



POST CONSULTATION DRAFT - 13/08/2026

Code of Practice for Concrete Pumping Operations in New Zealand



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PREFACE:

Concrete pumping is an essential component of modern construction practice in New Zealand, enabling the efficient, safe, and high-quality placement of concrete across a wide range of building and infrastructure projects. As construction methods, equipment, and regulatory expectations continue to evolve, it is important that concrete pumping operations are carried out in a manner that consistently promotes safety, quality, and environmental responsibility.

This Code of Practice has been developed to provide industry participants with practical guidance on the planning, operation, and management of concrete pumping activities. It establishes recognised good practice for the safe operation of concrete pumps and associated equipment, with the objective of reducing risks to workers, the public, and the built and natural environment. The Code is intended to support compliance with relevant New Zealand legislation, including the Health and Safety at Work Act 2015 and associated regulations, as well as applicable standards and industry guidance.

The Code is designed for use by concrete pump owners, operators, employers, principals, designers, contractors, and workers involved in concrete pumping operations. It outlines roles and responsibilities, identifies common hazards, and provides guidance on risk management, competency, equipment selection, maintenance, and operational controls. While it does not replace the need for sound professional judgement or site-specific risk assessment, it provides a consistent framework for achieving safe and effective outcomes.

This Code of Practice has been prepared through consultation with industry stakeholders and reflects current New Zealand construction practices. It is expected that the Code will be reviewed and updated periodically to remain aligned with developments in technology, legislation, and industry experience.

By adopting and applying the principles set out in this Code, the concrete pumping industry can continue to contribute to a safer, more productive, and more sustainable construction sector in New Zealand.

Concrete New Zealand, June 2026

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About this Code of Practice

Purpose and scope

This Code of Practice (CoP) is for anyone who:

- owns, hires, leases, transports, maintains, or operates concrete pumping equipment
- handles or stores concrete pumping systems onsite.

Its primary audience is Persons Conducting a Business or Undertaking (PCBUs) as defined in the *Health and Safety at Work Act 2015* (HSWA) and who are responsible for managing health and safety risks.

The CoP aims to educate Operators and others on safe work practices when placing concrete with a concrete pump, including hazard awareness, emergency pump shutdown, and safe hose handling techniques. It does not supersede the manufacturer's recommended operating procedures - always follow these in the first instance. An Operator's manual must be kept on the pump in an easily accessible location. Refer also to the NZCCA Concrete Pumping section of the website.

<https://www.nzconcretecontractors.org.nz/concrete-guidelines/concrete-pumping>

Alert:

Concrete pumping involves transporting freshly mixed concrete through pipes to a construction site. This guidance considers this a **high-hazard activity** requiring careful risk management under the general duties of the HSWA.

Using this document

This CoP covers health and safety responsibilities, risk management, and safe setup, operation and equipment care for concrete pumping, including roles & responsibilities and useful checklists. All parties remain subject to the Health and Safety at Work Act 2015 - responsibilities cannot be contracted out, and one person may hold multiple roles depending on site/risk assessment. References to HSWA requirements are included for convenience only and do not replace the full legal text, (refer www.legislation.govt.nz). Note that:

- **'shall'** indicates a legal requirement
- **'should'** indicates a recommended action.

This CoP should be read alongside:

- [MBIE, Concrete Pumping Health & Safety Guidelines, Feb 2013](#)
- [WorkSafe NZ, Health & Safety during concrete pumping, Sep 2017](#)
- [WorkSafe NZ, Concrete Pumping, Oct 2022](#)

- [Concrete NZ Safety Alert, Concrete Pumping, Aug 2021](#)
- [BCITO - New Zealand Certificate in Concrete \(Specialist\) \(Level 4\) - Concrete Pump Operation](#)

Promoting competence and professional growth for concrete workers

The New Zealand Certificate in Concrete (Specialist), offered from 2026, aims to increase competencies in the concrete construction sector and to provide more opportunities for professional growth.

The programme is delivered through workplace learning and covers:

- health & safety and relevant legislation to concrete operations
- planning and communication skills
- tools, equipment and machinery knowledge and operation
- construction mathematics and concrete science
- professional standards.

All learners will complete the core component of the programme and at least one of the elective strands: these include Concrete pump operation (line delivery system) and Concrete pump operation (boom delivery system).

Concrete Pumping Roles & Responsibilities

This document provides guidance on roles and responsibilities for concrete pumping operations. All parties remain subject to the Health and Safety at Work Act 2015 - these responsibilities cannot be contracted out. One person may hold multiple roles depending on site/risk assessment.

Roles

Concrete Pumping Company (PCBU) - Owns/operates pumping equipment; employs, trains, and manages staff.

Concrete Pump Operator - Sets up and operates the pump; directs concrete placement per the Placer's instructions; communicates with Truck Drivers, Spotter, and Hose Hand; may also act as Hose Hand where risk assessment permits. Must hold the NZ Certificate in Concrete (Specialist) Level 4 (or RPL equivalent) and be trained to manufacturer specifications, with competency documented and evidenced by the Pumping Company.

Concrete Placer - Responsible for placement and finishing; directs the Pump Operator on when and where to deliver concrete; may act as Hose Hand if competent or instructed by the Pump Operator.

Site Controller - Controls the wider site and construction works; arranges all traffic management (vehicular and pedestrian) for the duration of the project; manages concrete truck movements on site.

Traffic Controller - Designated by the Site Controller; assists truck entry/exit, movement through site, and positioning at the pump; may assist with pedestrian management. Acts under the Site Controller's (or delegated) instruction.

Concrete Truck Driver - Delivers ready-mix from plant to pump; follows Site Controller instructions on site; discharges concrete into the pump hopper as directed by the Pump Operator.

Spotter - A general term for a trained person who guides equipment operators and drivers to avoid hazards and maintain exclusion zones. The spotter also determines boom pump clearances from overhead services and structures. Required when overhead hazards are identified. Must have no other duties and maintain uninterrupted communication with the Pump Operator.

See also Traffic Controller and Safety Observer.

Hose Hand - Guides the hose end to the correct position for the Placer; takes direction from both the Pump Operator and the Placer. May be the Pump Operator where site/risk assessment permits.

Responsibilities

Traffic Management - Site Controller's responsibility. All other roles must communicate their specific requirements to the Site Controller so hazards (static obstructions, pedestrians, vehicles - public and site) can be effectively managed.

Concrete Pumping - Pump Operator controls all pumping operations: delivery speed, pump reach and position, pressure, and hose position. Ensures [competent](#) personnel fill required roles (Spotter, Hose Hand). Must maintain uninterrupted communication with the Spotter when required, and follow instructions from the Placer and Hose Hand.

Pump Hopper Management - Concrete Truck Driver maintains hopper levels as instructed by the Pump Operator, who provides full instruction for each operation.

Concrete Mix & Trucks - Ready-mix plant ensures correct mix specification and manages truck arrivals to keep the pump continuously supplied. The Placer and ready-mix plant confirm mix consistency and water/admixture content are suitable for pumping, consulting the Pumping Company as needed.

Clean-out (to be finalised) - Site Controller provides a suitable washout area and/or compliant disposal; no material may leave site except by truck or bin. Truck Drivers wash delivery chutes only (not bowls). Pump Operators use clean-out bags/trays; where no on-site facility exists, the hopper is pumped low and cleaned out at a pre-arranged compliant facility (own yard or ready-mix plant).

Set-up - Pumping Company determines the safest and most efficient pump position in consultation with the Site Controller and Placer, identifies and controls all associated risks, documents these through appropriate means, and communicates them to the Site Controller and Placer, who relay information to the ready-mix company and others as required.

Glossary

The following table gives abbreviations, definitions and references used in this CoP and for concrete pumping generally. Key terms such as PCBU, competent person, concrete placing boom, line pump, hose whip and significant hazard are defined in alignment with MBIE and WorkSafe guidelines.

Term	Definition
Agitator	A rotating device in the hopper that keeps concrete mixed and prevents it from setting.
Arc flash	A dangerous electrical explosion caused by a short circuit through the air, often near power lines.
AS 1418.15	<i>AS 1418.15:1994 Cranes (including hoists and winches) - Part 15: Concrete placing equipment.</i> Standard outlining the safety and design requirements for concrete placing equipment, including pumps, booms, pipelines, and related gear used in construction.
AS 2550.15	<i>AS 2550.15:2019 Cranes, hoists and winches – Safe use, part 15: Concrete placing equipment.</i> Standard outlining the safe use requirements for concrete placing equipment, ensuring operational safety. It complements AS 1418.15, which covers design and construction.
AS/NZS 1336	<i>AS/NZS 1336:2014 Eye and face protection – Guidelines.</i> Provides recommended practices and guidance for the selection, care and use of eye and face protectors at work.
Blockage	An obstruction in the pipeline that prevents concrete from flowing, requiring safe clearing procedures.
Boom	Extendable arm of a concrete pump used to place concrete at a distance.
Competent person	Someone who has the necessary skills, knowledge, and experience to perform a task safely.
CoP	Code of Practice – a practical guide to achieving the standards of health, safety, and welfare required under legislation.
Exclusion zone	A designated area around hazardous equipment or operations where only authorised personnel may enter.
Hierarchy of controls	A system for controlling risks, ranked from most to least effective: elimination, substitution, isolation, engineering, administrative, PPE.
Hopper	The receiving bin on a concrete pump where concrete is poured before being pumped through the pipeline.
Hose whip	A dangerous, uncontrolled movement of the flexible delivery hose, often caused by a blockage or air in the line.

