

Asphalt Plant

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. Governance, WHS Leadership and Legal Compliance	<ul style="list-style-type: none"> Inadequate understanding of WHS Act 2011 and WHS Regulations leading to non-compliance in asphalt plant design, operation and maintenance Absence of a clear WHS policy and measurable safety objectives for the asphalt plant operations and associated hot mix activities Poor safety leadership and safety culture, with production and tonnage targets prioritised over risk management and legal obligations Lack of clearly defined WHS roles, responsibilities and accountabilities for officers, managers, supervisors and workers at the plant No systematic review of WHS performance, incident trends or compliance status by senior management and officers (failure of due diligence duties) Failure to consult, cooperate and coordinate with contractors, transport operators and other CBU's working in or around the asphalt plant Inadequate resources (time, more competent people) to implement and maintain effective WHS management systems specific to hot mix activities 	High	<ul style="list-style-type: none"> Develop and endorse a company WHS Policy that explicitly references compliance with the WHS Act 2011, WHS Regulations and relevant Codes of Practice for plant, hazardous chemicals and traffic management in asphalt operations Establish a formal WHS management system aligned with ISO 45001 or equivalent, with specific procedures addressing asphalt plant and hot mix activities Define and document WHS responsibilities, authorities and accountabilities in position descriptions and organisational charts for officers, plant managers, supervisors and key worker roles Implement a due diligence process including scheduled WHS performance reviews, legal compliance audits and regular site visits to the asphalt plant with documented actions Set measurable WHS objectives and key performance indicators (KPIs) for the asphalt plant (e.g. close-out time for corrective actions, percentage of workers trained, completion of inspections) and review them at management meetings Establish formal consultation arrangements such as Health and Safety Representatives (HSRs), WHS committees, toolbox talks and contractor interface meetings specifically addressing plant and hot mix risks Develop and enforce a system for selection, induction and monitoring of contractors and transport providers working within the plant, including clear WHS expectations and shared responsibilities Allocate adequate budget and resources for WHS improvements at the asphalt plant (engineering upgrades, guarding, dust and fume control, training, supervision and health monitoring) Undertake regular independent or third-party WHS audits of the asphalt plant management systems, and ensure action items are tracked to completion with management oversight 	Medium
2. Plant Design, Engineering Controls and Change Management	<ul style="list-style-type: none"> Asphalt plant and hot mix systems not designed or verified to meet Australian Standards and WHS Regulation plant requirements Inadequate fixed guarding, interlocks and emergency stops on conveyors, feeders, mixers, bitumen pumps and other moving plant Poor segregation between hot process areas, traffic areas and pedestrian access ways, increasing exposure to moving vehicles, heat and pinch points 	High	<ul style="list-style-type: none"> Ensure the asphalt plant is designed, registered (where required) and verified in accordance with WHS Regulations for plant, relevant Australian Standards (e.g. AS 4024 series on machinery safety) and manufacturer specifications Engage competent engineers to review guarding, interlocks and emergency stop systems on conveyors, elevators, screens, dryers, mixers and hot mix components, and implement engineering upgrades where shortfalls are identified Design and maintain clear separation between processing zones, traffic routes and pedestrian walkways using barriers, signage, line-marking and controlled access gates Install and maintain appropriate extraction, enclosure and ventilation systems for dust and fumes at key emission points, and verify their effectiveness through air monitoring and engineering review 	Medium

