7. Plant and Vehicle Management (Including Pipelayer Machines)	<ul style="list-style-type: none"> Mobile plant-personnel interaction during pipe laying in trenches, particularly in narrow corridors and along roads Uncontrolled use of pipelayer machines, excavators and loaders near 	High	[REDACTED]	Medium

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	<p>open trenches leading to ground collapse or plant rollover</p> <ul style="list-style-type: none"> • Inadequate systems for plant selection, pre-use checks, maintenance and defect reporting for critical equipment used in pipe laying • Unplanned lifting operations of PVC pipes, manholes and columns without lift studies or defined lifting methods • Uncontrolled reversing or slewing of plant in congested work areas, including road reserves and easements • Plant operating too close to overhead powerlines or underground services during excavation and road pipe laying 		<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	
8. Traffic and Road Interface Management	<ul style="list-style-type: none"> • Exposure of workers to fast moving traffic during road pipe laying or when trenches run parallel to or across roads • Inadequate or inconsistent traffic management plans (TMPs) for works in or adjacent to public roads and driveways • Poor coordination between local authorities, principal contractor and subcontractors regarding road closures, speed reductions and detours • Insufficient separation between work zones, pedestrians, cyclists and vehicles resulting in collisions or near misses • Temporary reinstatement or road plates not designed or installed to support traffic loads, leading to collapse into trenches • Inadequate signage, lighting and delineation for night works or low-visibility conditions 	High	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	Medium

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			[REDACTED]	
9. Manual Handling and Material Handling Systems	<ul style="list-style-type: none"> • Repetitive or awkward manual handling of PVC pipes, fittings and columns leading to musculoskeletal disorders • Lack of engineered handling solutions for longer and larger-diameter pipes in trenches and along narrow easements • Improvised handling, carrying or dragging of pipes in and around trenches, on uneven ground and along road verges • Inadequate planning of laydown areas and pipe storage resulting in stacking instability or difficult access • No systematic approach to limiting weights and dimensions of manually handled items in procurement and planning 	Medium	[REDACTED]	Low
10. Environmental and Ground Condition Management	<ul style="list-style-type: none"> • Changing ground conditions due to rain, groundwater, flooding, nearby watercourses affecting trench stability during pipe laying • Erosion and sedimentation in open trenches and stockpiles impacting environment and site access • Working in contaminated or suspected contaminated soils during sewer and stormwater installations • Inadequate systems for dewatering trenches leading to slips, trips, falls and potential trench wall failure • Failure to account for adjacent structures, retaining walls or utilities that may be undermined by excavation 	High	[REDACTED]	Medium

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11. Confined Space and Hazardous Atmosphere Management	<ul style="list-style-type: none"> • Entry into manholes, pits or sections of sewer pipelines that meet confined space criteria without appropriate systems • Accumulation of hazardous gases or oxygen-deficient atmospheres in sewers or stormwater systems being connected to new PVC pipework • Lack of clear delineation between general trench work and confined space work, leading to uncontrolled entry • Inadequate rescue planning for workers in confined spaces or deep trenches • Use of petrol or diesel equipment near or within confined spaces increasing risk of toxic fumes 	High	[REDACTED]	Medium
12. Health, Fatigue and Wellbeing Management	<ul style="list-style-type: none"> • Long shifts, early starts and night works associated with road closures and pipe laying leading to worker fatigue • Extended exposure to cold, UV and adverse weather when working in open trenches and road reserves • Insufficient systems to manage health risks such as noise, vibration, dust and manual handling across multiple pipe laying sites • Psychosocial hazards due to production pressures, remote work locations and limited amenities • Inadequate monitoring of fitness for work including impacts of alcohol, drugs and medications 	Medium	[REDACTED]	Low
13. Documentation, Records and Information Management	<ul style="list-style-type: none"> • Inadequate documentation of risk assessments, permits, inspections and training leading to inconsistent application of controls 	Medium	[REDACTED]	Low

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	<ul style="list-style-type: none"> • Outdated or inaccessible procedures and guidance documents for trenching, pipelaying and road works • Failure to retain key records relating to trench design, shoring selection, plant maintenance and TMP approvals • Poor version control of drawings and design changes resulting in crews working to superseded information • Lack of systematic communication of lessons learned from incidents or near misses across projects 		[REDACTED]	
14. Incident, Emergency and Crisis Management	<ul style="list-style-type: none"> • Lack of coordinated emergency response for trench collapse, underground service strike, plant rollover or road traffic incidents • Inadequate site-specific emergency plans for remote pipe laying areas and road corridors with difficult access • Poor communication systems between crews, supervisors and emergency services during critical events • Failure to investigate incidents and near misses effectively, resulting in recurrence of systemic issues • Limited capability to manage multiple simultaneous incidents on linear pipe projects (e.g. long sewer or stormwater alignments) 	High	[REDACTED]	Medium
15. Audit, Review and Continuous Improvement	<ul style="list-style-type: none"> • Failure to identify emerging WHS risks in pipe laying operations due to lack of systematic review • Complacency over time leading to erosion of trenching, plant and traffic management standards 	Medium	[REDACTED]	Low

