Concrete Pumping (Boom Pumping)

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:

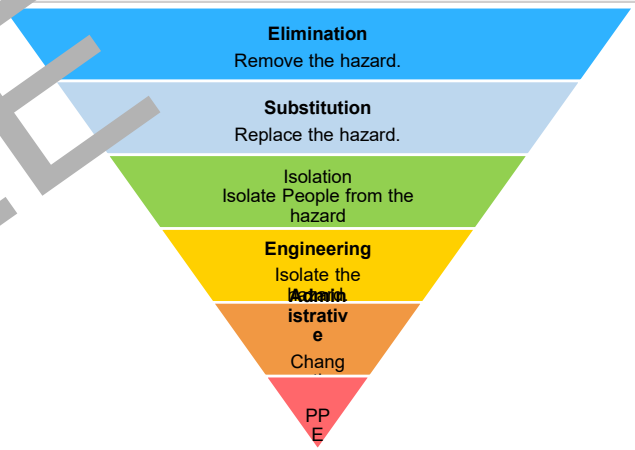
CLIENT OR PRINCIPAL CONTRACTOR DETAILS

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. Governance, Legal Compliance and WHS Leadership	• Lack of clear WHS governance structure for concrete pumping operations (uncertain roles, responsibilities and authority) • Failure to identify and comply with WHS Act 2011, WHS Regulation and relevant Codes of Practice (e.g. Managing Risks of Plant in the Workplace, Concrete Pumping Code of Practice where applicable) • Inadequate WHS policy specific to high-risk construction work and concrete pumping activities • Insufficient consultation with workers, Health and Safety Representatives (HSRs) and principal contractors on concrete pumping risks • Poor safety culture driven by production pressure, tight pour schedules and client demands • Inadequate incident reporting and investigation framework leading to repeat events • No formal proces[illegible] review, monitor and improve the W[illegible]S manag[illegible] system for concrete[illegible]	High	• Establish and document a WHS governanc[illegible] framew[illegible] that clearly defines duties of Officers, PCBU, managers, supervisors, pump owners and ope[illegible] in line with WHS Act 2011 • Maintain a legal register ide[illegible]fying applicable W[illegible]S legislati[illegible], Australian Standards (e.g. AS 2550.15, AS 1418.15) and guidance ma[illegible]ial relevant to con[illegible]te [illegible]ping, with scheduled reviews • Develop a concret[illegible]ing W[illegible] policy and suppo[illegible]ting procedures that explicitly recognise concrete pumping as hig[illegible]sk work, [illegible]ndorse[illegible] and comm[illegible]icated by senior management • Implement a[illegible]rmal consu[illegible]tion proc[illegible] requiring engagement with workers, HSRs and principal contra[illegible]rs dur[illegible] develo[illegible]ment and revi[illegible]w of concrete pumping systems of work • Emb[illegible]HS per[illegible]mance objectives and KPIs for concrete pumping (e.g. pre-start completion rates, correc[illegible]e a[illegible]ions cl[illegible]d out, incident trends) into management scorecards • Introdu[illegible]e a s[illegible]ndardi[illegible]d incident, near-miss and hazard reporting system (digital or paper-based) that [illegible]tegori[illegible]s con[illegible]te pumping events and ensures timely investigation and corrective actions • Sch[illegible]l[illegible] periodic WHS management reviews (e.g. annually) focusing specifically on concrete pumping [illegible]peratio[illegible] incident data and audit findings, with documented outcomes and action plans • [illegible]sure senior leaders undertake documented site safety walks and pre-pour meetings for high-risk pours to visibly reinforce WHS expectations over production pressures	Medium
2. Procurement, Design and Selection of Concrete Pumping Plant	• Procurement of boom pumps th[illegible]re not compliant with releva[illegible]alian Standards or not fit for purpose for site conditions • Lack of engineering verification and documentation of structural and stability characteristics (e.g. load charts, outrigger requirements, set-up limitations) • Inadequate consideration of guarding, interlocks, emergency stops and safety systems during procurement • Absence of systematic pre-purchase risk assessment for new or hired boom pumps and associated equipment	High	• Implement a documented plant procurement procedure requiring verification that all concrete boom pumps comply with relevant legislation, Australian Standards and manufacturer specifications before purchase or hire • Require suppliers to provide design registration (where applicable), plant registration, load charts, stability data, operating manuals and service history as part of the procurement process • Mandate a formal pre-purchase WHS risk assessment for all new or hired boom pumps and key components, involving operators, maintenance personnel and WHS advisors • Specify minimum safety features in procurement documents, including interlocked guards, emergency stop devices, limit switches (e.g. boom slew and height limits), remote control safety features and audible/visual alarms • Standardise critical components (e.g. pipe diameters, couplings, clamps and hoses) across the fleet to minimise the risk of incompatible connections and uncontrolled hose whip • Include contractual requirements for suppliers and hire companies to provide evidence of compliance, inspection and maintenance, and to notify of any safety alerts or recalls	Medium

