Excavation Shoring, Benching and Shielding

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

THIS RISK ASSESSMENT IS APPROVED BY THE PCBU OF THE 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:

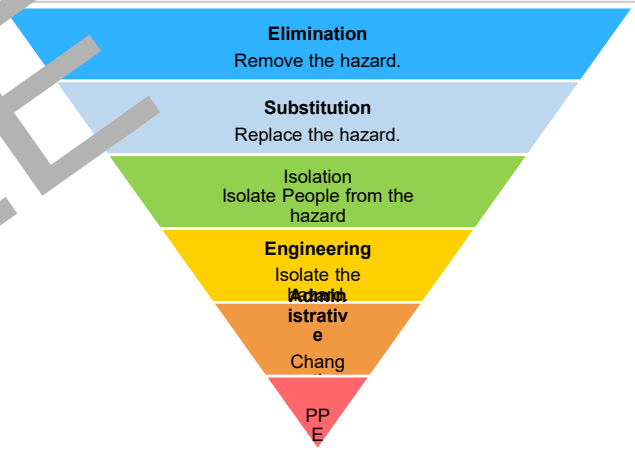
CLIENT OR PRINCIPAL CONTRACTOR DETAILS

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
ALMOST CERTAIN	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4 ACUTE		
LIKELY	2 MODERATE	3 HIGH	3 HIGH	4 ACUTE	4 ACUTE	4A ACUTE	DO NOT PROCEED
POSSIBLE	1 LOW	2 MODERATE	3 HIGH	4 ACUTE	4 ACUTE	3H HIGH	Rev before work
UNLIKELY	1 LOW	1 LOW	2 MODERATE	3 HIGH	4 ACU	2M MO RATE	Ensure control measures in place.
RARE	1 LOW	1 LOW	2 MODERATE	3 HIGH	3 H	1L LOW	Monitor and keep records.

HIERARCHY OF CONTROLS



Risk Rating & Required Action:

4A	Stop work. The risk is intolerable. E inate the hazar redesign the activity before proceeding. A Safe Work Method Statement (SWMS) or hi er-level authorisati is required.
3H	Review and approve additional c rols b ask arts. Senior supervisor sign-off needed.
2M	Ensure all nominated controls are in ace and effe ive. 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 Legal Compliance	• Lack of clear WHS responsibilities for excavation shoring, benching and shielding activities • Inadequate understanding of WHS Act 2011 and WHS Regulations (particularly excavation and trenching requirements) • No documented approval process for high-risk excavation activities (including trenches, benching and shoring systems) • Failure to identify and appoint a competent person for excavation design, inspection and supervision • Poor integration of excavation risk management into the broader WHS management system • Ineffective consultation with workers and Health and Safety Representatives (HSRs) on excavation shoring and shielding risks • Insufficient review of compliance with relevant Australian Stand... Codes of Practice and manufa...rer instructions for shoring and shi...ding systems	4A	• Establish and document a WHS governan... structure that clearly allocates duties for excavation shoring, benching and shielding under the W...S Act 201... and WHS Regulations • Develop and maintain an Excavation and Tre...hing WHS Policy that references legal requirements, relevant Codes of Practice and applicable Austra...n Standards ... earth retention and shielding systems • Formally appoint a competen... person (with demo...rable excavation, geotechnical and shoring system knowledge) to overse... planning, ...sign sign-off, imp...entation and review of all excavation support systems • Implement ...ocumented ...gh-risk e...vati...n permit system covering trenches, pits, benching and installation or r...oval of s...oring and s...ding systems • Emb... excavat... oring and shielding requirements into the organisation's WHS management syste... in...ding p...edures, training, procurement and contractor management • Estab...h a ...mal pr...ess for WHS consultation with workers and HSRs on excavation system design, changes ...o sho...g or benching methods, and emergency arrangements • S...du... periodic compliance audits to verify adherence to WHS legislation, Codes of Practice and manufa...er specifications for all earth retention systems • ...nsure management receives regular WHS legal updates and targeted briefings on changes to ex...vation-related legislation or standards	2M
2. Geotechnical Assessment and Soil Classification	• Absence of forma... ...tec...ical assessment prior to excavation, benching or shoring design • Incorrect or overly simp... ... classification leading to inadequate support design • Failure to account for layered or variable soil conditions and fill materials • Not considering groundwater, seepage, previous disturbances or underground services that affect ground stability • Reliance on operator judgement instead of documented geotechnical input for deep trenches or pits • No system for re-assessment of soil conditions following weather events,	4A	• Implement a mandatory geotechnical assessment procedure for excavations above defined depth or complexity thresholds, including pits, benching and trenching works • Require written soil classification and design parameters (e.g. cohesion, friction angle, water table) from a suitably qualified geotechnical professional for all significant earth retention systems • Develop a standardised soil classification checklist and record form to be used by the competent person at each work area • Incorporate groundwater, surface water, historical disturbance and nearby structures into the geotechnical risk assessment and excavation support design • Require geotechnical sign-off of benching geometry, slope angles, shoring layouts and shielding usage limits before work commences • Establish a trigger-action procedure for re-assessment of ground conditions after heavy rain, flooding, vibration, under-mining or visible ground movement • Maintain a central register of geotechnical reports, design assumptions and soil classification outcomes accessible to supervisors and engineers	2M