Term	Definition
HSR	Health and Safety Representative – a worker elected to represent workers on health and safety matters.
HSWA	<i>Health and Safety at Work Act 2015</i> : The main New Zealand law governing workplace health and safety.
ISO 19406	<i>ISO 19406:2012 – Mobile and stationary concrete pumps – Safety requirements</i> . Relevant international standard and safety protocols.
Kibble	Large, open-topped container or bucket used to transport and place concrete when pumping is not practical or possible. Typically hoisted by a crane.
Line hand	A worker responsible for guiding and controlling the end of the concrete delivery hose during pumping.
Line pump	A concrete pump that delivers concrete through ground-level pipes or hoses, typically used for horizontal pumping.
MBIE	Ministry of Business, Innovation and Employment – government agency responsible for workplace health and safety policy.
Mobile placing Boom	A truck-mounted concrete pump with a multi-stage boom for delivering concrete to elevated or hard-to-reach locations. May be configured on other mobile systems.
Notifiable event	Any work-related death, serious injury or illness, or incident that exposes someone to a serious health and safety risk, which must be reported to WorkSafe immediately.
Outrigger	Extendable supports on equipment for stability during operation.
PCBU	Person Conducting a Business or Undertaking – a legal entity (company, sole trader, partnership, etc.) responsible for workplace health and safety duties under the HWSA.
PPE	Personal Protective Equipment – safety gear such as helmets, gloves, boots, and eye protection.
Priming	The process of preparing the concrete pump and pipeline by lubricating them before pumping concrete.
Reducer	A pipe fitting that changes the diameter of the pipeline, used to control concrete flow.
Satellite placing boom	A-Typically a fixed or trailer-mounted boom, often attached to a building structure, used for concrete placement.
Safety Observer	A competent person assigned to monitor work near a hazard (such as overhead powerlines) and actively ensure that people, plant, and equipment maintain safe distances and follow agreed safety controls.

Term	Definition
Short legging	Operating a pump truck with its outriggers only partially extended, which reduces stability and increases the risk of tipping.
Significant hazard	A hazard that could cause serious harm, such as death, permanent injury, or illness.
Spotter	A general term for a person who guides equipment operators and drivers to avoid hazards and maintain exclusion zones. See also Traffic Controller and Safety Observer.
SWMS	Safe Work Method Statement – a document that outlines high-risk construction work, hazards, and control measures.
Tiger tails	High-visibility covers placed on overhead power lines to make them more visible and reduce the risk of accidental contact.
Traffic Controller	A trained and authorised person responsible for directing and managing vehicle and pedestrian movement to ensure safety around a work site.
WorkSafe	WorkSafe New Zealand, the country's primary work health and safety regulator.

General requirements

Overview

Concrete pumping is the process of transporting freshly mixed concrete through a system of pipes to a specific location on a construction site. It is used for a range of construction applications, including:

- precast and tilt-up panels
- formwork and slab pours
- concrete paving and spraying
- Piling and ground improvement

Types of concrete pumping equipment include:

- **line pump** – a fixed or mobile pump that pushes concrete through ground-level pipes or hoses
- **mobile placing boom** – a truck-mounted pump with a multi-stage boom that delivers concrete through elevated pipework
- **satellite placing boom** – a fixed or trailer-mounted pump connected to a boom mounted on the structure itself.

Concrete is typically delivered by truck into a pump hopper, then pushed through the pipeline to the pour location.

Compared to wheelbarrows or crane-lifted kibbles, pumping is faster and more efficient. However, it also involves high pressure and pulsating motion which can pose serious safety risks.

Concrete placing equipment & risk management

~~All~~ All concrete placing equipment shall comply with this Code of Practice and Manufacturer's instructions.

The use and reference to applicable sections of AS 1418.15 and AS 2550.15 shall be followed.

~~Concrete placing equipment shall comply with AS 1418.15, a Standard containing safety and design requirements for concrete placing equipment including pumps, booms, pipelines and related gear used in construction.~~

~~The use of concrete placing equipment shall comply with AS 2550.15, a Standard containing safe use requirements.~~

PCBUs shall be responsible for providing appropriate Personal Protective Equipment (PPE) for workers and others onsite as required. PCBUs shall also maintain this PPE and train workers in its use.



PPE for concrete pumping:

On all project site, you must wear appropriate PPEs, as determined by the site activity risk assessment. This may include:

- Hard hat
- Safety glasses/shield
- Hearing protection
- Hi-visibility clothing (no loose-hanging items)
- Water-impervious gloves when working in concrete
- Safety footwear - laced, with toe and heel protection; or waterproof boots when walking or standing in concrete
- Safety vest when managing traffic areas

Skills, training and supervision

Workers involved in concrete pumping and placing must hold the NZ Certificate in Concrete (Specialist) Level 4 (or RPL equivalent) and be trained to manufacturer specifications, with competency documented and evidenced by the Pumping Company.

~~Must hold the New Zealand Certificate in Concrete (Specialist) Level 4, including the core component and at least one elective strand: Concrete Pump Operation (Line Delivery System) or Concrete Pump Operation (Boom Delivery System).~~ They shall also

have completed general construction induction training. Workers who completed training more than two years ago shall have recent construction experience.

PCBUs shall provide suitable and understandable training, instruction, and supervision to protect workers from health and safety risks.

In particular, concrete pump and boom operators shall be competent and trained as above, with practical and theoretical assessments. This training should cover:

- equipment operation and inspection
- communication between pump operators and ground crew
- PPE use and maintenance
- hazards and safe work procedures (including Safe Work Method Statements and dedicated emergency plans – refer to page [1814](#))
- emergency procedures and access to controls
- reporting hazards and incidents
- site-specific risks like unstable ground.

Supervisors shall also be trained based on the nature and risk level of the work.

Priority focus should be given to the critical risks of pressure/energy, stability, ground conditions (below, at, and above ground), and traffic management.

Beware of hazards, such as noise, heat and fumes when working in enclosed areas.



Health and safety responsibilities

Everyone involved in concrete pumping has duties under the HSWA (workplace health and safety law). These duties may overlap, and multiple people can share the same responsibility.

For further WorkSafe reading on duties guidance go to:

- [Overlapping duties](#)
- [PCBUs working together guidance](#)
- [What is reasonably practicable](#)

PCBUs have the primary duty of care

PCBUs, which include companies, sole traders, partnerships, and associations, have the **primary duty of care** under the HSWA. They shall, as far as reasonably practicable:

- provide and maintain a safe work environment, facilities, and systems of work
- ensure concrete pumps and equipment are safe and all maintenance records are kept
- ensure safe use, handling, and storage of plant, structures, and substances
- ensure working arrangements are not hazardous to employees
- provide emergency procedures
- monitor worker health and workplace conditions to prevent injury or illness

PCBUs have additional obligations under the [HSWA Regulations](#).

PCBUs advise WorkSafe of any notifiable events

PCBUs are also required by the HSWA to notify WorkSafe on becoming aware of a ‘notifiable event’ (as defined in the HSWA) arising from work. Notifiable events are certain serious incidents including the following.

Event	Description
Death	If someone dies because of work-related activity.
Notifiable injury or illness	These include serious injuries such as: • amputation of any body part • serious head or eye injury • spinal injury • loss of bodily function • serious burns or lacerations • any injury or illness requiring hospital admission for immediate treatment.
Notifiable incident	When someone’s health or safety is seriously endangered or threatened due to:

Event	Description
	- collapse or failure of structures (e.g. scaffolding, excavation) - electric shock - explosion or fire - escape of gas, steam, or hazardous substance - fall from height - equipment malfunction that could cause serious harm.

When and how to notify WorkSafe

Timing: Notification must be made *as soon as possible* after the PCBU becomes aware of the event.

Method: Notify WorkSafe by calling **0800 030 040** (available 24/7) or submit online via <https://www.worksafe.govt.nz/notifications/notify-worksafe>

Why this matters:

Prompt notification allows WorkSafe to investigate the incident and to make sure appropriate safety measures are taken and further harm can be prevented.

If you're not sure if something is a notifiable event it's best to contact WorkSafe for guidance.

Equipment designers, makers, importers, suppliers, and installers

These duty holders shall ensure, so far as reasonably practicable, that concrete pumping equipment is safe. Responsibilities include:

- conducting safety testing
- providing clear operating instructions
- ensuring equipment is maintained and safe when hired or leased.

Those hiring or leasing equipment may have dual responsibilities as suppliers and controllers of plant.

Company officers and directors

Officers (e.g. directors) shall exercise due diligence to ensure their organisation complies with the HSWA. This includes:

- ensuring adequate resources and systems are in place
- overseeing risk management processes.

Workers

Workers shall work in a safe manner and shall:

- carry out pre-start equipment inspection, site assessment, and risk assessment (where outside normal operations)
- not endanger others through acts or omissions
- follow company policies, procedures, and PCBU reporting requirements.
- be trained and familiar with all equipment used

Workers should be informed of hazards associated with concrete pumping and should be involved in safety discussions.

Site visitors and other non-workers

Site visitors and other non-workers shall:

- take reasonable care for their own safety
- follow instructions from the PCBU
- use PPE if provided and instructed.

Managing risks

PCBUs are responsible for managing health and safety risks related to concrete pumping. These risks may arise from:

- **equipment:** placing booms, pipelines, clamps, brackets, hoses, hoppers, outriggers, gauges
- **placement:** proximity to traffic, public areas, power lines, trenches, unstable ground
- **tasks:** delivery, pumping, boom operation, pipeline handling, pouring, cleaning, relocation, travel
- **by-products:** dust, fumes, noise.

Engaging with workers on safety matters

As well as providing the necessary training and supervision, PCBUs shall consult with workers and Health and Safety Representatives (HSRs), where applicable, on:

- identifying hazards and risks
- changing processes or procedures
- improving safety controls
- resolving safety issues
- monitoring workplace conditions
- providing training and information.

Worker input is vital – they often best understand the risks in their work. Collaboration builds commitment to safety improvements.

Emergency response plans are required for each site

A site shall have a site emergency plan. All persons involved in pumping operations must be familiar with it, and any pumping-specific requirements must be:

- captured in the risk assessment
- communicated at the toolbox meeting
- reflected in the site emergency plan

All workers near or assisting with the pump must know the location of all E-stops and how to disable the pump in an emergency. E-stops are to be tested as part of the pre-operational check prior to pumping.

Safe work method statements are best practice

Developing a Safe Work Method Statement (SWMS) is recommended and best practice for high-risk construction. This includes work:

- near mobile plant
- on or near roads, railways, or traffic corridors
- in or near deep trenches or tunnels
- near live electrical installations.

An SWMS for the site shall:

- identify high-risk activities, hazards, and control measures
- explain how controls will be implemented, monitored, and reviewed
- be clear, accessible, and understandable to all workers.
- shall contain any emergency procedures for the activities.

The SWMS shall include the emergency plan for the site.

