HSWA

QUICK GUIDE

Keeping healthy and safe when tipping loads

August 2022

Te Kāwanatanga o Aotearoa
New Zealand Government

WORKSAFE
Mahi Haumaru Aotearoa

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1.0 Introduction

What is this guide about?

This guide offers practical advice on how you can manage the risks associated with tipping loads at work sites. These risks include workers (and others) being run over, being crushed, or falling from height.

This guide is written for:

- any person conducting a business or undertaking (PCBU) who manages or controls a work site where there may be vehicles or mobile plant tipping loads
- any PCBU whose workers carry out work on or near vehicles or mobile plant at a site the PCBU manages, or any other site.

It may also be useful for workers who are involved in tipping operations.

What's in this guide

In this guide:

- the 'you' refers to PCBUs
- the term **work site** applies to dynamic and static work sites across all industries where vehicles are used to tip loads (see Table 1 for examples of work sites)
- the term **vehicle** refers to all types of vehicles and mobile plant (see Table 1 for examples of vehicles)
- the term **driver** refers to all drivers and operators of vehicles and mobile plant.

WORK SITE EXAMPLES	VEHICLE EXAMPLES	LOAD EXAMPLES
Timber yards Construction sites, such as: – civil construction sites – residential construction sites Farms Forestry sites Trucking yards Waste transfer stations Quarries	Tip truck Truck and trailer combination Side tipper Bin truck Container tipper Haul truck	Soil Sand Gravel Rocks Bark Rubbish Grain Stock feed Fertilizer Logs

TABLE 1: Examples of work sites, vehicles, and loads

This guide should be read together with WorkSafe New Zealand's good practice guidelines: Site traffic management

What does the law say?

Under the Health and Safety at Work Act 2015 (HSWA), PCBUs have a duty to make sure that the health and safety of workers, contractors, visitors, and others (including members of the public and volunteers) is not put at risk as a result of the work that they do. This includes a duty to make sure people are safe around vehicles while at work.

Workers also have a duty to take reasonable care of their own health and safety and make sure their actions do not cause harm to others.

Worker consultation

PCBUs involved in tipping processes must engage with workers when they are:

- identifying hazards and risks
- deciding how to manage those risks.

This includes workers involved in tipping processes and those who work on the tipping site. Workers can provide information about risks and control measures that might be most effective.

> See WorkSafe's website for more information on Worker Engagement, Participation and Representation

Working together with other PCBUs

PCBUs that share the same duties at a work site must consult, cooperate, and coordinate with each other to manage the shared risk, so far as reasonably practicable.

As a PCBU, you must not shift the responsibility to manage risk on to another PBCU or contract out of your responsibility to manage risk.

If you share the same duties with another PCBU, you can agree on an arrangement to manage risks together. For example, you might decide that:

- the PCBU that manages the work site will focus on control measures related to the layout of the site, and
- the PCBU whose vehicles visit the site will focus on control measures related to their vehicles and drivers.

If you enter into an arrangement with another PCBU, you must make sure that no risks are overlooked or increased because of your arrangement.

Visiting drivers should consult with the PCBU in control of the site so that tipping can be coordinated with other activities happening on that site.

> See WorkSafe's website for more information about shared duties (also called 'overlapping duties') and how PCBUs can work together to manage risk: Overlapping duties

Emergency plans

PCBUs should have an emergency plan relevant to the work site. An emergency plan is a written procedure that tells workers and others in the workplace how they must act in an emergency.

The plan should include:

- the address or rural number of the tipping site
- details of the person to contact in case of an emergency on the site
- the address and contact details of the nearest medical centre
- information about what to do if a tipping truck rolls over.

Emergency plans need to be shared with all PCBUs whose workers may be affected within the work sites.

2.0 Managing the risks of tipping loads

As a PCBU, you must assess the possible risks to health and safety and decide what controls will be the most effective, and reasonably practicable, for your situation.