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	(hoses, pipelines, line supports, washout systems) • Incompatible or sub-standard components sourced from multiple suppliers (mismatched clamps, pipes, reducers and hoses leading to hose whip or line failure) • Procurement driven solely by cost and availability rather than lifecycle safety performance and maintainability		• Adopt a whole-of-life cost and safety evaluation for procurement decisions, considering reliability, maintenance demands, ease of inspection and historical incident data	
3. Contracting, Subcontractor and Client Management	• Poor definition of WHS responsibilities between principal contractor, concrete pumping contractor, concrete supplier and other subcontractors • Inadequate pre-qualification of subcontract pump owners and operators (e.g. licences, competencies, maintenance standards not verified) • Commercial arrangements that incentivise unsafe practices (e.g. penalties for delayed pours, unrealistic pour volumes or timeframes) • Lack of coordinated pl for site access, set-up locati , exclusion zones and traffic m agement involving all duty holders • Insufficient communication of site-specific hazards from principal contractor to pumping crews (e.g. underground services, ov d powerlines, ground conditions, suspended slabs) • Failure to ensure emergency arrangements and rescue plans are aligned between all parties	Hi	• Estab contra r management procedure that sets WHS criteria for engaging concrete pumping subcon ac , inclu g evidence of licences, training, plant maintenance and insurances • Use pr qual ation questionnaires and audits to verify subcontractors' WHS systems, concrete p ping roced s and incident records before engagement • Incorp e clear WHS roles, responsibilities and interface arrangements into contracts, including thority to stop work and requirements to comply with site rules and the WHS Act 2011 • R quire a documented pre-pour coordination meeting for significant or complex pours, involving the principal contractor, pumping contractor, concrete supplier and key subcontractors to agree roles, sequences and controls • Embed WHS expectations into commercial agreements (e.g. no payment incentives that reward unsafe shortcuts; allow for reasonable set-up and inspection times) • Require principal contractors to provide site induction, drawings and information on ground bearing capacity, underground services, overhead hazards and restricted zones prior to mobilisation of the pump • Ensure all parties' emergency response plans are reviewed and integrated, including communication protocols, evacuation routes and rescue arrangements for line blockages or entrapment incidents	Medium
4. Competency, Licensing and Training Systems	• Operators, line hands and supervisors not holding appropriate high-risk work licences or verification of competency for boom pumping • Training limited to informal on-the-job instruction, with no structured competency assessment against industry standards	High	[redacted]	Medium

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SPECIFIC WORK STEPS	HAZARDS THAT MAY ARISE	INITIAL RISK	SPECIFIC MEASURES TO BE PUT IN PLACE TO ELIMINATE OR CONTROL THE RISKS	RESIDUAL RISK
	• No refresher training program, leading to skill fade and outdated practices • Supervisors lacking technical understanding of concrete pumping risks and safe limits (e.g. boom stability, pressure, line routing) • Insufficient training on emergency procedures, including dealing with blockages, hose whip events, concrete line failure and entrapment • Contract and labour hire workers not adequately inducted or assessed on company-specific procedures • Lack of training in hazard recognition related to ground conditions, overhead powerlines, exclusion zones and public interface		[redacted]	
5. Planning, Job Hazard Analysis and Site Coordination	• Concrete pumping tasks undertaken without formal pre-planning or risk assessment (e.g. last-minute mobilisation) • Inadequate job hazard analysis (JHA) or risk assessment that fails to consider site-specific factors such as ground conditions, access, overhead services and adjacent work • Poor coordination of simultaneous operations (e.g. cranes, EWPs, formwork, steel fixing) creating interaction risks with the boom and concrete delivery vehicles • Lack of planning for high-risk scenarios such as pumping to high-rise, pumping at night, or using extended boom reaches near suspended slabs or edges • No defined process for changing the plan when conditions change (e.g. weather, unexpected ground movement, revised pour locations) • Insufficient identification and planning of exclusion zones for workers and	High	[redacted]	Medium