Responsibility:

The person doing the work should prepare the SWMS in consultation with workers. If multiple PCBUs are involved, they should coordinate responsibilities.

Multiple SWMS may be established if different high-risk tasks are performed. Make sure there's consistency across documents to avoid conflicting controls.

Consultation:

Workers and HSRs shall be consulted during preparation and review. If workers aren't present during planning, consult them when the SWMS is introduced (e.g. toolbox talks).

Key steps to manage risk

Risk management involves identifying and controlling hazards to prevent harm. The key steps are:

- **identify potential hazards** – what could cause harm?
- **assess the risks** – how serious is the harm and how likely is it?
- **control the risks** – use the most effective control measures available and practicable
- **review and maintain controls** – make sure they remain effective over time.

When deciding what's reasonably practicable, consider the effectiveness, availability, and suitability of controls. Cost may be considered, but only after assessing the risk.

This process should include documenting the assessment and any action or work procedure established for the workplace. It should also be aligned with PCBUs' own risk management policies and procedures.

Identify potential hazards

The industry identifies pressure/energy, stability, and ground conditions as the primary risks, with traffic management and environmental factors (weather, visibility, etc.) as additional key risks.

Concrete pumping hazards may include:	• equipment interaction with people, structures, or power lines • poor ground conditions or weather (e.g. wind, rain, lightning) • equipment faults or wear • layout and placement of plant
Identify hazards by:	• observing the site and equipment setup • reviewing maintenance logs and incident reports • consulting with workers, operators, and other PCBU's

Assess the risks

A site activity risk assessment should be carried out every time.

Risk assessments help determine:	• severity and likelihood of harm • urgency of action • who is responsible for controls
Conduct a risk assessment when:	• hazards are complex or poorly understood • control measures are uncertain • multiple hazards may interact
Consider:	• effectiveness of current controls • actual work practices versus documented procedures • equipment breakdowns or failures • frequency and proximity of exposure • number of people at risk

Control the risks

Once risks have been identified they must be controlled to prevent harm to workers and bystanders. Under the HSWA, PCBU's shall do everything reasonably practicable to eliminate or minimise these risks.

Considering the 'hierarchy of controls' is a way to manage risks, starting with the most effective control. The hierarchy is:

- **elimination** – remove the risk
- **substitution** – replace the risk with something that doesn't produce the same risk

- **engineering controls** – isolate people from the risk
- **administrative controls** – training, procedures and signage, noting that these rely on human behaviour so are less effective than physical controls
- **PPE** – using PPE to manage residual risks.



Figure 1: Hierarchy of controls

Note that concrete pumping often requires a combination of control measures tailored to site-specific needs, such as pump selection, delivery logistics, and traffic management.

Alert:

Cost should be considered only after evaluating all reasonably practicable control options.

Examples of control measures for concrete pumping

Substitution	• replacing hazardous equipment or processes with safer alternatives, such as using a line pump instead of a boom in tight spaces
Engineering controls	• physically separating people from hazards, e.g. by installing fencing near excavations to prevent access • using mechanical or automated solutions such as hoppers with low-level sensors to prevent air intake
Administrative controls	• implementing safe work procedures, training and supervision
PPE	• using PPE such as eyes, ears and feet protection to manage residual risk

Review and maintain controls

Regularly review control measures, especially when work conditions change. Consult workers to assess effectiveness and identify issues such as:

- new risks introduced by controls
- worker involvement in hazard identification
- frequency of incidents
- availability of new equipment or information.

If controls are found lacking, repeat the risk management process to improve them.

Toolbox meetings are a key tool for communicating risks, hazards, and controls to everyone involved in or near the pumping activity. All workers should be signed onto the site activity risk assessment before work begins, confirming they have read, understood, and accepted the controls in place.

Effective communication of risks and controls must extend beyond the core pumping crew. First-time delivery drivers, adjacent contractors, and any other persons working near the activity must be briefed on the relevant hazards and controls before work commences. No one should begin work in or around the pumping activity without being made aware of the risks.

Preparing for concrete pumping

Effective planning is essential for safe concrete pumping. It should begin early and involve consultation with all relevant parties including principal contractors, PCBU's, designers, utility providers, road authorities, and equipment operators.

Planning the pumping process

Planning should address safety for workers, other site personnel, and the public.

Key considerations include:

- **Power supply safety:** consult electricity authorities and follow manufacturer guidance near power lines.
- **Concrete mix and aggregate size to fit hose dimensions**
- **Equipment selection:** choose suitable pumps based on site access, ground conditions, and delivery needs.
- **Traffic control:** plan for safe movement around the site.
- **Emergency plans:** ensure one is in place for each site.
- **Observers & Controllers (Spotters):** assign as needed for complex tasks.
- **Safe plant operation:** minimise risks such as hose whip.
- **Clearances:** maintain safe distances between mobile plant and pumping equipment, especially across adjacent sites.

Each pump unit shall be equipped with [safety items such as](#):

- **a first aid kit** (including eye wash)
- **fire extinguishers**
- **reflective cones, exclusion zone signs, and high-visibility vests.**

Before starting work:

- Exclude non-essential personnel from the area.
- Ensure traffic controllers remain visible to truck drivers.
- Require high-visibility vests in delivery zones.
- Confirm trucks have reversing alarms and flashing lights.
- Obtain permits for roadside setups.
- Check weather conditions.
- Install barriers and signage to protect workers, equipment, and road users.

Equipment owner responsibilities

Owners of concrete pumping equipment shall:

- ensure all **safety features and warning devices** are functional and used correctly
- provide **training** for operators and line hands
- make **manufacturer information** (e.g. operating and maintenance manuals) available
- keep **design, inspection, and maintenance records** accessible and signed off before use.

Further refer to section ‘Concrete Pumping Roles & Responsibilities’, page 8.

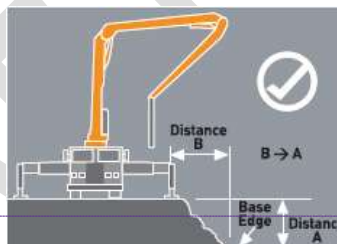
Pump operator responsibilities

Concrete pump operators shall operate equipment safely and be familiar with:

- the specific model, its functions, and limitations
- the operating manual
- site conditions, including overhead power lines and nearby structures.

Before and during operations, operators should:

- Ensure the exclusion zone is clear of unauthorised personnel.
- Set outriggers according to manufacturer instructions, including pressure settings.
- Engineered stabiliser **foot pads** to be used.



When Steel plates are positioned under outriggers/stabilisers, the pump operator shall place the foot pads between the steel plate and outrigger stabilisers. NEVER have steel on steel contact.

- Carry out full pre-operational check of all safety features and operating functions. Inspect and confirm the inspection log book is filled out
- Check boom movements are safe.
- Monitor safe use of the pump, delivery lines, and boom.
- Periodically check stabilisers for movement.
- Only operate the pump with hopper grates closed and interlocked.
- Regularly monitor concrete truck driver is keeping the pump hopper levels at the correct levels, the concrete truck discharge matches the pump flow rate.
- Maintain concrete levels to prevent air intake (e.g. auto shut-off or monitoring by a second person). Responsibility normally falls on the mixer driver to monitor the hopper as the pump operator will be working at the discharge end of the pump.
- Perform complete daily inspections and maintain log-book entries.
- Never leave equipment unattended during operation.

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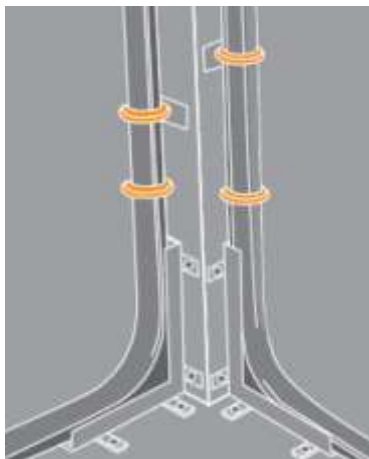
Commented [RG2]: added "foot"

- The equipment should be stopped, isolated and made safe if being left unattended. Whilst the operator has the remote control and has it enabled, the equipment is not considered unattended.

Satellite boom operations require separate operators for the boom and pump, with a reliable communication system between them.

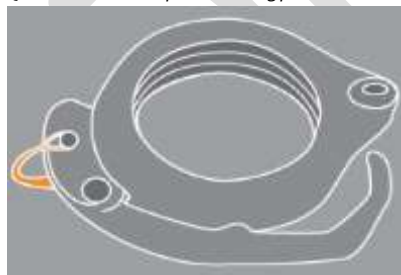
Report any defects immediately - If safety is compromised, stop operations until resolved. Record all defects and actions in a logbook.

Pump operator responsibilities

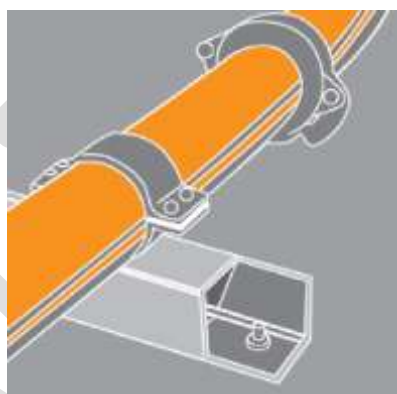
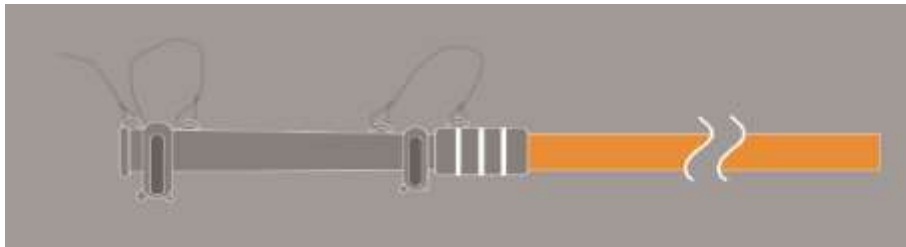


Securely fix the hose to avoid movement

Quick-release clamp with locking pin



End-hose and reducer with safety slings



Use anchor brackets to restrict pipe movement

Hose/ pipe joiners and connectors must be positioned no more than 600mm from an anchor bracket but must not be placed immediately adjacent to one! All couplers/ clamps shall have safety pins fitted to prevent accidental opening of the coupler/ clamp and all sections either side of the coupler/clamp shall be tethered by an independent safety sling/ whip!