You may need to adopt a combination of control measures to manage the risk.

Eliminate the need for tipping loads

The best control measure is to eliminate the need for tipping loads.

You can eliminate the need for tipping by using a truck that has:

- a walking floor
- a load ejector system
- a belly dumper.

Where eliminating the risk is not reasonably practicable, you must minimise the risk.

Minimise risks

You can minimise the risks of tipping loads by adopting a combination of control measures, including:

- making sure the ground is stable
- clearing the site
- checking for overhead obstructions
- making sure the vehicle is safe to operate
- making sure the load is safe to tip
- providing suitable training to workers
- making sure that workers are competent and fit to perform the task
- sharing information with the drivers and setting up communication channels.

The following sections provide examples of ways you can control the risks associated with tipping loads.

3.0
Safe site

Make sure the ground is stable

Unstable ground can make tipping unsafe or cause rollover. Drivers should assess site-specific risks before tipping begins to make sure the ground is stable. This includes:

- making sure that the vehicle is on level, firm, and stable ground to prevent rollover (see Figure 1)
- making sure that tipping faces/edges are suitable and safe. Tipping faces/edges should be compacted and should not have steep side slopes
- making sure the vehicle is a safe distance away from the tipping face/edge
- being aware of any excavations in the area, knowing their type, and making sure the vehicle remains a safe distance away.

For detailed guidance about managing health and safety risks associated with excavation work, see WorkSafe's good practice guidelines: Excavation safety

FIGURE 1: Ground should be level, firm, and stable

Clear the site

The tipping site should be clear to minimise the risk of collision. This means:

- no workers or other people should be near the truck during tipping or when the deck is raised
- no other vehicles should be operating nearby.

Make sure that everyone in the tipping area knows when tipping is about to begin.

Set up exclusion zones

You should set up an exclusion zone to keep people out of the area where the vehicle will be operating. To do so:

- Calculate the appropriate distance within the exclusion zone (such as the blind spot distance) based on the type of vehicle used for tipping. See Figure 2 for recommended minimum distances for a truck fitted with blind spot mirrors or cameras.
- Add signs around the exclusion zone to prevent people entering the area. See Figure 3 for an example of a warning sign.
- Add barriers to separate vehicles and pedestrians. Barriers can be either permanent or temporary, depending on the work site (see Figure 4 for an example of a temporary barrier). Make sure barriers are set up on firm level ground.