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	public during set-up, operation and wash-out			
6. Plant Inspection, Maintenance and Asset Management	• Lack of systematic inspection and maintenance program for boom pumps and associated equipment • Failure to complete and document pre-start and periodic inspections, leading to undetected defects (e.g. cracks, leaks, worn pipes, faulty limit switches) • Inadequate management of inspection intervals and major inspections required under standards and regulations • Use of damaged, worn or incompatible hoses, clamps and pipeline sections increasing risk of burst lines and hose whip • Poor recordkeeping for repairs, maintenance and modifications to structural or safety-critical components • Non-authorised modifications or repa (e.g. welding on booms, structural alterations) not certified by competent engineers	High	[redacted]	Medium
7. Ground Conditions, Stability and Set-Up Management	• Inadequate asse ment of gr bearing capacity a prior t positioning the boom pump • Failure to identify underground services, voids or recent ed trenches under or near outrigger locations • No formal process to verify use of outrigger pads or mats appropriate to the load and ground conditions • Set-up in proximity to edges, embankments, suspended slabs or basements without engineering verification • Lack of systems to manage changes in ground conditions (e.g. heavy rain, flooding, softening of soil, vibration from adjacent works)	High	[redacted]	Medium

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	• Insufficient coordination with principal contractor regarding compaction testing, engineered slabs or support platforms for pump and outriggers		[redacted]	
8. Electrical, Overhead Services and No-Go Zone Management	• Insufficient identification and documentation of overhead powerlines and electrical installations in boom operating areas • Lack of formal no-go zone planning and controls in accordance with electrical safety requirements and relevant Codes of Practice • Reliance on operator judgement without tools or systems (e.g. spotters, boundary markers, exclusion zone plans) to maintain safe clearances • Poor coordination with network operators when work is planned near high-risk electrical infrastructure • Inadequate training and procedures on electrical contact emergencies and step-potential hazards	High	[redacted]	Medium
9. Traffic, Delivery and Public Interface Management	• Uncontrolled interaction between concrete delivery trucks, boom pumps, workers and other site traffic • Poorly planned access routes leading to reversing, congestion and struck-by risks around the pump • Concrete pump set-up encroaching onto public roads, footpaths or shared access ways without adequate controls • Insufficient systems for traffic management at night or in low-visibility conditions • Lack of coordination with principal contractor's traffic management plans,	High	[redacted]	Medium

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	resulting in conflicting movements and signage		[redacted]	
10. Communication, Supervision and Permit Systems	• Unclear communication channels between pump operators, line hands, delivery drivers, supervisors and principal contractor • Insufficient supervision of concrete pumping crews, especially during complex or high-risk pours • No formal permit or authorisation system for high-risk pumping operations (e.g. near powerlines, over public space, night work, extreme boom reach) • Inadequate handover processes between shifts, crews or subcontractors • Language barriers or literacy issues impacting understanding of safety instructions and procedures	Medi	[redacted]	Low
11. Emergency Preparedness, Incident Response and Recovery	• Lack of documented emergency response procedures specific to concrete pumping (e.g. hose whip, pipeline blockage, boom failure, entrapment) • No coordinated emergency arrangements with principal contractors, emergency services and nearby workplaces • Inadequate rescue equipment or poorly maintained emergency resources (first aid, spill kits, fire extinguishers) • Workers not trained in site-specific emergency procedures, including	High	[redacted]	Medium

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	shutdown of pumps and booms in critical situations • Failure to systematically investigate incidents and near-misses to identify root causes and system weaknesses • Psychological impact on workers following serious incidents with no support protocols		[redacted]	
12. Health Monitoring, Fatigue and Psychosocial Risk Management	• Long working hours, shift work and early starts associated with pours leading to fatigue-related errors • Exposure to noise, vibration, cementitious products and silica dust without an overarching health monitoring framework • Psychosocial hazards such as high work pressure, aggressive behaviour from clients or other contractors, and conflict within pumping crews • Lack of systems to manage fitness for work (including alcohol and other drugs) for operators and linesmen • No structured approach to reporting or addressing stress, bullying, harassment arising in high-pressure pour environments	Medium	[redacted]	Low
13. Documentation, Records and Continuous Improvement	• Critical safety information (procedures, manuals, risk assessments) not readily accessible or controlled, leading to outdated versions in use • Poor recordkeeping for training, licences, inspections, maintenance, incidents and corrective actions • No systematic process for reviewing and updating concrete pumping procedures following incidents, new technology or legislative change • Inconsistent data collection on leading indicators (e.g. pre-start completion,	Medium	[redacted]	Low

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	near-miss reports) hindering proactive risk management • Failure to share lessons learnt and good practices across crews, sites and projects		[redacted]	

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