Operating concrete pumping equipment safely

Preparing for road travel

Before moving a concrete pump:

- secure outriggers with manufacturer-approved transport locks
- stow loose items properly
- disengage hydraulic drives and switch controls off
- restrain booms to prevent movement.
- ensure transporting concrete in hopper pump complies with axle weight limits
- If pump hopper has concrete in it, ensure an effective spill resistant lid is fitted to the hopper.

Commented [RG3]: Added "transport"

Always follow manufacturer instructions.

Site setup

Before positioning the pump, conduct a site assessment to identify hazards at all levels:

- Below ground - excavations, services, pits, basements, and trenches under the pump and outriggers
- Ground level - rough, soft, uneven, wet, or unstable ground (conditions may change throughout the day); slopes and ramps; reinforcing and formwork; buildings, obstructions, vehicles, machinery, restricted ventilation/enclosed spaces and other trades
- Above ground - powerlines, utility lines, building overhangs, cranes, MEWPs, forklifts, and people working at height

Set up on level, stable ground free of obstructions. Never position the pump over backfilled, disturbed, or soft ground, or near excavations, trenches, or pits. Complete a pre-operational check on the truck and pump and record it in the logbook before operations begin. Report any ground stability concerns to the principal contractor/ site controller.

Outriggers and stability

Ground stability may be affected by slope, water, soil type, backfill, cavities, prolonged use, and nearby services. Use suitable pads (e.g. timber) with sufficient bearing area; avoid placing pads near excavations or soft ground. NEVER place steel outrigger feet on steel surfaces. Place an engineered stabiliser foot pad between the two steel surfaces. Check stability regularly and protect outriggers from accidental impact. Do not operate the placing boom in wind conditions exceeding manufacturer limits.

Commented [RG4]: added 'foot'

Avoid short legging - it increases the risk of overturning. Where space constraints make it unavoidable, consult the manufacturer's manual for operational limits and ensure the pump remains structurally stable throughout all stages of the pour.

Site access and exclusion zones

Ensure the principal contractor/ site controller has:

- restricted access to authorised personnel wearing hi-visibility PPE as determined by the risk assessment
- clearly marked the area for safe access by people and equipment
- provided alternate access where needed
- cleared access routes and provided adequate lighting
- posted "Authorised Access Only" signage

Refer to **Checklist A: Concrete pump set up** for suitable safety measures and checks.
Also see

Take extra care

Avoid kinks within the hose

Let the boom do the heavy lifting



End-hose should be secured or removed

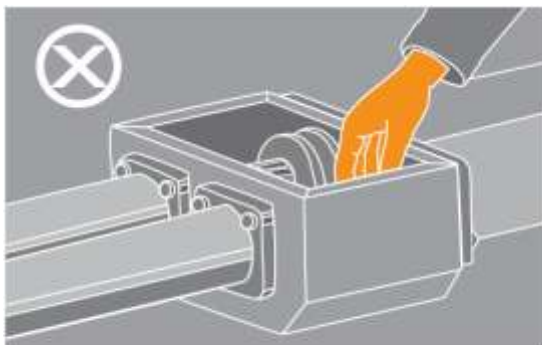


Keep clear of discharge end of pipe



Never dismantle pipeline while under pressure

- all workers are to be kept clear of the discharge end while the concrete is under pressure
- never attempt to dismantle the pipeline while it is still under pressure.



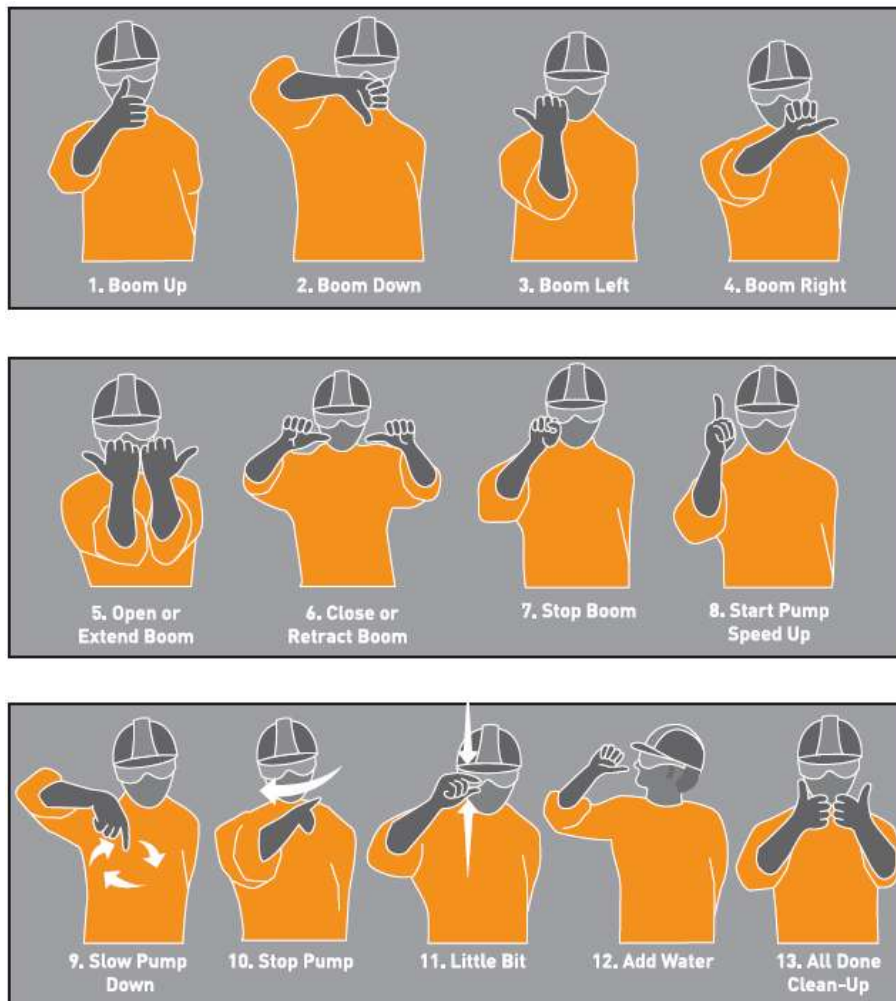
Dangerous cleaning practices

Note: Where fitted, the interlocked cut-out switch on the hopper grille should not be relied on to prevent movement of parts during cleaning.



Dangerous cleaning practices

Hand Signals *(Image source: AUS Victoria Guide)*



Approaching a Concrete Pump – Driver Instructions

Connecting a concrete truck to a pump is a high-stakes task that requires precision, communication, and safety. Reversing a heavy mixer into a tight spot requires more than just checking your mirrors - it's about geometry and constant communication.

Arrival & Positioning

- **Locate and receive instruction from traffic controller** and understand the traffic management plan for the site, establish who is directing you.
- **Spot the Pump:** Identify the pump's location and the "Hopper" (receiving end).
- **Identify the "Swing" Area:** Ensure there is enough clearance for the front of your truck to swing as you manoeuvre the rear.
- **Pre-Entry Assessment:** Do a quick "drive-by" or walk-around and check for "Soft Spots". Ensure the area is level and stable enough for the truck's weight. Look for trenches, uncompacted soil, or debris that could cause the truck to tip or get stuck.
- **Attach the delivery docket to the pump operator station at the hopper:** it provides the pumper with the information needed to ensure the delivered product pumps correctly.

Positioning for the Arc

- **Watch your traffic controller or pump operator:** If you lose sight of them, **STOP** immediately.
- **The Angle:** Don't try to reverse in a perfectly straight line if the site is tight. Start with your truck at a slight angle so you can see the pump hopper in your **driver-side mirror**.
- **The Pivot Point:** Aim your rear tires toward a specific marker provided by the operator, usually about 1m – 1.5 m from the pump.

The Reverse Manoeuvre

- **Low and Slow:** Use your lowest reverse gear. Sudden braking causes the concrete to surge in the drum, shifting the centre of gravity of your truck!
- **Use appropriate truck gear:** If truck is fitted with a "manoeuvring/crawler" gear, it should be used. If the truck is fitted with "diff/cross locks/power dividers", these are to be used when on unpaved surfaces.
- **Mirror Discipline:** If directed by the traffic controller, use clear hand signals and maintain visual contact with the driver at all times. Always position yourself to the side - never between the truck and the pump.
- **The "Final Centimeters":** As the rear wheels approach the pump, straighten the wheels to align the chute directly over the centre of the hopper.

- Stop when the discharge chute is centered over the hopper.

Preparation & Safety Check

- **Set the Brake:** Engage the parking brake and put the truck in neutral.
- **PPE Check:** Ensure you are wearing the required PPE, gloves, safety glasses, and a hard hat.
- **Visual Inspection:** Verify the hopper is clear of debris and the "Grate" is securely in place.

Warning: Never attempt to discharge if the hopper grate is missing or damaged.

Connection & Priming

When handling ready-mix truck chutes, keep hands clear of pinch points at hinges and between the chute end and hopper.

- **Position the Chute:** Lower the truck's discharge chute so it sits comfortably above the hopper (10 – 15 cm) of clearance to avoid metal-on-metal contact).
- **Wait for the Signal:** Do not start the drum until the Pump Operator signals they are ready for "Prime."
- **The Prime:** Discharge a small amount of "slurry" (water/cement mix) if requested to lubricate the pump lines.

The Discharge Process

- **Initiate Pour:** Slowly rotate the drum to begin discharging concrete.
- **Maintain contact:** Always maintain three points of contact when climbing on or off any equipment, ladder, or scaffold.
- **Match the Speed:** Adjust your discharge rate to match the pump's speed.
 - Keep the hopper as full as possible. do not let the agitating paddles become exposed.
- **Monitor Consistency:** Watch for clumps or "dry" patches that might clog the pump.

Note: No water can be added to the mix without batch plant authorisation; excessive water causes aggregate segregation and likely blockages in the delivery line. If any foreign material enters the hopper, the nearest worker must immediately alert the pump operator and hit the E-stop. Only the pump operator or a suitably qualified person may remove foreign material, and only once the pump is fully shut down and disabled.