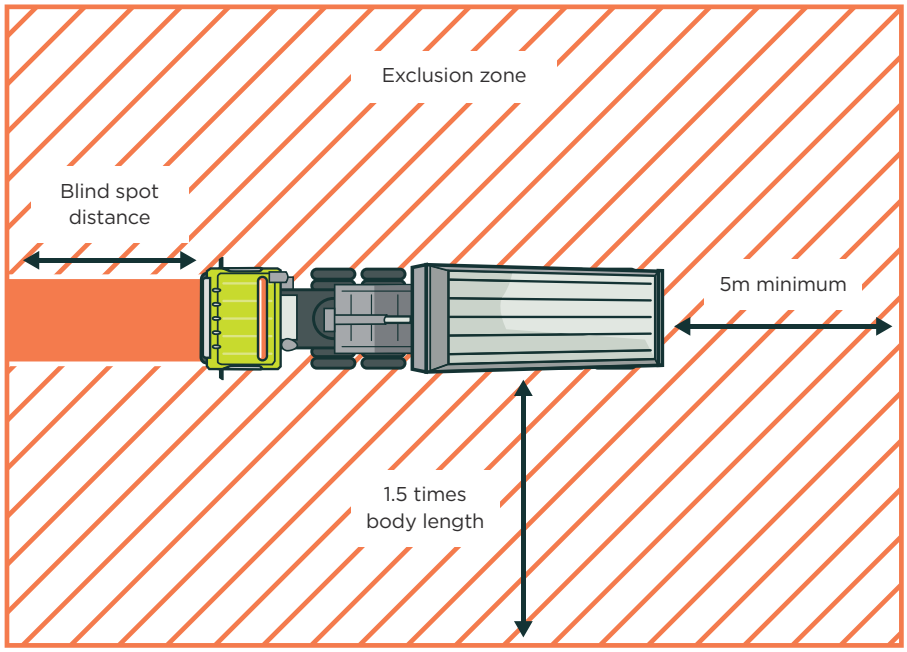

FIGURE 2: Exclusion zone for a truck fitted with blind spot mirrors or cameras

FIGURE 3: Example of a warning sign

FIGURE 4: Example of a temporary barrier used to create an exclusion zone

Use spotters

Consider using trained spotters to guide drivers who are carrying out tipping operations, especially if the vehicle is very long or large.

A **spotter** is a person who assists a driver when they are manoeuvring vehicles – for example, reversing or turning. Spotters must be trained and competent.

You should use spotters when:

- the driver has limited visibility
- the manoeuvring area is small
- there are other hazards in the area that cannot be removed or isolated.

The spotter should:

- make sure there are no people or obstacles in the immediate area
- use clear, agreed hand or light signals to guide the driver
- immediately signal the driver to stop if any person or object enters the vehicle movement area.

For more detailed guidance, see WorkSafe's quick guide: Safe reversing and spotting practices

Check for overhead obstructions

Make sure there are no overhead obstacles (such as power lines, branches, or structures) in the tipping area. If there are overhead obstacles that cannot be removed, you should use bunting and/or flags to make them more visible to drivers.

Keep in mind that wind or a change in temperature can shift the position of some overhead obstructions, especially power lines.

Power lines

PCBUs must manage the risk of operating vehicles near any overhead electric power line. The driver or people nearby could receive an electric shock if any part of the vehicle (including its load) gets too close to, or touches, a live overhead line.

The distance between any live overhead electric line and any part of a truck or its load (also called Minimum Approach Distance or MAD) must be at least 4m, unless the driver has received written consent from the overhead electric line owner that allows the vehicle to be closer (see Figure 5).

See Section 5 of New Zealand Electrical Code of Practice for Electrical Safe Distances (NZECP 34) for the complete requirements.