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	vibration, or changes in excavation geometry			
3. Excavation and Support System Design Management	• No formal design process for shoring, benching, shielding and slope or bench digging arrangements • Use of generic or unsuitable shoring designs that do not reflect site-specific conditions or excavation geometry • Inadequate design consideration of adjacent loads such as plant, stockpiles, roads, or structures near the excavation edge • Lack of clear design documentation for benching (creating safe flat zones) and benching operations on trench sides • Omission of load ratings, installation sequences and limitations for trench boxes, shields and proprietary shoring systems • Design not considering staged excavation, shield erection in trenches and sequential installation or removal of supports • Poor management of design changes in response to evolving site conditions	4A	• Establish a formal excavation support design procedure requiring engineered design for all significant shoring, benching and shielding systems • Ensure designs for shoring, benching and shields are completed or verified by a suitably qualified engineer competent in excavation and earth retention systems • Require design documentation to explicitly address benching side of a trench, slope stability, safe flat zones, maximum depth, panel spacing and surcharge loads • Document load ratings, maximum allowable depths, required bracing, and usage constraints for all trench boxes, shields and proprietary shoring systems • Include clear design-stage planning for shield erection in trenches, staged excavation, and installing or removing trench supports sequentially • Implement a design change management process requiring engineer review whenever soil conditions, excavation dimensions or adjacent loadings change • Store approved design drawings, calculations and manufacturers' technical data in a controlled document management system with version control • Require a formal pre-start design review meeting between engineer, supervisor and key workers to communicate design intent and limitations	2M
4. Planning of Benching, Sloping and Trenching Geometry	• Ad-hoc decisions on bench heights widths and slope angles without reference to engineering design • Inadequate allowance for safe working platforms, access routes and escape paths on benched surfaces • Over-steep slopes or insufficient benches leading to progressive slope failure or sudden soil collapse • Failure to plan for transitions between sloped, benched and shored sections of a trench or pit • No formal review of how trench length, width and depth influence support requirements and stability	3H	[redacted]	2M

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	• Poor integration of benching plans with earthmoving methodology and plant selection			
5. Procurement, Inspection and Maintenance of Shoring, Shielding and Earth Retention Systems	• Procurement of shoring, trench boxes or shields without verification of engineering certification and compliance • Use of damaged, incompatible or untested shoring and support components • Inadequate system to track inspections, maintenance and repairs of shoring equipment and earth retention systems • Mixing components from different manufacturers leading to loss of design capacity • No established criteria for quarantining or discarding defective supports, trench boxes or shields • Failure to maintain documentation such as certificates, load ratings and manufacturer instructions	3H	[redacted]	1L
6. Installation and Removal System Management for Shoring, Benching and Shielding	• Lack of a documented system for safe sequences when installing shoring for trenches, installing trench boxes or erecting shields in [redacted] • Uncontrolled removal of trench supports, leading to premature collapse or loss of ground support • Inadequate supervision and competency of crews performing shoring support systems installation • Failure to plan for progressive support installation as the excavation deepens and benching changes • No documented method for maintaining stable ground support when modifying existing shoring or benching arrangements • Poor control of exclusion zones during installation and removal of trench supports and shields	4A	[redacted]	2M