Completion & Clean-up

- **Stop Discharge:** Once the truck is empty or the operator signals "Stop."
- **Signal the pump operator:** that the truck is empty by using the horn.
- **Wash Down:** Use the truck's hose to clean chutes in the designated area, away from the pump hopper, to prevent water thinning the mix. Bowl cleanout or discharge on site requires site controller authorisation.
- **Departure:** Follow the traffic controller's lead to exit the site safely.

Summary Checklist for Drivers

✓	STEP	ACTION
-	Arrival	Inspect site for soft spots, unevenness and ditches
-	Identify	Identify who your traffic controller is
-	Positioning	Reverse via traffic controller's signals
-	1 meter Out	Slow to a crawl; wait for signals. The traffic controller to move in close to guide the driver through the final metre.
-	Chute Height	Chute 10 - 15 cm above hopper
-	30 cm	Prepare to brake; ensure chute height is clear of hopper edges.
-	10 cm	FULL STOP! Engage the parking brake immediately.
-	Flow	Maintain 75% hopper level
-	Communication	Constant eye contact with Pump Operator

Hand Signals for Drivers *(Image source: Concrete NZ)*

DRAFT

Pumping Operations

Pumping Operations

Planning Begin concrete placement at the furthest point from the pump to prime the entire system at the start of the pour, avoiding boom movement over finished work and personnel later. Any hose section or reducer added during the pour must be lubricated before pumping.

Unattended operation Do not leave the pump unattended while operating. If the operator must work away from the machine, appoint a competent person to monitor the hopper and warn of any unsafe conditions. That person must be trained in the correct response to air or foreign objects entering the hopper.

Hopper management Never allow the hopper to run empty - instruct the driver to keep the mix covering the valve at all times. If the hopper runs empty, immediately hit the E-stop and inform the operator.

Hose whip - stand clear Maintain a safe distance from the discharge hose at all times. Only trained and authorised personnel should work at or near the hose discharge end, and a competent person must continuously supervise hose operations. All other workers must remain clear of the hose due to the risk of sudden hose movement or whipping.

During blow out the hose should be securely fastened to prevent hose whip, the operator must be ready to stop immediately if a blockage occurs.

- NEVER have a steel end on your end hose.

Only approach the hose when concrete is flowing smoothly and the operator has given approval.

Hose handling

- Hold the hose at arm's length. Never hug or carry it on your shoulder.
- Watch for trip hazards, especially when moving backwards.
- Never stand between the hose and a fixed object.
- Keep the hose outlet around knee height and lower it as needed to minimise splatter.
- Do not allow the hose outlet to touch the deck, as this can create back pressure.
- Never hand-hold hoses larger than 65 mm.
- Keep hands clear of clamps, connections, and edges when lowering hoses into forms.
- Never place hoses into concrete block or ICF walls where pressure could force them out.

- When line pumping, drag the hose while walking forward and use hooks or chains near the discharge end.
- Use hose skids or saucers under connections to reduce friction and prevent snagging on reinforcement.
- Never restrict flow by attaching devices to the hose end. Reduce pump output or use a smaller hose instead.
- Never sit, stand, or straddle a pipeline while it is in use or under pressure.

Signals Ensure the operator and hose hand have agreed on hand signals before pumping. The signal for pressure relief is two taps to the back of the head.

Blockages

- Stop the pump and relieve pressure before opening the system.
- Use a shovel or tool to open clamps - never use bare hands
- Never look into a plugged hose or pipe
- Remove the plug before reassembling
- Restart slowly to clear any induced air
- Never use compressed air to clear a blockage - the stored energy creates an extreme hazard
- Always ask the operator for instructions when encountering problems

Shortening the system Manoeuvre hose to remove several pieces at once. Never open the system without operator instruction and confirm pressure has been relieved first. Never have hoses with metal fittings on the free end.

Manual handling Lift with your legs. A 3m length of 125mm hose full of concrete can weigh over 150kg - always get help and look for a mechanical lifting solution.

Boom and outriggers Only a qualified and competent pump operator may operate the boom or outriggers. Never ask the operator to drag hose with the boom. Do not hang more than one hose or one hose with reducer from the boom tip, and never exceed the manufacturer's maximum tip weight.

Hose care and inspection

- Inspect hoses before every operation; check throughout on longer jobs
- Do not excessively beat hose or pipe with a hammer - it damages reinforcing and causes premature failure
- Never use hose showing frays, cracks, bubbles, or exposed braiding

- Never kink the hose while pumping - it causes blockages, pressure spikes, and weakens the hose
- Always use the correct hose rated for the working pressure
- Store unused hoses in a clean, dry, dark space
- Always use a safety sling across couplings suspended over personnel - minimum one sling per component
- Never use a fitting without safety pins
- Use safety chains from the pump to the first hose section
- Fit a heavy rubber skirt over the pump outlet and elbow
- The first reducer should have a sling between itself and the next hose section

Pump stroke and priming Maintain a pump stroke of 5–7 seconds apart - longer for smaller hoses, shorter for larger diameter. Use primer fluid to wet the inside of the hose and prevent moisture being stripped from the mix.

Basics of operation (S-tube) The S-tube alternates between both pump cylinders at the set stroke speed. Mix sits in the hopper, stirred by agitator paddles, and is drawn into each cylinder on the reverse stroke before being pushed out through the S-tube into the pipeline. Keep the hopper sufficiently full to prevent air being drawn into the cylinders, which causes loss of prime and pressure spikes.

Basics of operation (rotor/squeeze) Often found in smaller pumps and mortar/grout pumps. The pump uses a rotating roller to squeeze the mix through a flexible hose in the pump casing, progressively pushing the mix forward, the concrete mix only touches the inside of the hose, reducing wear and build up. Typically is lower operating pressure in comparison to the “s-tube” variant.

Working near power lines Working near power lines, page 3124 and refer ‘Concrete Pumping Roles & Responsibilities, page 8.

Spotter (Safety Observer’s & Traffic Controller) responsibilities

Safety Observer - Hazard and Overhead Line Control

A trained safety observer is responsible for monitoring plant movements and ensuring safe clearances from hazards such as overhead power lines, structures, and exclusion zones.

The safety observer shall:

- Maintain **continuous visual contact** with the operator and equipment.

- Monitor and enforce **minimum approach distances**, particularly to **overhead power lines** and other hazards.
- **Warn the operator immediately** if equipment approaches a hazard or exclusion zone.
- Ensure **exclusion zones are maintained**, keeping unauthorised people clear of the work area.
- Understand **site-specific risks** (e.g. power lines, ground conditions, adjacent structures).
- Maintain **clear, uninterrupted communication** with the operator (e.g. radio).
- Assist with guiding plant where required, but **must not be distracted from their primary safety role**.

Traffic Controller - Vehicle and Public Interface

A traffic controller is responsible for managing vehicle and pedestrian movements to ensure safe access to and around the worksite.

The traffic controller shall:

- **Control and direct traffic**, including concrete trucks, in accordance with the site traffic management plan.
- Safely manage **truck access, positioning, and reversing movements**.
- Protect **workers, drivers, and the public** from traffic-related risks.
- Implement controls such as **road or footpath closures, detours, and barriers** where required.
- Maintain **safe separation** between traffic and pumping operations.

Traffic Control and Deliveries

Concrete pumping often occurs in high-traffic environments, where deliveries introduce additional risks to workers and the public.

Key hazards include:

- Being **struck or trapped** by vehicles
- **Crushing or entanglement** at the hopper
- Impact from plant or materials

Risk controls may include:

- Road or footpath closures
- Detours and barriers
- Clearly defined delivery areas
- Use of **dedicated traffic controllers**

A **traffic controller must be separate from the safety observer**, so each role can focus on their specific responsibilities without distraction.

Refer to [WorkSafe NZ workplace traffic management guidelines](#) for more detail.

Commented [RG5]: added "WorkSafe NZ" as it is their document

Checklist

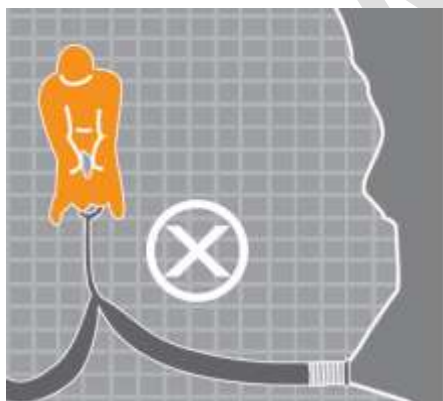
Refer to **Checklist B: Concrete delivery safety** for safety tips.

Safety measures for common hazards

The following table outlines common hazards and concerns during concrete pumping and cleaning, and relevant checklists).

Hazard or concern	Comment	Checklist
Lines–operating	Concrete pumping can cause line bursts, dislodged clamps or hose failure due to damage or incorrect selection.	Checklist C: Concrete pumping safety
Hose whip	Uncontrolled hose movement during pumping or cleaning can cause serious injury or death.	Checklist D: Minimising hose whip risk
Blockages	Blockages may result from poor mix design, worn components or pipeline issues, leading to mix segregation. • Minor blockages may be cleared by briefly reversing the pump. • Avoid repeated attempts as this can worsen the blockage.	Checklist E: Blockage prevention and safe clearing
Noise	• Refer to provide operators with hearing protection and training. • Monitor for unusual noise levels, which may indicate unsafe conditions.	-
Fumes	• Position trucks to minimise exhaust build-up. • In enclosed areas, ensure proper ventilation or vent fumes outside.	-

Hazard or concern	Comment	Checklist
	Monitor and disperse fumes if concentrations approach unsafe levels.	
Lines – cleaning	Plugs or dislodged concrete can become high-speed projectiles. Conduct and document risk assessments.	Checklist F: Concrete line and pump cleaning
Pumps – cleaning	Cleaning the hopper and pump poses entanglement and crushing risks.	Checklist F: Concrete line and pump cleaning



Take extra care

Avoid kinks within the hose



Let the boom do the heavy lifting



End-hose should be secured or removed

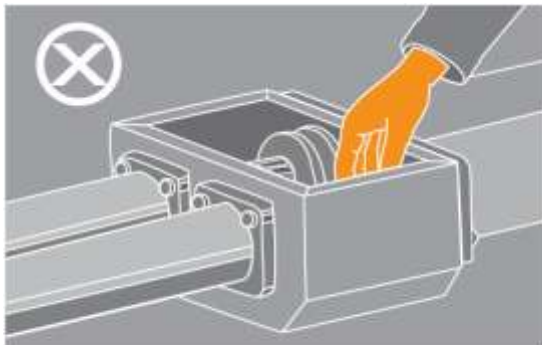


Keep clear of discharge end of pipe



Never dismantle pipeline while under pressure

- all workers are to be kept clear of the discharge end while the concrete is under pressure
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Dangerous cleaning practices

Note: Where fitted, the interlocked cut-out switch on the hopper grille should not be relied on to prevent movement of parts during cleaning.