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	<ul style="list-style-type: none"> • No mechanism to verify that corporate WHS procedures are effectively implemented on all sites • Limited worker involvement in reviewing the effectiveness of WHS controls for trenching and pipelaying • Lack of review of WHS management system against changes in legislation, codes of practice or standards 		<div style="background-color: black; height: 15px; width: 100%;"></div>	

SAMPLE

EMERGENCY RESPONSE – CALL 000 FOR EMERGENCIES

Ensure to have an Emergency Management Plan in place as well as adequate numbers of trained first aid staff with easy access to fully stocked first aid kits, rescue equipment, material safety data sheets, adequate access to emergency communication equipment and fire-fighting equipment suitable for all classes of fire and ignition sources.

LEGISLATIVE REFERENCES

RELEVANT LEGISLATION AND CODES OF PRACTICE. DELETE THE LEGISLATIVE REFERENCES FOR ANY STATE THAT ARE NOT APPLICABLE

Queensland & Australian Capital Territory

Work Health and Safety Act 2011
 Work Health and Safety Regulations 2011
 Legislation QLD: <https://www.worksafe.qld.gov.au/laws-and-compliance/work-health-and-safety-laws>
 Codes of Practice QLD: <https://www.worksafe.qld.gov.au/laws-and-compliance/codes-of-practice>
 Legislation ACT: <https://www.worksafe.act.gov.au/laws-and-compliance/acts-and-regulations>
 Codes of Practice ACT: <https://www.worksafe.act.gov.au/laws-and-compliance/codes-of-practice>

Victoria

Occupational Health and Safety Act 2004
 Occupational Health and Safety Regulations 2017
 Legislation VIC: <https://www.worksafe.vic.gov.au/occupational-health-and-safety-act-and-regulations>
 Codes of Practice VIC: <https://www.worksafe.vic.gov.au/compliance-codes-and-codes-practice>

New South Wales

Work Health and Safety Act 2011
 Work Health and Safety Regulations 2025
 Legislation NSW: <https://www.safework.nsw.gov.au/legal-obligations/legislation>
 Codes of Practice NSW: <https://www.safework.nsw.gov.au/resource-library/list-codes-of-practice>

Western Australia

Work Health and Safety Act 2020
 Work Health and Safety Regulations 2022
 Legislation Western Australia: <https://www.commerce.wa.gov.au/worksafe/legislation>
 Codes of Practice WA: <https://www.commerce.wa.gov.au/worksafe/codes-practice>

Northern Territory

Work Health and Safety (National Uniform Legislation) Act 2011
 Work Health and Safety (National Uniform Legislation) Regulation 2011
 Legislation NT: <https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws>
 Codes of Practice NT: <https://worksafe.nt.gov.au/laws-and-compliance/codes-of-practice>

Safe Work Australia Links

Law and Regulation (All States): <https://www.safeworkaustralia.gov.au/law-and-regulation>
 Model Codes of Practice: <https://www.safeworkaustralia.gov.au/resources-publications/model-codes-of-practice>

South Australia

Work Health and Safety Act 2012 (SA)
 Work Health and Safety Regulations 2012 (SA)
 Legislation for SA: <https://www.safework.sa.gov.au/resources/legislation>
 Codes of Practice for SA: <https://www.safework.sa.gov.au/workplaces/codes-of-practice#COPs>

Model Codes of Practice

- Managing noise and preventing hearing loss at work
- Confined spaces
- Labelling of workplace hazardous chemicals
- Managing risks of hazardous chemicals in the workplace
- Welding processes
- First aid in the workplace
- Managing the risk of falls at workplaces
- Hazardous manual tasks
- Managing the risk of falls in housing construction
- Managing electrical risks in the workplace
- Demolition work
- Excavation work
- Work health and safety consultation, cooperation and coordination
- Managing the work environment and facilities
- How to manage work health and safety risks
- Managing risks of plant in the workplace
- Construction work

Tasmania

Work Health and Safety Act 2012
 Work Health and Safety (Transitional and Consequential Provisions) Act 2012
 Work Health and Safety Regulations 2012
 Work Health and Safety (Transitional) Regulations 2012
 Legislation for TAS: <https://worksafe.tas.gov.au/topics/laws-and-compliance/acts-and-regulations>
 Codes of Practice for TAS: <https://worksafe.tas.gov.au/topics/laws-and-compliance/codes-of-practice>

Details of permits, licenses or access required by regulatory bodies (add or delete as required):

- Permits from local council
- Authorisation to commence work
- Any required documents.