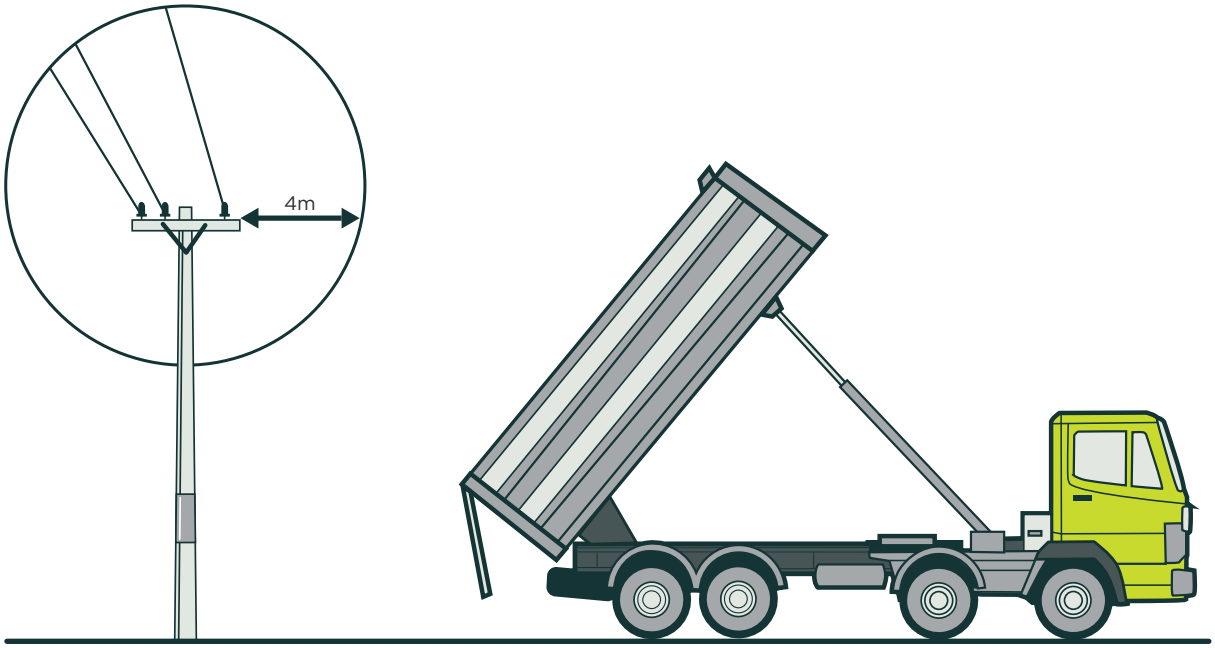

FIGURE 5: Minimum approach distance (MAD)

4.0
Safe vehicle

Make sure the vehicle is in good condition

Poorly maintained truck or tipping gear can cause a mechanical failure and lead to an incident. It is the PCBU's responsibility to make sure that vehicles are in good working order.

Vehicles should:

- be serviced regularly
- be maintained according to manufacturer recommendations, time, or mileage guidelines
- be monitored to confirm that checks are carried out correctly and that any issues are dealt with.

Keep in mind that maintaining a vehicle comes with its own risks. Make sure you understand those risks and have processes in place to eliminate or minimise them.

As a PCBU, you should make sure that vehicles used in tipping operations are in good condition. Set up systems to keep track of vehicle condition and maintenance. These should include:

- creating a checklist to monitor the order of the vehicle
- providing drivers with simple and accessible ways to report any issues.

Checklists can help you keep up to date with the order of the vehicle. They should include information about:

- the vehicle's status of fitness
- damage that could affect the safety of the vehicle
- the condition of park and foot breaks
- the condition of brake lights and indicators
- the condition of reversing cameras or sensors
- the condition of any warning devices, such as horns and beacons
- the condition of audible reversing alarms (if applicable)
- mirrors and their arrangement
- tailgate assembly
- tyre pressure since low tyre pressure can make the vehicle unstable (see Figure 6).

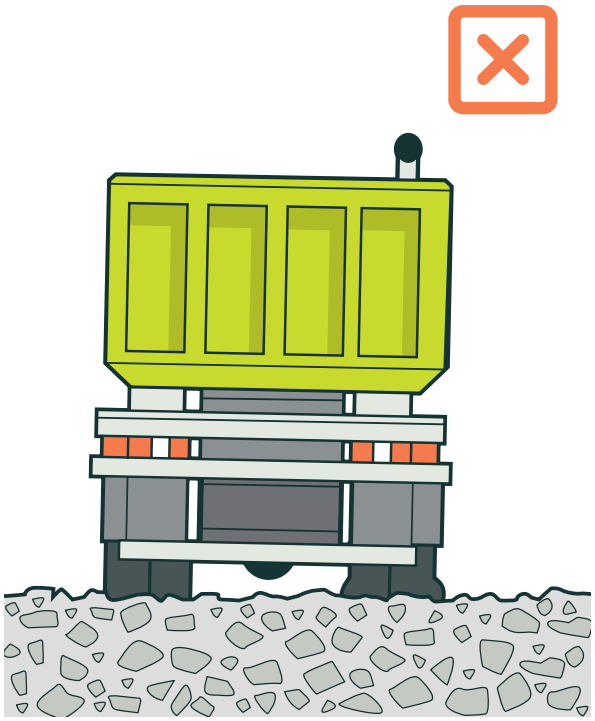

FIGURE 6:
Low tyre pressure

Share the checklist with your drivers and let them know what to do if there is an issue.