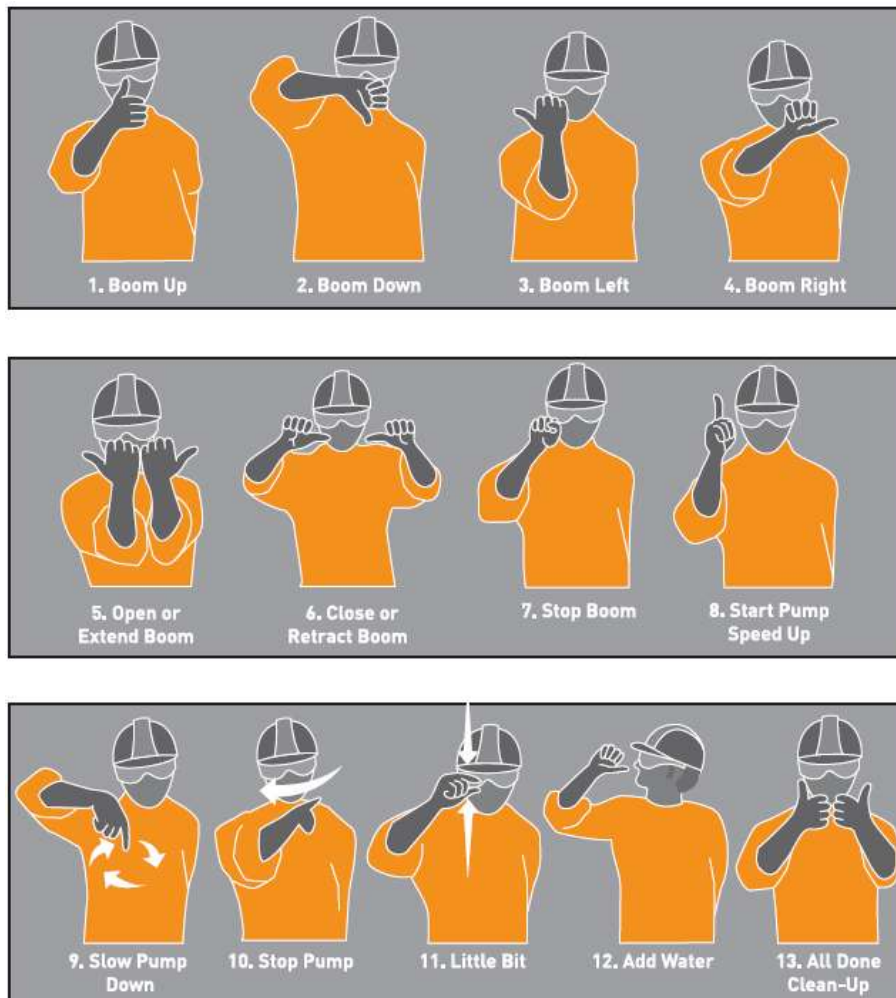
Dangerous cleaning practices



Figure 21: Confirm everything is secured before moving.

Never remove the water box covers of a pump unless the hydraulic system has been disabled and the operator has given you specific instructions.

Hand Signals *(Image source: AUS Victoria Guide)*



Approaching a Concrete Pump – Driver Instructions

Connecting a concrete truck to a pump is a high-stakes task that requires precision, communication, and safety. Reversing a heavy mixer into a tight spot requires more than just checking your mirrors - it's about geometry and constant communication.

Arrival & Positioning

- **Locate and receive instruction from traffic controller** and understand the traffic management plan for the site, establish who is directing you.
- **Spot the Pump:** Identify the pump's location and the "Hopper" (receiving end).
- **Identify the "Swing" Area:** Ensure there is enough clearance for the front of your truck to swing as you manoeuvre the rear.
- **Pre-Entry Assessment:** Do a quick "drive-by" or walk-around and check for "Soft Spots". Ensure the area is level and stable enough for the truck's weight. Look for trenches, uncompacted soil, or debris that could cause the truck to tip or get stuck.
- **Attach the delivery docket to the pump operator station at the hopper:** it provides the pumper with the information needed to ensure the delivered product pumps correctly.

Positioning for the Arc

- **Watch your traffic controller or pump operator:** If you lose sight of them, **STOP** immediately.
- **The Angle:** Don't try to reverse in a perfectly straight line if the site is tight. Start with your truck at a slight angle so you can see the pump hopper in your **driver-side mirror**.
- **The Pivot Point:** Aim your rear tires toward a specific marker provided by the operator, usually about 1m – 1.5 m from the pump.

The Reverse Manoeuvre

- **Low and Slow:** Use your lowest reverse gear. Sudden braking causes the concrete to surge in the drum, shifting the centre of gravity of your truck!
- **Use appropriate truck gear:** If truck is fitted with a "manoeuvring/crawler" gear, it should be used. If the truck is fitted with "diff/cross locks/power dividers", these are to be used when on unpaved surfaces.
- **Mirror Discipline:** If directed by the traffic controller, use clear hand signals and maintain visual contact with the driver at all times. Always position yourself to the side - never between the truck and the pump.
- **The "Final Centimeters":** As the rear wheels approach the pump, straighten the wheels to align the chute directly over the centre of the hopper.

- *Stop when the discharge chute is centered over the hopper.*

Preparation & Safety Check

- **Set the Brake:** Engage the parking brake and put the truck in neutral.
- **PPE Check:** Ensure you are wearing the required PPE, gloves, safety glasses, and a hard hat.
- **Visual Inspection:** Verify the hopper is clear of debris and the "Grate" is securely in place.

Warning: Never attempt to discharge if the hopper grate is missing or damaged.

Connection & Priming

When handling ready-mix truck chutes, keep hands clear of pinch points at hinges and between the chute end and hopper.

- **Position the Chute:** Lower the truck's discharge chute so it sits comfortably above the hopper (10 – 15 cm) of clearance to avoid metal-on-metal contact).
- **Wait for the Signal:** Do **not** start the drum until the Pump Operator signals they are ready for "Prime."
- **The Prime:** Discharge a small amount of "slurry" (water/cement mix) if requested to lubricate the pump lines.

The Discharge Process

- **Initiate Pour:** Slowly rotate the drum to begin discharging concrete.
- **Maintain contact:** Always maintain three points of contact when climbing on or off any equipment, ladder, or scaffold.
- **Match the Speed:** Adjust your discharge rate to match the pump's speed.
 - *Keep the hopper as full as possible. do not let the agitating paddles become exposed.*
- **Monitor Consistency:** Watch for clumps or "dry" patches that might clog the pump.

Note: No water can be added to the mix without batch plant authorisation; excessive water causes aggregate segregation and likely blockages in the delivery line. If any foreign material enters the hopper, the nearest worker must immediately alert the pump operator and hit the E-stop. Only the pump operator or a suitably qualified person may remove foreign material, and only once the pump is fully shut down and disabled.

Completion & Clean-up

- **Stop Discharge:** Once the truck is empty or the operator signals "Stop."
- **Signal the pump operator:** that the truck is empty by using the horn.
- **Wash Down:** Use the truck's hose to clean chutes in the designated area, away from the pump hopper, to prevent water thinning the mix. Bowl cleanout or discharge on site requires site controller authorisation.
- **Departure:** Follow the traffic controller's lead to exit the site safely.

Summary Checklist for Drivers

✓	STEP	ACTION
	Arrival	Inspect site for soft spots, unevenness and ditches
	Identify	Identify who your traffic controller is
	Positioning	Reverse via traffic controller's signals
	1 meter Out	Slow to a crawl; wait for signals. The traffic controller to move in close to guide the driver through the final metre.
	Chute Height	Chute 10 - 15 cm above hopper
	30 cm	Prepare to brake; ensure chute height is clear of hopper edges.
	10 cm	FULL STOP! Engage the parking brake immediately.
	Flow	Maintain 75% hopper level
	Communication	Constant eye contact with Pump Operator

Hand Signals for Drivers *(Image source: Concrete NZ)*



No response should be made to unclear signals



Pumping Operations

Pumping Operations

Planning Begin concrete placement at the furthest point from the pump to prime the entire system at the start of the pour, avoiding boom movement over finished work and personnel later. Any hose section or reducer added during the pour must be lubricated before pumping.

Unattended operation Do not leave the pump unattended while operating. If the operator must work away from the machine, appoint a competent person to monitor the hopper and warn of any unsafe conditions. That person must be trained in the correct response to air or foreign objects entering the hopper.

Hopper management Never allow the hopper to run empty - instruct the driver to keep the mix covering the valve at all times. If the hopper runs empty, immediately hit the E-stop and inform the operator.

Hose whip - stand clear Maintain a safe distance from the discharge hose at all times. Only trained and authorised personnel should work at or near the hose discharge end, and a competent person must continuously supervise hose operations. All other workers must remain clear of the hose due to the risk of sudden hose movement or whipping when:

During blow out the hose should be securely fastened to prevent hose whip, the operator must be ready to stop immediately if a blockage occurs.

NEVER have a steel end on your end hose, priming at the start of the pour

- restarting after the system has been opened, a blockage cleared, or the pump relocated
- restarting after gravity has drained the boom
- the boom tip is vertical or near-vertical
- the operator is repeatedly reversing due to pumping difficulty
- the hopper has run empty and air has entered the system
- cleaning out

Only approach the hose when concrete is flowing smoothly and the operator has given approval.