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7. Ground Stability Monitoring and Change Management	• No systematic monitoring program for ground movement, cracks or signs of instability in benched or shored excavations • Failure to detect early warning signs before a sudden soil collapse or cave-in event • Inadequate response process when deterioration of ground conditions is observed • Changes to excavation shape, depth or nearby loading not communicated to the competent person • Weather events (rain, flooding, drying, high winds) affecting ground stability without formal reassessment • Poor record-keeping of inspections, observed defects and corrective actions	4A	[redacted]	2M
8. Worker Competency, Training and Authorisation	• Workers involved in trenching and shoring lacking formal training in excavation support principles and hazards • Supervisors not com[redacted] reading shoring and benchi[redacted] designs and applying system c[redacted]trols • No formal authoris[redacted]ystem for personnel to manage or sign off excavation and shoring activities • Insufficient training on ca[redacted] rescue plan roles, emergency triggers and communication protocols • High reliance on informal, on-the-job training without competency assessment • Limited understanding of limitations and correct usage of trench boxes, shields and hydraulic shoring systems	3H	[redacted]	1L
9. Planning for Services, Adjacent Structures and External Influences	• Inadequate identification and management of underground services intersecting with trenching and shoring works	3H	[redacted]	2M

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	• Failure to consider influence of adjacent buildings, roads, rail lines or retaining walls on excavation stability • Construction traffic, heavy plant or spoil stockpiles placed too close to the edge of benched or shored excavations • Vibration from compaction, traffic or plant undermining the design assumptions of support systems • Lack of coordination with utility owners, asset managers and local authorities on allowable excavation methods and support requirements		[redacted]	
10. Access, Egress and Exclusion Zone Management	• No systematic planning for safe entry and exit points for people working within benched or shored excavations • Uncontrolled access to trenching areas by unauthorised workers or the public • Inadequate edge protection around open excavations, leading to falls or vehicular ingress • Poor definition and enforcement of exclusion zones for pl… and material movement near ex…vation edges • Lack of secondar… escape … long trenches or de… …n the eve… of soil collapse		[redacted]	2M
11. Cave-In and Sudden Soil Collapse Emergency Planning	• Absence of a document…e-in rescue plan for trenching and shoring activities • Emergency response relying on ad-hoc actions rather than rehearsed procedures • Inadequate provision of rescue resources and equipment appropriate to excavation environments • Poor coordination with external emergency services regarding access, capabilities and response times	4A	[redacted]	2M

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	• Insufficient training of supervisors and workers on reaction to sudden soil collapse and safe rescue principles • Failure to account for secondary collapse risk during rescue operations		[redacted]	
12. Contractor and Subcontractor Management for Trenching and Shoring	• Engagement of contractors for trenching and shoring without adequate pre-qualification of their WHS systems and technical capability • Misalignment between principal contractor procedures and subcontractor practices for benching and excavation support • Inconsistent application of risk controls for shoring, benching and shielding across multiple contractors on the same site • Inadequate oversight of contractor compliance with excavation permits, design requirements and inspection regimes • Poor communication of changes in excavation design, sup[redacted]thods or cave-in rescue plan[redacted]subcontractors	3H	[redacted]	2M
13. Documentation, Record-Keeping and Review of Excavation Controls	• Inadequate docu[redacted]entation [redacted] excavation risk ass[redacted], permit inspections and design approvals • Loss or fragmentation of record[redacted] across multiple systems, [redacted]g it difficult to demonstrate compliance • Failure to review incident data, near misses and inspection findings to improve shoring and benching systems • Out-of-date procedures and design guidelines remaining in circulation and being applied on new projects • Limited management visibility of systemic issues affecting trenching and shoring safety performance	3H	[redacted]	1L

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14. Fatigue, Work Scheduling and Environmental Conditions Management	• Long shifts or inadequate breaks leading to fatigue among workers installing or inspecting shoring systems • Pressure to accelerate trenching and shoring programs resulting in shortcuts or non-compliance with controls • Extreme heat, cold, rain or poor visibility affecting judgement and increasing the likelihood of errors in support installation or inspection • Insufficient planning for seasonal weather patterns that impact soil moisture and excavation stability	3H	[redacted]	2M

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

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-of-codes-of-practice

Northern Territory
Work Health and Safety (National Uniform Legislation) Act 2011
Work Health and Safety (National Uniform Legislation) Regulations 2011
Legislation NT: https://worksafe.nt.gov.au/laws-and-compliance/workplace-safety-laws
Codes of Practice NT: https://worksafe.nt.gov.au/forms-and-resources/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

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.

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

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

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

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