Drivers should check their vehicles at the beginning of every shift using the checklist and notify PCBUs if the vehicle does not pass any of the safety requirements.

Do not use the vehicle if there is a problem that could cause risk to health and safety until the problem is fixed or the vehicle is repaired.

Check the load and vehicle before tipping

Before tipping, make sure that the vehicle and the load are safe for tipping. This includes making sure that:

- the load is evenly distributed across the vehicle
- the load can be released smoothly, evenly, and safety
- the load cannot jam under the tailgate.

If the load will be released through an opening or chute:

- make sure the tailgate latch is strong enough to take the full impact of the load when it is tipped
- release and secure the tailgate (or barn doors)
- remove the tailgate, if necessary and practicable.

Do not enter a powered tailgate as there is a risk of being crushed.

Check the load before tipping because it may have shifted during the journey to the site.

- If the load has slipped too far forward it can overload the tipping gear. If the load has shifted sideways or backwards, the vehicle may topple over (see Figure 7).
- Movement or settling can cause the load to 'freeze' at one end, or down one side. If the load freezes it will remain stuck in one place and cannot be tipped. If the load freezes on one side, the imbalance could cause the vehicle to topple.

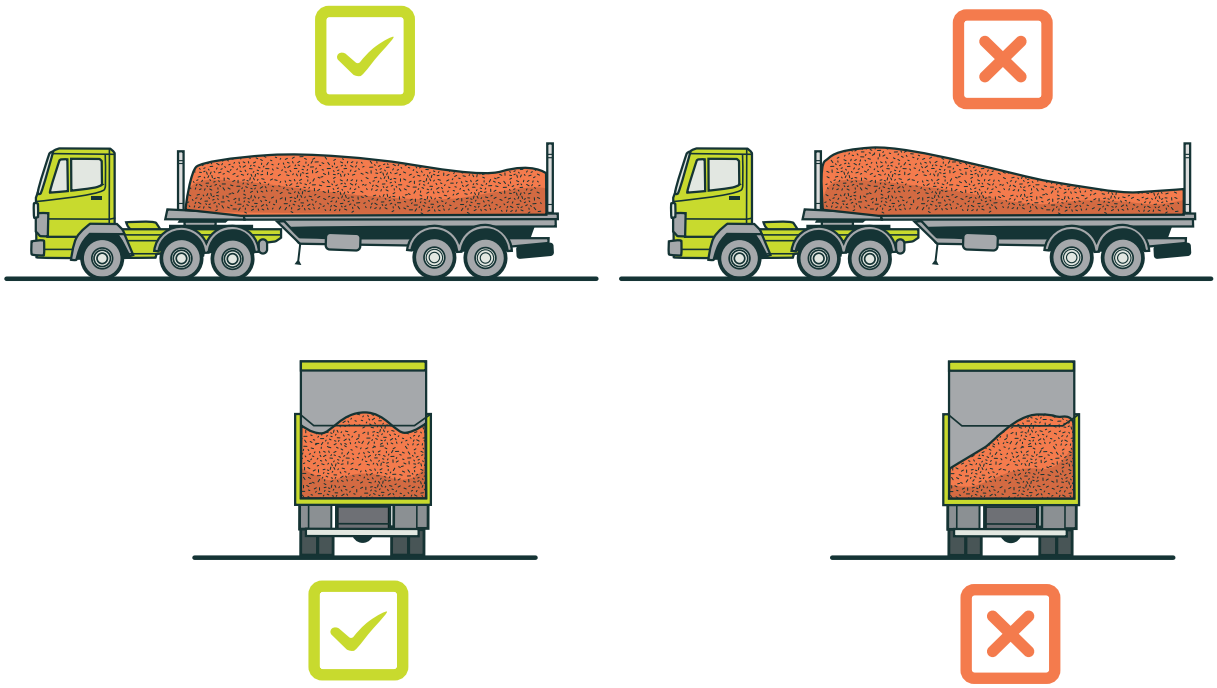

FIGURE 7: Balanced and unbalanced load distribution

Secure unattended vehicles

If the vehicle has to be left unattended, the driver should make sure that:

- the vehicle and trailer are securely braked
- the engine is off
- the key to the vehicle has been removed
- the deck is raised just enough to allow water to run off it.