Hose handling

- [Hold the hose at arm's length. Never hug or carry it on your shoulder.](#)
- [Watch for trip hazards, especially when moving backwards.](#)
- [Never stand between the hose and a fixed object.](#)
- [Keep the hose outlet around knee height and lower it as needed to minimise splatter.](#)
- [Do not allow the hose outlet to touch the deck, as this can create back pressure.](#)
- [Never hand-hold hoses larger than 65 mm.](#)
- [Keep hands clear of clamps, connections, and edges when lowering hoses into forms.](#)
- [Never place hoses into concrete block or ICF walls where pressure could force them out.](#)
- [When line pumping, drag the hose while walking forward and use hooks or chains near the discharge end.](#)
- [Use hose skids or saucers under connections to reduce friction and prevent snagging on reinforcement.](#)
- [Never restrict flow by attaching devices to the hose end. Reduce pump output or use a smaller hose instead.](#)
- [Never sit, stand, or straddle a pipeline while it is in use or under pressure.](#)
- ~~Hold the hose at arm's length – never hug it~~
- ~~Always walk forward – never backwards~~
- ~~Never position yourself between the hose and a fixed object~~
- ~~Keep the hose outlet at approx knee height, lowering when needed to reduce splatter.~~
- ~~Never hold the hose on your shoulder – it becomes significantly heavier when filled~~
- ~~Do not allow the outlet of the hose to touch the deck (back pressure risk)~~
- ~~Do not hold a hose larger than 65mm by hand~~
- ~~When lowering into a wall, column or pile casing, keep hands clear of clamps and edges.~~
- ~~Never lower a hose into a concrete block or ICF wall – it will be forced out as the wall fills~~
- ~~When line pumping, always walk forward when dragging last hose section on deck pours; use hooks or a rope attached 300mm from the discharge end~~
- ~~Use hose skids/saucers under hose connections to reduce friction and prevent clamps snagging on rebar~~

- ~~Never attach any device to the end of the hose to slow flow – use reducers, flat hoses, or reduced pump output instead~~
- ~~Never sit, stand, or straddle the pipeline while in use or under pressure~~

Signals Ensure the operator and hose hand have agreed on hand signals before pumping. The signal for pressure relief is two taps to the back of the head.

Blockages

- Stop the pump and ~~relieve the pump to relieve~~ pressure before opening the system.
- Use a shovel or tool to open clamps - never use bare hands
- Never look into a plugged hose or pipe
- Remove the plug before reassembling
- Restart slowly to clear any induced air
- Never use compressed air to clear a blockage - the stored energy creates an extreme hazard
- Always ask the operator for instructions when encountering problems

Shortening the system Manoeuvre hose to remove several pieces at once. ~~Do not remove end hoses if they will need to be reattached.~~ Never open the system without operator instruction, and confirm pressure has been relieved first. Never have hoses with metal fittings on the free end.

Manual handling Lift with your legs. A 3m length of 125mm hose full of concrete can weigh over 150kg - always get help and look for a mechanical lifting solution.

Boom and outriggers Only a qualified and accredited competent pump operator may operate the boom or outriggers. Never ask the operator to drag hose with the boom. Do not hang more than one hose or one hose with reducer from the boom tip, and never exceed the manufacturer's maximum tip weight.

Commented [RG6]: change "accredited" to "competent"

Hose care and inspection

- Inspect hoses before every operation; check throughout on longer jobs
- ~~Never~~ Do not excessively beat hose or pipe with a hammer - it damages reinforcing and causes premature failure
- Never use hose showing frays, cracks, bubbles, or exposed braiding
- Never kink the hose while pumping - it causes blockages, pressure spikes, and weakens the hose

Commented [RG7]: changed from "never" to "excessively"

- Always use the correct hose rated for the working pressure
- Store unused hoses in a clean, dry, dark space
- Always use a safety sling across couplings suspended over personnel - minimum one sling per component
- Never use a fitting without safety pins
- Use safety chains from the pump to the first hose section
- Fit a heavy rubber skirt over the pump outlet and elbow
- The first reducer should have a sling between itself and the next hose section

Pump stroke and priming Maintain a pump stroke of 5–7 seconds apart - longer for smaller hoses, shorter for larger diameter. Use primer fluid to wet the inside of the hose and prevent moisture being stripped from the mix.

Basics of operation (S-tube) The S-tube alternates between both pump cylinders at the set stroke speed. Mix sits in the hopper, stirred by agitator paddles, and is drawn into each cylinder on the reverse stroke before being pushed out through the S-tube into the pipeline. Keep the hopper sufficiently full to prevent air being drawn into the cylinders, which causes loss of prime and pressure spikes.

Basics of operation (rotor/squeeze) Often found in smaller pumps and mortar/grout pumps. The pump uses a rotating roller to squeeze the mix through a flexible hose in the pump casing, progressively pushing the mix forward, the concrete mix only touches the inside of the hose, reducing wear and build up. Typically is lower operating pressure in comparison to the “s-tube” variant.

Working near power lines

Overhead and underground powerlines pose serious risks including: electrocution, arc

- **electrocution** from direct contact with live lines
- **arc flash**, where electricity jumps through the air to another conductor or the ground.

When setting up near powerlines or overhead services, both the principal and concrete pumping contractors must take all practicable steps to protect workers from electrocution and arc flash. This includes establishing an exclusion zone marking the allowable boom clearance distance, and appointing a dedicated spotter whose sole responsibility is monitoring boom movement and warning the operator if the boom approaches the zone. See Spotter role.

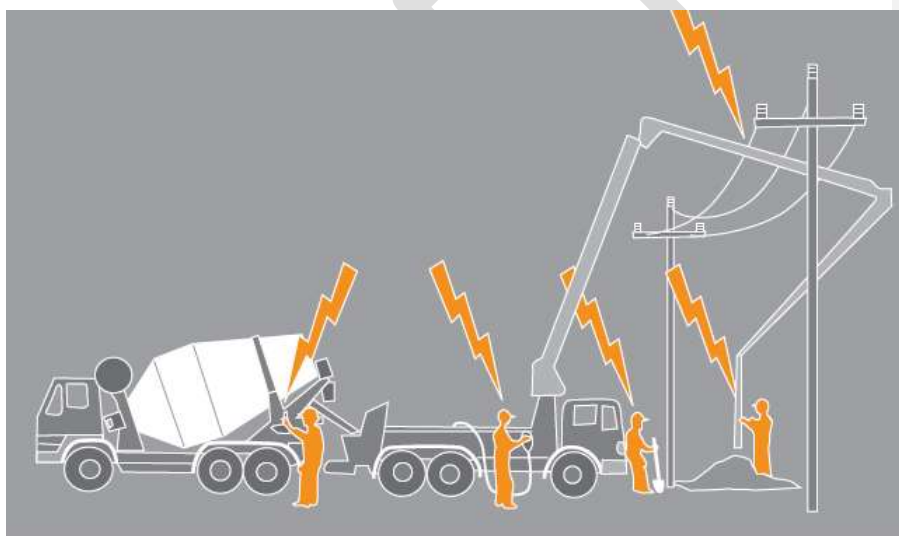


Figure 2: Look up and live – comply with area restrictions

Safety measures

Keep at least 4 metres from live overhead lines

A minimum 4m clearance must be maintained between any live overhead line and mobile plant or its load, unless written consent is obtained from the line owner. Refer to NZECP 34:2001, section 5.

General safety tips for working near power lines include:

- Keep people and equipment at a safe distance from power lines.
- If this isn't practicable, conduct a risk assessment and apply control measures in line with the electricity authority's requirements.
- Use a safety observer when equipment may enter restricted zones near power lines.
- Always confirm safe working distances based on voltage and task type. Contact the electricity supplier for guidance, including possible line isolation.
- Never work over powerlines without authorisation and supervision from the electrical authority.

Planning work near power lines

Before setting up the site, inspect for power lines. If they're present the safest option is to eliminate the hazard, in line with the **hierarchy of controls** (refer to

[Control the risks](#)

[Control the risks](#), page 2016). If that's not practicable there are other steps to minimise the hazard, are described below.

[A spotter or authorised standover/safety observer person will be required in all instances.](#)

Commented [RG8]: Added "A spotter or authorised standover/safety observer person will be required in all instances. "

Eliminating the hazard

The preferred approach is to eliminate the hazard presented by live power lines. If possible, arrange with the line owner to de-energise the power lines. Other options include isolating or re-routing them.

Minimising the hazard

If eliminating the hazard is not practicable the principal and contractor shall make sure that no part of the concrete placing boom comes within 4 metres of live power lines at any stage of the operation. The exception is if the line owner has given written consent to a reduced clearance.

Alert:

Any written applications for power shutdowns or reduced distances shall be submitted to the line owner with reasonable lead time.

Do not operate concrete placing booms over live power lines due to:

- limited clearance from boom shape and height
- boom movement from pumping, wind, or handling
- difficulty judging safe distances from the ground.

Risks may be minimised by:	• using alternative equipment • positioning the boom outside restricted zones • installing non-conductive barriers (this may require power isolation during setup)
Key considerations:	• maintain minimum clearance from power lines • account for line sway (wind) and sag (temperature) • ensure all personnel and equipment stay outside restricted zones • use a safety observer during boom operation
Additional controls:	• warning signs and visual markers (e.g. tiger tails) • keeping pipes parallel to the ground when unloading near power lines

If there's contact with a power line

Alert:

If equipment contacts a live power line immediately stop use and have it inspected by a qualified person before resuming operation.

If concrete pumping equipment contacts a power line:

- **Stay calm** and do **not touch** the equipment until a qualified person confirms it's safe.
- If evacuation is necessary (e.g. due to fire), **jump clear** with both feet together and **shuffle or jump** away – at least **8 metres** distance – to avoid electric shock from charged ground.
- **Keep others away** from the area.
- **Notify** the site supervisor and line owner **call emergency services** immediately.
- If safe and advised by a competent person, attempt to **break contact** with the power line.
- Once safe, **exit the machine** and have it inspected for damage.
- **Inform the power authority** for line inspection and repair.
- Maintain a **safe distance** until help arrives.

Note: Once made safe, the pump must be isolated, tagged out, and reported for inspection of both the cab/chassis and pump before returning to use.

