Deep Foundation Works			
Business Name:		ABN:	
Business Address:			
Contact Person:	Phone:	Email:	

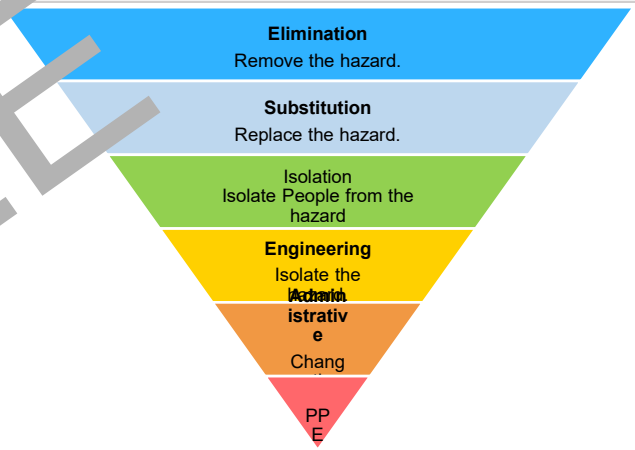
THIS RISK ASSESSMENT IS APPROVED BY THE PCBU OF THE PROJECT		
Under the Work Health and Safety Regulation (WHS Regulation), a person conducting a business or undertaking (PCBU) is required to ensure that a RISK ASSESSMENT is prepared before the proposed work starts.		
Full Name:		
Signature:	Title:	Date:

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, Planning & Legal Compliance	• Absence of a project-specific WHS management plan for deep foundation works • Poor integration of WHS Act 2011 and WHS Regulation requirements into project systems • Unclear allocation of PCBU, officer and worker WHS duties across principal contractor, piling contractor and subcontractors • Lack of documented WHS objectives, performance indicators and review processes for foundation works • Failure to consult, cooperate and coordinate activities between multiple PCBUs on a congested site • Inadequate review of design and geotechnical documentation from a WHS risk perspective	4A	• Develop and implement a project-specific WHS Ma gement Plan that explicitly addresses deep foundation, drilled shaft and piling activities in ac dance with WHS Act 2011 and WHS Regulation • Define and document PCBU interfaces, r and respon bilities (principal contractor, piling contractor, designers, geotechnical engineers, plant su ers) inc ng WHS obligations and reporting lines • Establish a WHS governance structure (e.g. steering grou) with regular meetings, documented agendas and actions for all hi -risk construction ork includi deep excavations and piling • Ensure consultation, coopera and coordination gements between PCBUs are formalised in contracts, pre-start ation etings and interfa agreements • Undertake a umented HS leg compli e review for the project referencing WHS Act 2011, WHS Regulation, r vant Codes Practice nd ustralian Standards for piling and excavation • Emb design d ge hnical review workshops (incl. constructability and temporary works) into projec ning t ntify and control systemic safety risks early • Estab h a ocume d process for management of change (MoC) where scope, design, methodology, or grou con ions c ge, including WHS review and authorisation steps • t WH perfo ance metrics (e.g. critical control verifications, inspections, leading indicators) for deep foun ion works and review results at management meetings	3H
2. Design, Geotechnical Information & Temporary Works Engineering	• Insufficient or inaccurate geotechnical investigation leading to unforeseen ground conditions • Lack of engineeri verification of pile design, socket len s and cap ities against actual site diti • Inadequate design and certification temporary works (e.g. casings, sh ng, platforms, guide walls) • Poor communication of design assumptions and limitations to construction management • Design not considering constructability, plant limitations and stability during drilling and concreting • Failure to manage design changes or field design adjustments in a controlled manner	4A	• I lement a formal geotechnical data management process requiring comprehensive investigation, peer review and clear reporting of ground risks prior to construction • Ensure pile and shaft designs, including temporary support and casing requirements, are prepared and checked by suitably qualified engineers and documented in issued-for-construction drawings • Develop and implement a Temporary Works Procedure aligned with AS/NZS standards, including design briefs, design risk assessments, independent checks and sign-off prior to use • Require that design assumptions (e.g. groundwater levels, soil behaviour, allowable plant loads on working platforms) are summarised and communicated to site and project management • Mandate constructability reviews and risk workshops for deep foundation design involving designers, geotechnical engineers, supervisors and plant specialists • Introduce a controlled design change process requiring written engineering approval for any change to pile diameter, depth, reinforcement, sequencing or temporary works arrangements • Maintain a live design register tracking all revisions, field changes and non-conformances, with WHS implications documented and communicated • Integrate design risk controls into construction procedures, inspection and test plans (ITPs) and hold/witness points for critical foundation activities	2M
3. Contractor Selection, Competency & Supervision	• Engagement of piling contractors without demonstrable experience in	4A	• Develop pre-qualification criteria for deep foundation and piling contractors, including past performance, WHS systems, equipment capability and technical references	2M