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	<ul style="list-style-type: none"> Insufficient dust, fume and vapour control (e.g. bitumen fumes, diesel exhaust, aggregate dust including respirable crystalline silica) due to poor design or under-capacity extraction systems Inadequate containment, bunding and insulation of bitumen storage tanks, pipes and hot oil systems leading to burn, fire or environmental risks Ineffective layout for safe access and egress to inspection points, platforms and control rooms (e.g. absence of stairs, handrails, non-slip walkways) Lack of formal management of change (MOC) process when modifications are made to plant, hot mix recipes, fuel types, controls or layout Legacy or imported equipment without adequate documentation, guarding or safety integrity assessment 		<ul style="list-style-type: none"> Provide compliant bunding, insulation, relief valves and temperature/level controls for bitumen tanks, hot oil heaters and pipework, including overfill protection and emergency shut-off systems Ensure safe access platforms, stairs, ladders and walkways with guardrails, toe boards and non-slip surfaces are provided to all required inspection and sampling points in hot mix plant areas Implement a formal management of change procedure that requires risk assessment, engineering review, consultation and updated documentation before any modification to plant, recipes, fuels or process controls is introduced Maintain up-to-date plant schematics, manuals and engineering documentation, including records of design verification, risk assessments and commissioning checks Conduct pre-commissioning and periodic functional testing of critical safety systems (interlocks, alarms, emergency stop, level/temperature controls) with documented results and corrective actions 	
3. Plant Operation, Procedures and Supervision	<ul style="list-style-type: none"> Lack of standardised operating procedures (SOPs) for asphalt and hot mix plant start-up, normal running, shutdown and emergency conditions Inadequate supervision of truck drivers and contractors leading to unsafe shortcuts, bypassing of interlocks and poor housekeeping Uncontrolled interaction between loader operators, truck drivers, maintenance personnel and plant operators in hot mix and load-out areas Failure to adequately control operating parameters such as bitumen and aggregate temperatures, leading to burns, plant damage or production of excessive fumes Poorly defined escalation and communication protocols where abnormal conditions or alarms occur (e.g. blocked chutes, overheating, overflows) 	High	<ul style="list-style-type: none"> Develop, implement and maintain written asphalt plant operating procedures covering start-up, normal operation, hot mix production, truck loading, cleaning cycles, shutdown and emergency response Ensure procedures clearly define responsibilities for plant operators, control room staff, loaders and drivers, including communication protocols and radio channels Implement a supervisory framework that provides competent supervision on all shifts, including clear expectations for field presence, behavioural observations and intervention Establish a control room protocol for monitoring plant parameters (temperatures, pressures, feed rates, emissions) with defined operating limits, alarm responses and escalation steps Introduce a formal permit or authorisation system for any deviation from standard operating parameters, with sign-off by a competent supervisor or manager Prohibit manual intervention in hazardous areas (e.g. entering hoppers, reaching into chutes) without lock-out/tag-out and permit to work, and reinforce this through training and regular supervision Define and communicate criteria for ceasing operations or modifying work in adverse weather conditions, including heat stress management, lightning, strong winds and heavy rain Use shift handover checklists and logbooks to ensure critical operational information and outstanding issues are recorded and communicated across shifts Regularly review and update procedures through consultation with operators, based on incident findings, new technology and legislative changes 	Medium

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	<p>induction or understanding of hot mix hazards</p> <ul style="list-style-type: none"> • Inconsistent WHS standards between principal contractor and subcontractors, leading to gaps in traffic control, PPE use or isolation practices • Poor communication and coordination between plant operators, loader operators and external truck drivers during hot mix loading, leading to vehicle-pedestrian interaction risks and exposure to hot material • Contractor work on critical systems (e.g. burners, bitumen tanks, electrical systems) performed without robust risk assessment or verification of competency • No formal process to review contractor and supplier WHS performance, incidents and compliance history • Inadequate controls for after-hours contractor work, including supervision, emergency access and communication with plant management 		<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>	
6. Maintenance, Inspection and Asset Integrity	<ul style="list-style-type: none"> • Lack of planned preventative maintenance on critical components (burners, bitumen pumps, conveyors, dryers, filters, extraction systems) leading to breakdowns, fires and unplanned exposures • Inadequate inspection and testing of safety-critical devices such as emergency stops, interlocks, pressure relief valves, level controls and temperature cut-outs • Poor isolation, lock-out/tag-out and verification procedures during maintenance on hot mix plant equipment, leading to unexpected energisation or release of hot material • Deferred maintenance due to production pressure resulting in operation of plant with known defects 	High	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	Medium