Equipment inspections and maintenance

Alert:

As previously identified in this CoP, all equipment shall comply with AS 1418.15 and AS 2550.15, Standards covering safety, design and safe use requirements for concrete placing equipment.

General maintenance and record keeping

Implement scheduled inspections and preventative maintenance as per manufacturer intervals [and instructions](#). Ensure safety signs are intact, legible, and correctly placed.

Maintain records of all inspections, tests, maintenance, and modifications for the life of the equipment or until ownership changes. Ensure:

- instruction and maintenance manuals are up to date and stored with the unit
- logbooks are current and available on-site
- All planned, preventative, and unscheduled maintenance and repairs must be recorded and signed off by the competent person who carried out the work.
- certification of safe operation is available for review by the principal contractor or site controller.

Maintaining booms

Maintain placing booms regularly as per manufacturer instructions to prevent failure from fatigue or corrosion. Inspections of these booms should cover:

- functionality and control smoothness
- emergency and safety systems
- lubrication, filters, hydraulic oil, and coolant
- structural components (e.g. welds, pins, fasteners).

Erection and dismantling shall follow manufacturer guidelines and AS 2550.15: 2019.

Note: It is common “Good practice” for inspections to be carried out by an independent person to the maintenance technician. “One should not inspect ones own work”

Other checks and inspections

Daily pre-start - Before each shift, visually inspect and test all equipment functions in accordance with manufacturer recommendations.

Monthly - Inspect based on usage and environment. Record findings in the equipment logbook and keep a copy with the unit.

Annual/periodic - Have a competent person inspect the equipment annually or as specified by the manufacturer. Where no interval is specified, base frequency on operating hours and increase with age. Include the boom, support structure, and outriggers.

As part of periodic inspection, strip down and label all pipe sections and elbows by boom position. Check all elbows and steel components for wear and cracks. Shouldered ends - particularly swivel fittings - must be square and flat with no rounding of the mating shoulder. Check wall thickness using an ultrasonic depth gauge on the first metre of each pipe end where the wall is clear of contaminants; use calipers where an ultrasonic reading cannot be obtained. Twin-wall pipe and fittings should also be checked by calliper.

Lubricate rubber gaskets with a suitable lubricant to assist fitting. Grease swivel gaskets and elbow shoulders for smooth operation.

- *Include checks of the boom, support structure, and outriggers.*

Documenting inspection results

Before returning equipment to service, complete a detailed report including:

- equipment history
- manufacturer's inspection criteria
- maintenance manual extracts
- work performed and replaced parts
- photos of inspection and any damage
- names and signatures of competent personnel
- confirmation of correct installation and torquing
- hydraulic cylinder creep test results
- receipts and documentation for parts and external work.
- justification if any part was not dismantled.

Repairs following incidents

If any equipment overturns or suffers structural failure:

- Have it assessed by the manufacturer or a competent person.
- Investigate the cause (e.g. soft ground, wear, collision).
- Inspect and, if needed, dismantle to check for damage.
- Replace damaged parts with manufacturer-approved components.
- Load test the reassembled boom.
- Prepare a detailed report confirming the boom is safe to operate.

DRAFT

Checklists

This section contains the following checklists.

Checklist A: Concrete pump set up

- Pre-setup checks
- Equipment inspection
- Personnel safety
- Setup procedure
- Operational readiness
- Final safety checks

Checklist B: Concrete delivery safety

- Receiving concrete deliveries
- Delivering to the pump hopper

Checklist C: Concrete pumping safety

Checklist D: Minimising hose whip risk

Checklist E: Blockage prevention and safe clearing

- To prevent blockages
- To safely clear blockages

Checklist F: Concrete line and pump cleaning

- Cleaning the delivery line
- Cleaning the concrete pump.

You can also download these checklists at [\[suitable URL to be included\]](#).

Checklist A: Concrete pump set up

Key safety considerations when setting up the concrete pump

Pre-setup checks

Site inspection completed: Check for overhead power lines, underground services, uneven terrain, and restricted access

Risk assessment: Identify hazards and implement control measures

Weather conditions: Avoid setup during high winds, heavy rain, or lightning.

Emergency plan in place: Ensure all workers know emergency procedures and locations of first aid kits and fire extinguishers

Equipment inspection

Pump and hoses inspected: Look for wear, damage, or leaks

Outrigger pads/stabilisers checked: Ensure they are in good condition and suitable for ground conditions

Remote control tested: Confirm full functionality and range

Safety guards and covers secured: Ensure all moving parts are shielded

Personnel safety

Qualified operator assigned: Must be trained and certified

Spotter designated: To assist with setup and monitor surroundings

PPE worn by all personnel: [wear appropriate PPE, as determined by the site activity risk assessment](#) ~~Hard hats, high-vis clothing, gloves, safety boots, eye and hearing protection~~

Communication devices available: Radios or mobile phones for coordination

Setup procedure

Pump positioned on stable ground: Avoid slopes and soft surfaces

Outriggers fully extended and locked: Use pads if necessary

	Safe distance from excavation edges maintained: Prevent collapse risks
	Delivery line secured and supported: Avoid trip hazards and sagging
	Warning signs/barriers placed: Restrict access to pump area
Operational readiness	
	System primed and tested: Check for blockages or pressure issues
	Emergency stop tested: Ensure it-all functions correctly
	Line routing confirmed: Avoid sharp bends and obstructions
	Clear communication established: Between pump operator, line hands, and pour crew
Final safety checks	
	Fire extinguisher accessible: Rated for electrical and fuel fires
	Spill kit available: For hydraulic fluid or fuel leaks
	First aid kit stocked and nearby
	Documentation completed: Setup checklist signed off by supervisor

Checklist B: Concrete delivery safety

Key safety considerations when receiving and delivering concrete

Receiving concrete deliveries

- Ensure trucks have safe, clear access to the pump hopper
- Use a spotter or traffic controller if needed
- Confirm trucks have flashing hazard lights and audible reversing alarms
- Keep workers clear of reversing trucks and the hopper area
- Prevent trucks from reversing into exclusion zones without visibility of the spotter
- Only adjust the chute when the truck is stationary - preferably by the driver
- Ensure the hopper height allows gravity-fed concrete flow
- If using ramps for low slump concrete:
- Ramps shall be stable, non-slip, and prevent trucks from backing off

Delivering to the pump hopper

- Position hopper to receive concrete easily
- Install a grate to block access to moving parts (agitator, valve gear)
- Use interlocked grates that stop paddles and valve gear when opened
- Make sure the emergency stop is accessible
- Grate bars should be spaced to prevent hand access to danger zones

Checklist C: Concrete pumping safety

Key safety measures when pumping concrete

	Only the line hand should be directly under the boom to guide the drop hose
	Minimise time spent under the raised boom by manoeuvring from the side
	Inspect the delivery hose for damage before installation
	If the hose is positioned over work or public areas, fit a stop device at the outlet end
	Avoid hose damage during use
	Secure the hose fitting with a safety chain, sling, or retaining device
	Use hoses rated for the required pumping pressure
	Follow manufacturer guidelines for hose size and length
	Use reducers only as recommended to prevent overloading
	Ensure the line hand wears AS/NZS 1336 compliant eye protection

Checklist D: Minimising hose whip risk

Key steps to reduce hose whip risk during concrete pumping

- Only pump **approved pumpable mixes** as specified by the supplier
- Ensure concrete hasn't **solidified in the line**
- Use **trained operators**
- Start the pump **slowly**
- Avoid rubber hoses with **metal fittings on the free end**
- Establish and maintain an **exclusion zone**
- Don't **stretch hoses** to reach pour areas
- Secure flexible hoses** during priming or blockage clearing
- Ensure workers wear **PPE**, including safety helmets
- Maintain **good housekeeping** to prevent tripping
- Don't exceed the **hose length allowed by the manufacturer**
- Prevent concrete from **dropping out of the hose** when stopping the pump
- Clear the line** before moving the boom
- Confirm with the truck owner when the bowl was last **descaled/debugged**
- Keep the hopper **adequately filled** to avoid air ingress
- Monitor mix consistency and **report issues**
- Use the **emergency stop** if lumps or foreign objects are detected

Checklist E: Blockage prevention and safe clearing

Key safety practices to prevent and safely clear blockages

To prevent blockages:

- Use concrete that's **neither too stiff nor too wet**
- If using recycled aggregates, check if **additives** are needed for proper binding
- Ensure the system is **designed for the pump's capacity** and pressure requirements
- Prime and lubricate** the pipeline before pumping
- Minimise **bends**, especially short or sharp ones, to reduce pressure buildup
- Clean pipelines and hoses thoroughly to avoid **old concrete setting**
- Replace **damaged couplings, gaskets, or weld collars**
- Monitor for **wear in pump components** that may cause mix segregation

To safely clear blockages:

- Exclude all personnel** from the pipeline area except those clearing the blockage
- Depressurise the line** before attempting to clear it - reverse the pump first
- Never **straddle horizontal lines** when opening couplings; stand to the side
- If using pressure** to clear a jam:
 - Keep people away** from the delivery hose
 - Restrain the hose** and use a catchment device to safely collect projectiles
 - Never hold the hose by hand**

Checklist F: Concrete line and pump cleaning

Key safety steps when cleaning concrete delivery lines and pumps

Cleaning the delivery line

- Only **trained and competent workers** should clean lines
- Always follow the **manufacturer's instructions**
- Use **water instead of air** to reduce the risk of projectiles
- Ensure an **air relief valve** is in place to safely depressurise the system before disassembly
- Never disconnect fittings unless the line is **fully depressurised**
- The **pump operator shall stay at the controls** while the line is pressurised
- Always **remove the rubber hose** at the end of the line before blowing out
- Secure all pipeline parts** to prevent movement during purging
- Attach a **catchment device** at the discharge end to safely collect cleaning tools
- Restrain lines properly - **do not use truck ladders** as anchor points
- Keep all personnel **clear of the discharge end** during pressurised cleaning
- Ensure all workers wear **appropriate PPE**

Cleaning the concrete pump

- Maintain a **physical barrier** to prevent contact with moving parts during operation
- If entry into the hopper is required:
 - Shut down the pump** and release any stored pressure
 - Never clean the pump alone** - always work in pairs or teams