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	deep foundation works under similar ground and site conditions • Inadequate verification of licences, high-risk work tickets and evidence of competency for drilling rig operators and riggers • Insufficient site supervision and oversight for critical deep foundation activities • Reliance on labour hire or short-term workers without structured induction or verification of experience • Lack of ongoing competency assessment and training for changes in plant, methods or technology		• Require submission and review of competency matrices, licences, VOCs (Verification of Competency) and training records for all key roles (rig operators, doggers, riggers, supervisors) • Include supervision ratios and minimum supervisor competency standards in contract documentation for piling and drilling operations • Implement a two-stage induction process (project and task-specific) for all personnel involved in piling, with verification of experience and language comprehension • Conduct periodic field-based competency assessments and refresher training for operators and supervisors on deep foundation hazards and critical controls • Establish a formal approval process for new or unfamiliar subcontractors and labour hire staff before assignment to high-risk foundation tasks • Require that at least one competent senior supervisor with deep foundation experience is present during all critical activities such as initial trial piles, complex ground conditions and night works • Link performance evaluation and contract renewal decisions to WHS performance and demonstrated competency in managing deep foundation risks	
4. Plant, Rig Selection & Engineering Control Systems	• Use of drilling rigs or cranes not suitably sized or rated for maximum anticipated loads and depths • Inadequate maintenance systems leading to plant failure, dropped objects or loss of control • Lack of safety interlocks, load indicators or slew/height limiting devices on critical plant • Poor management of aftermarket modifications to rigs, augers, casing oscillators or kelly bars • Unclear arrangements for plant inspection, pre-start checks and statutory certifications • Use of non-compliant lifting gear or attachments for handling long reinforcement cages and casings	4A	[redacted]	2M

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5. Site Layout, Working Platforms & Traffic Management	• Inadequately designed or constructed working platforms leading to rig instability or overturning • Uncontrolled interaction between heavy plant, delivery trucks and pedestrians • Insufficient exclusion zones around rigs, swinging loads and rotating tools • Poor material laydown planning causing congestion, blocked access and emergency egress issues • Lack of control for reversing manoeuvres and night-time operations	4A	[redacted]	2M
6. Underground & Overhead Services, Adjacent Structures & Public Interfaces	• Inadvertent contact with underground utilities (gas, electricity, water, communications) during deep drilling • Plant encroachment into overhead powerline exclusion zones • Ground movement or vibration impacting adjacent structures, retaining systems or sensitive infrastructure • Insufficient segregation from public areas, roads or neighbouring properties • Inadequate monitoring of settlement, ground displacement or structural movement	4A	[redacted]	2M

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			[redacted]	
7. Groundwater, Stability & Excavation Management	• Unexpected groundwater inflows causing shaft wall instability or base heave • Inadequate systems for managing drilling slurry, spoil and water leading to environmental and safety issues • Failure of temporary casing or support systems resulting in collapse or entrapment • Uncontrolled excavation near existing foundations, utilities or slopes increasing risk of ground failure • Insufficient technical oversight for complex ground conditions (e.g. loose sands, soft clays, fissured	4A	[redacted]	2M
8. Lifting, Handling of Reinforcement, Casings & Heavy Components	• Systemic failure in planning and coordinating complex lifts of long reinforcement cages or heavy casings • Use of inappropriate lifting points or non-engineered lifting frames for cages and segments • Inadequate lifting studies for tandem or multi-crane operations • Poorly controlled movement of suspended loads through congested work areas	4A	[redacted]	2M

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	• Insufficient inspection and tracking of lifting gear condition and certification		[redacted]	
9. Deep Foundation Construction Procedures & Quality Controls	• Lack of formalised procedures for drilled shaft construction, cage placement and concrete placement sequences • Inadequate verification of pile verticality, depth, cleanliness and reinforcement position • Inconsistent quality control leading structural defects and latent failures • Poorly managed non-conformances and rework that compromise structural integrity or safety • Failure to manage interface between geotechnical design intent and as-built construction practices	3H	[redacted]	2M
10. Worker Consultation, Training,	• Inadequate communication of deep foundation hazards and critical controls to workers and subcontractors	3H		2M

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Induction & Communication	• Lack of site-specific induction content relevant to drilling and piling systems and risks • Poor consultation processes leading to unreported hazards, near misses and unsafe practices • Language, literacy or cultural barriers affecting understanding of procedures and instructions • Insufficient training in emergency procedures relating to entrapment, ground collapse or plant incidents		[redacted]	
11. Fatigue, Rostering, Environmental Conditions & Psychosocial Factors	• Excessive work hours, night shifts or compressed rosters reducing operator fatigue and reduced decision-making capacity • Exposure to extreme weather (heat, rain, wind) affecting concentration, plant stability and ground conditions • High-pressure program milestones contributing to rushed work, risk-taking and stress • Failure to manage noise, vibration and confined work areas contributing to psychosocial and physical strain • Inadequate systems for reporting and managing fatigue or stress-related concerns	3H	[redacted]	2M

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			[redacted]	
12. Emergency Preparedness, Rescue & Incident Management	• Lack of realistic emergency plans for rig overturn, ground collapse, entrapment or major plant failure • Delayed emergency response due to unclear roles, access issues or inadequate communication systems • Insufficient resources and equipment for rescue from deep shafts or difficult access areas • Poor incident investigation processes leading to repeat events and unaddressed systemic issues • Inadequate coordination with external emergency services for site-specific deep foundation risks	3H	[redacted]	2M
13. Environmental, Contamination & Waste Interface with WHS	• Encountering con[redacted] soils [redacted] groundwater without appropriate management systems • Improper handling or di[redacted] drilling fluids, spoil and wash-down water leading to health exposures • Dust, noise and vibration from piling operations affecting workers and neighbouring communities • Spills or leaks of fuels, oils and chemicals used in rigs and support equipment • Lack of integrated environmental and WHS risk assessments for deep foundation activities	3H	[redacted]	2M

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			[redacted]	
14. Documentation, Records, Auditing & Continuous Improvement	• Incomplete or inaccurate WHS and technical records for deep foundation activities • Failure to track and close out corrective actions from inspections, audits and incidents • Lack of systematic review of WHS performance and lessons learned specific to deep foundation works • Over-reliance on informal communication rather than controlled documents and proced • Inadequate integr on of subcontractor records into the pr cipal contr WHS system	3H	[redacted]	1L

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