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	<p>(e.g. missing guards, non-functional extraction, hydraulic leaks)</p> <ul style="list-style-type: none"> No systematic inspection of structural components, access platforms, handrails and ladders, increasing risk of collapse or falls Incomplete or inaccurate maintenance records, making it difficult to demonstrate compliance or identify emerging trends 		[REDACTED]	
7. Hazardous Chemicals, Bitumen and Hot Mix Management	<ul style="list-style-type: none"> Inadequate identification, labelling and segregation of hazardous chemicals including bitumen, fuels, solvents, additives, cleaning agents and LPG Lack of up-to-date Safety Data Sheets (SDS) and absence of chemical risk assessments specific to asphalt and hot mix operations Exposure to bitumen fumes, aerosols and vapours due to poor temperature control, lack of local exhaust ventilation or working downwind of emission points Unsafe handling and transfer of hot bitumen and hot mix leading to burns, splashes and fires Poor management of bulk storage tanks, pipelines and valves resulting in leaks, spills, overfills or loss of containment Inadequate systems for decanting, sampling and testing bitumen and hot mix, increasing the risk of contact with hot materials and inhalation of fumes Improper storage and disposal of waste oils, oily rags, contaminated aggregates and chemical containers 	High	[REDACTED]	Medium

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8. Traffic, Mobile Plant and Load-out Management	<ul style="list-style-type: none"> • Uncontrolled interaction between trucks, loaders, service vehicles and pedestrians in and around the asphalt plant, especially at hot mix load-out points • Congested traffic flow during peak loading periods leading to queuing on public roads and unsafe manoeuvres within the plant • Lack of clearly defined traffic routes, speed limits, parking and exclusion zones for mobile plant and delivery vehicles • Inadequate systems to control reversing, blind spots and loading under overhead plant, especially at night or during poor visibility • Contract and third-party drivers unfamiliar with site rules for hot mix loading, communications and emergency procedures • No monitoring or enforcement of traffic rules, leading to progressive erosion of standards 	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
9. Health Risks, Exposure Monitoring and Fitness for Work	<ul style="list-style-type: none"> • Chronic exposure to bitumen fumes, diesel exhaust, dust (including respirable crystalline silica from aggregates) and noise without adequate health risk management • Insufficient health monitoring for workers with significant exposure to respirable crystalline silica, noise and other relevant hazards • Heat stress from working near dryers, hot mix storage, bitumen tanks and in hot Australian climatic conditions • Fatigue due to long shifts, night work and high production demands during peak season, affecting decision-making and reaction times 	High	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	Medium

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	<ul style="list-style-type: none"> Inadequate fitness for work systems for alcohol and other drugs, especially for safety-critical roles (operators, drivers, maintenance personnel) Lack of reporting and management of health symptoms (e.g. respiratory issues, skin conditions, hearing loss) potentially related to hot mix plant exposures 		[REDACTED]	
10. Emergency Preparedness, Incident Management and Business Continuity	<ul style="list-style-type: none"> Lack of effective emergency planning for fires, bitumen spills, explosions, gas leaks and medical emergencies at the asphalt plant Inadequate fire protection systems and emergency equipment for hot mix and bitumen areas, or poor maintenance of existing systems Workers and contractors not trained or drilled in plant-specific emergency response, evacuation routes and assembly points Delayed or ineffective responses to incidents due to unclear roles, communication failures or lack of accessible emergency information Failure to investigate incidents, near misses and dangerous occurrences in a systematic way, leading to repeat events No consideration of business continuity and safe restart after major incidents or unplanned shutdowns 	High	[REDACTED]	Medium

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11. Documentation, Records and Continuous Improvement	<ul style="list-style-type: none"> • Critical WHS documents for asphalt and hot mix operations (procedures, permits, risk assessments, training records) outdated, inconsistent or not readily accessible • Poor record keeping making it difficult to demonstrate compliance with WHS Act 2011, WHS Regulations and relevant Codes of Practice • Lack of a structured system to capture, analyse and act on WHS data such as incident reports, inspection findings, maintenance records and worker feedback • Failure to implement and track corrective actions from audits, inspections and investigations, leading to recurring hazards • No formal review or continuous improvement process targeted at asphalt plant and hot mix specific WHS risks 	Medium	<p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p> <p>[REDACTED]</p>	Low

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.