5.0
Safe driver

Drivers should be trained and competent

Drivers should receive suitable and adequate information, training, instruction, and supervision to prevent unsafe practices while operating tipping trucks at work sites.

Drivers should:

- have the relevant skills, experience, and licence
- read the manufacturer's instruction book and know how to operate the vehicle safely
- know the capabilities and limits of the vehicle – what it can and cannot do safely. This includes:
  - knowing how the vehicle behaves when it is loaded and unloaded, especially when breaking on slopes
  - understanding the capabilities of your vehicle in different weather conditions
- understand how to manage risks:
  - to themselves
  - to other people on the site
  - in the environment at each work site.

Drivers should be fit for work

Drivers need to be fit and well to carry out tipping operations. This means they need to:

- have an appropriate level of fitness and be capable to do the job
- not be fatigued
- not be under the influence of medication or another substance that could affect their ability to operate the vehicle safely.

Communicate with the driver

PCBUs and drivers need to share information about load and site. This includes:

- the delivery address
- full details of the load
- expected delivery conditions at the site
- any relevant information about the route to the site.

Set up a system that allows you and the driver to stay in contact. This is especially important when drivers work remotely.

6.0
Safe practices for tipping loads

Before tipping begins, make sure you have:

- checked ground stability
- checked the load
- cleared the site
- checked for overhead obstructions
- checked vehicle safety
- considered the weather conditions and how they will affect the work
- made sure the driver is competent and fit to do the task
- given the driver all the information they need.

Your drivers will have the information about the conditions of the vehicle and work site. Communicate with your driver to make sure you have all the information to make well-informed decisions.

Good practice while tipping

When you have managed the risks outlined in previous chapters, you can begin the tipping procedure.

While tipping, drivers should:

- make sure the truck is at least 15m away from other vehicles
- make sure the truck and trailer axles are aligned during tipping (see Figure 8)
- make sure that vehicles are positioned straight into embankments or faces when tipping (see Figure 9)
- consider using wheel stops that are large enough to let the driver know when to stop.

