

TRUCK AND PLANT REQUIREMENTS

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REVISION REGISTER

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	1.5.11	Heading title changed. Evidence of service records requirement added.		
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	2.3.6	Sentence reworded.		
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TfNSW SPECIFICATION TPR-G22

TRUCK AND PLANT REQUIREMENTS

1 TRUCK REQUIREMENTS

All trucks must comply with the *Work Health and Safety Act 2011 (NSW)* and associated Regulations, Commonwealth and other NSW legislation, and relevant Australian Standards, in addition to the requirements set out below.

1.1 REGISTRATION

All trucks must meet the current requirements for NSW registration and have full registration for the duration of the hire.

1.2 GENERAL SAFETY REQUIREMENTS

1.2.1 Neutral Start Switches

Neutral start switches must operate on all trucks with automatic transmissions.

1.2.2 Brakes

Service brakes, parking brakes and trailer brakes must be fully operational and free from any defects. Air brake systems must be free from leaks and contamination.

1.2.3 Seat Belts

Seat belts when fitted must be free of defects and worn at all times. Seat belts must not be removed where they are fitted as part of the original manufacturer's equipment.

1.2.4 Reverse Alarm

All trucks must be fitted with a reverse alarm that is automatically activated when reverse gear is selected.

Alarms which vary the output in response to changes in the surrounding noise level, i.e. self-adjusting type alarms (e.g. "Smart Alarm"), are preferred.

The alarm's noise level range must be:

- (a) 87 to 112 dB(A) for self-adjusting tonal (beeper) alarms at 1 metre distance from the alarm;
- (b) 87 to 107 dB(A) for self-adjusting broadband (squawker) alarm.

All self-adjusting tonal and broadband alarms must be mounted with an unobstructed "vision" to the rear of the truck. All alarms must be clearly audible above the noise level of the truck. Fixed output reverse alarms must have a minimum noise level of 87 dB(A).

Truck and trailer combinations must be fitted with a reverse alarm on the prime mover and on the rear-most trailer.

1.2.5 Compulsory Signs

Tipper trucks must have a NSW Electrical Hazard Warning notice fitted which is clearly visible to the driver whilst the hoist is being operated. The Electrical Hazard Warning must display the minimum safe working distances.

1.2.6 Amber Beacon

Trucks must have at least one amber beacon that is active whenever the truck is travelling or operating on the job site.

The beacon must be either:

- (a) halogen rotating type, minimum 55 watts; or
- (b) LED, minimum 25 watts; or
- (c) strobe light, minimum 8-joule double pulse.

The beacon (whether halogen, LED or strobe) must:

- (i) flash between 120 to 200 times per minute;
- (ii) be mounted as near as possible to the top of the truck;
- (iii) be clearly visible in normal daylight up to a distance of 200 metres (and closing) in all directions.

The amber beacon must not be a strobe light for trucks operating under an NHVR issued Class 1 Oversize Overmass permit and must be clearly visible at a distance of 500 metres.

1.3 MECHANICAL REQUIREMENTS

1.3.1 Leaks

The engine, transmission, driveline, hydraulics and fuel system must not have any leaks that allow oil or fuel to drip on the road surface, exhaust system or onto brake components. Steering and brake systems must be free from leaks. Use of catch trays or tanks to contain leaks is unacceptable as a remedy.

1.3.2 Engine

The engine must start easily and provide sufficient power. Frequent jump-starting is dangerous and unacceptable.

1.3.3 Cooling System

The cooling system must provide efficient cooling for all types of climatic conditions. All drive belts and hoses must be free from deterioration and/or leaks.

1.3.4 Exhaust System

The exhaust system must be free from leaks and be securely mounted.

1.3.5 Exhaust Smoke

Trucks must not emit visible smoke for continuous periods of more than 10 seconds (refer *Protection of the Environment Operations Act 1997 (NSW)*).

1.3.6 Transmission and Final Drive

The transmission and final drive must operate to the manufacturer's specifications and be free of leaks.

1.3.7 Hydraulics

All hydraulic functions must respond quickly and smoothly, and be free from leaks and hydraulic creep.