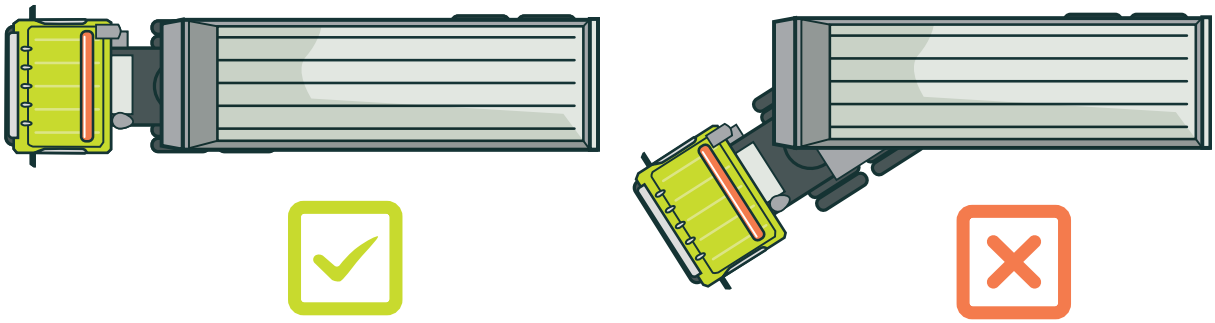

FIGURE 8: Truck and trailer axles should be aligned

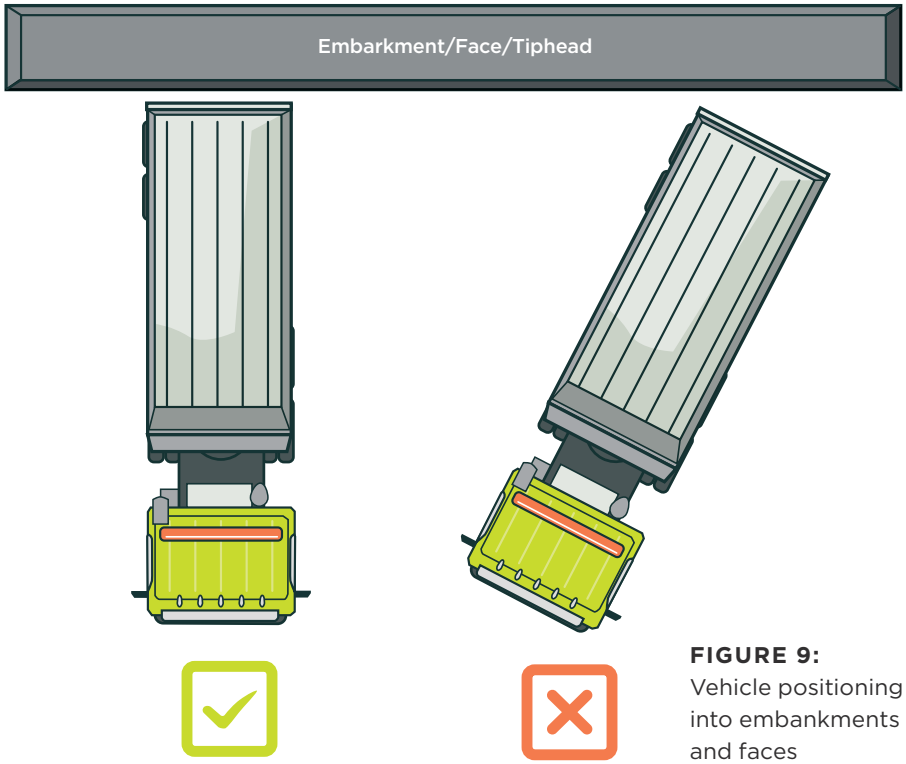

FIGURE 9: Vehicle positioning into embankments and faces

A **wheel stop** is a ground-level barrier that prevents wheels from moving any further (see Figure 10). Wheel stops should be placed far enough away from the edge of an embankment or face, so that the weight of the vehicle does not make the ground collapse.

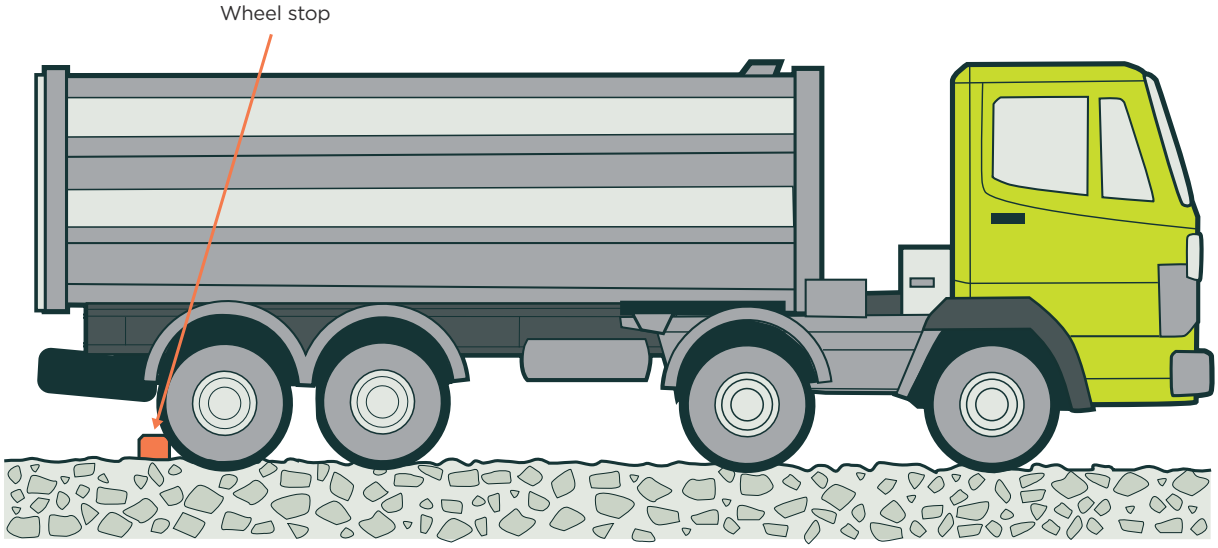

FIGURE 10: Example of a wheel stop

Jack-knife tipping

Only drivers who have received adequate training should perform jack-knife tipping.

Jack-knife tipping refers to positioning a tip truck with an attached trailer so that the truck and trailer are at a similar angle to a jack-knife (pocket-knife) with its blades opened in a V-shape.

The trailer tips its load first. The trailer is then jack-knifed so that the tailgate of the tip truck is facing the pile. The tip truck then tips its load onto the pile.

Dealing with stuck loads

If a load gets stuck during tipping:

- lower the deck
- free the load before raising the deck again
- do not drive the vehicle or climb onto the raised deck to free the load.

The driver may need to move the vehicle to completely empty the deck. In this case the driver should:

- make sure the ground is level, firm, and stable before driving
- check the load to make sure it is at the bottom of the tipped deck
- drive only a few metres
- fully apply the brakes if they have to leave the cab to check the load.

Good practice after tipping

Before leaving the site once tipping is complete, make sure that:

- the deck is completely empty to prevent a new load getting stuck and 'freezing'
- the tailgate and the trailer draw bar are cleared off
- the tailgate is relocked
- the deck is fully down.

Provide personal protective equipment

PCBUs who direct or carry out work at a work site should provide workers with personal protective equipment (PPE).

This includes PPE for the:

- load
- work site
- weather conditions.

Drivers should be instructed on how to wear and look after their PPE correctly.

Lone work

Working alone is a common hazard at work sites.

Drivers should have a reliable way to contact their supervisors when they work alone or on an unmanned site.

You should set up a **lone work system** that would allow them to remain in contact. This could include:

- a lone worker app that allows the driver to quickly confirm that they are okay
- a reliable communication device that allows the driver to raise an alarm, such as a satellite phone, a radio transmitter, a cell phone with credit, a pager, or a distress beacon
- regular scheduled contact with a supervisor or other nominated person at specified times.

Remote or isolated work

Some of the things you can do to minimise risks of tipping operations in **remote or isolated locations** include:

- setting up a communication system that allows regular contact with drivers carrying out tipping operations
- making sure drivers communicate any change to the day's plan
- contacting your drivers at least every four hours, where practicable
- making sure that drivers have arrived home at the end of a shift
- fitting the truck with a GPS tracking system and an emergency alert
- creating an emergency plan in case help is required.

Trigger the emergency response plan if the driver fails to make contact, does not respond to scheduled contact, or if an alarm is raised.

For more detailed guidance on lone, remote, or isolated work, see WorkSafe's guidelines: General risk and workplace management

Disclaimer

This publication provides general guidance. It is not possible for WorkSafe to address every situation that could occur in every workplace. This means that you will need to think about this guidance and how to apply it to your particular circumstances.

WorkSafe regularly reviews and revises guidance to ensure that it is up-to-date. If you are reading a printed copy of this guidance, please check worksafe.govt.nz to confirm that your copy is the current version.

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