1.4 CAB/CHASSIS REQUIREMENTS

1.4.1 Cabin

The cabin must be free from damage, cracks, advanced rust, missing or loose bolts, sharp edges or protrusions that could cause injury.

Steps and handrails must be in good condition as originally manufactured.

1.4.2 Windows

The windscreen and all other windows must be free from defects that impair visibility. All glass must be of an approved safety type.

1.4.3 Suspension

Suspension components must not be broken, loose, cracked, cut, missing or modified. All nuts, bolts and locking devices must be in place and secure. The maximum allowable wear in any suspension component must not exceed manufacturers' specifications, or where these are not available, 3 mm.

1.4.4 Steering

Steering components must not be broken, loose, cracked, cut, missing or modified. All nuts, bolts and locking devices must be in place and secure. The maximum allowable free play in any steering joint must not exceed manufacturers' specifications, or where these are not available, 3 mm. Rotational free play at the steering wheel must not exceed 100 mm.

The steering must operate smoothly in both directions.

1.4.5 Tyres

Tyres must be free from deep cuts, bulges, exposed cords or other signs of carcass failure. Tyres must be of the correct type, load rating and size to suit the wheel rims and must meet all legal requirements.

1.5 MISCELLANEOUS REQUIREMENTS

1.5.1 Controls and Switches

Controls and switches must be in good condition, perform as designed and be clearly and permanently labelled to indicate the direction of movement and/or function.

1.5.2 Seats

All seats must be in good condition, secure and must not affect the operator's ability to operate the truck.

1.5.3 Work Attachments/Tools

All attachments must be in good condition and working order.

1.5.4 Fifth Wheel (Turntable)

Clearance in the fifth wheel must be within the manufacturer's specifications.

1.5.5 Electrical System

All electrical equipment must operate as intended by the manufacturer. Electrical wiring and connections, both inside and outside the truck, must be secure and free from any damage or corrosion. Insulation must not be chafed or exposed to excessive heat.

The battery must be securely mounted and free from any cracks or leaks. Loose electrical connections, which could cause arcing, are unacceptable.

1.5.6 Truck Security

Parts of the truck which are critical to its operation and which are subject to vandalism must be adequately protected. Cabins must be capable of being locked.

1.5.7 Tarping

Provide secure tarping to cover loads carried.

1.5.8 Truck Body

Trucks and trailers with hydraulic tipping bodies must have a self-supporting safety prop permanently attached to support the body when required. Tip-over axle/body tippers are exempt from safety props.

Bodies must be free of any defects that will allow any loss of material.

1.5.9 Tow Bar

Tow couplings must be stamped with the manufacturer's name and capacity.

Trailer brake connections must be dual line air with self-sealing quick release couplings.

Safety chain connections must be of an approved type and capacity.

1.5.10 Truck Operating and Safety Information

Ensure that the owner's manual and any other safety information provided for the truck is readily available for the use of truck drivers and other persons affected by the operation of the truck.

A copy of plant risk assessment and safe work method statement must also be readily available for use by the truck driver.

1.5.11 Daily Inspection and Service/Maintenance Records

Daily inspections must be carried out and reports must be filled out prior to the commencement of each shift and must be available in the truck for inspection.

Evidence of service records must be readily available in the truck.

1.6 NONCONFORMITY

A truck with any of the following nonconformities must not be used on the Site for the Works:

- (a) defective neutral start where an automatic transmission is fitted;
- (b) defective service, park or emergency brakes;
- (c) defective seat belt or absence of a seat belt when required;
- (d) inoperative or inaudible reverse alarm;
- (e) dangerous suspension, steering or tyres;
- (f) dangerous chassis defects;
- (g) continuous dark exhaust smoke;
- (h) truck is unregistered;
- (i) any other condition which could impair the safe operation of the truck.

If the truck is on the Site at the time the nonconformity is identified, it must be immediately removed from the Site.

2 PLANT REQUIREMENTS

All plant must comply with the WHS legislation and relevant Australian Standards or equivalent, in addition to the requirements set out below.

2.1 REGISTRATION REQUIREMENTS

2.1.1 Registration

All registrable plant must meet the current requirements for NSW registration and have either full or conditional registration.

Further information on conditional registration, including a link to related “Conditional Registration Vehicle Sheets” webpage, can be found at: <https://www.rms.nsw.gov.au/roads/registration/get-nsw-registration/conditional.html>.

Both number plates must be securely attached to and clearly displayed on the plant item.

2.1.2 Equipment

The minimum equipment requirements for plant are shown in Table 2. These requirements are in accordance with those in the TfNSW Conditional Registration Vehicle Sheets.

2.1.3 Windscreen Wipers

Plant with windscreen must have an operative windscreen wiper, which effectively clears the screen directly in front of the operator and gives an adequate view in front of the plant. Wipers fitted to other windows must also operate effectively.

2.1.4 Lights and Reflectors

The requirements for lights and reflectors are shown in Table 2.

Plant for night work must have suitable and efficient lights, including headlights or work lights.

2.1.5 Reflective Tape

Plant required to be fitted with reflective tape are shown in Table 2.

1. Material

The tape must be **red** and **yellow** with a retro-reflective surface. Photometric performance and durability must comply with Class 2 in accordance with AS/NZS 1906.

2. Size

Tape must be in strips of at least 50 mm high by 200 mm long. Plant which are over 6 metres in length require additional tape to be fitted to the centre of the machine.

3. Installation

The tape must be evenly applied to the rear and sides of the plant. Tape must not be applied to the front of plant.

Where practical, the lower edge of the tape must be between 400 mm and 1,500 mm from the ground, with the outermost edge less than 150 mm from the corners of the plant.

2.1.6 Horn

All plant must be equipped with a clearly audible horn. Exhaust whistles, compression whistles, sirens or alternating tone horns are not acceptable.

2.1.7 Amber Beacon

Plant must have at least one amber beacon that is wired through the ignition switch and is active whenever the plant is travelling or operating on the job site.

The beacon must be either:

- (a) halogen rotating type, minimum 55 watts; or
- (b) LED, minimum 25 watts; or
- (c) strobe light, minimum 8-joule double pulse.

The beacon (whether halogen, LED or strobe) must:

- (i) flash between 120 to 200 times per minute;
- (ii) be mounted as near as possible to the top of the plant;
- (iii) be clearly visible in normal daylight up to a distance of 200 metres (and closing) in all directions.

Truck mounted plant may be fitted with a switch to turn the beacon off when travelling on roads outside the jobsite.

Green flashing lights must not be used on any item other than a stationary operational fire brigade, accredited NSW Rural Fire Service, ambulance or police emergency site command vehicle.

2.1.8 Rear Vision Mirrors

All plant must be fitted with rear vision mirrors that provide adequate rear vision on both sides of the plant.

2.2 GENERAL SAFETY REQUIREMENTS

2.2.1 Neutral Start

Neutral start switches must operate on all transmissions other than manual gearboxes fitted with a mechanical type clutch. Excavators and skid steer loaders are exempt from the normal type of neutral start switch; however, travel levers must self-centre to the neutral position.

All OEM safety equipment/hydraulic locks must operate as originally designed.

2.2.2 Service Brakes

Brake components must be free from leaks or defects and be securely mounted. Brake controls must be fully operational and free from any defects. Air tanks must be free of contamination.

Plant fitted with steel drums or a combination of steel drums/rubber tyres or tracks, while on the maximum operating gradient specified by the manufacturer, must be capable of stopping within the distances shown in the table below:

Plant operating mass	Stopping distance from 5 km/h
Less than 5,400 kg	1.2 metres
5,400 kg to 13,600 kg	1.5 metres
Greater than 13,600 kg	1.9 metres

Plant fitted with rubber tyres, while on the maximum operating gradient specified by the manufacturer, must be capable of stopping within the distances shown in the table below:

Plant operating mass	Stopping distance from 30 km/h
Up to 2,500 kg	9 metres
Greater than 2,500 kg	14 metres

Where it is not possible to test the brakes of load-carrying plant in a loaded condition, e.g. water tankers and dump trucks, this plant may be subjected to a brake test in a loaded condition at a time agreed with you.

2.2.3 Park Brake

On implement-type plant, the park brake must be capable of holding the plant item on an incline of:

- (a) 15%, i.e. approximately 1 in 7 or 9 degrees to the horizontal, for wheeled plant; or
- (b) 25%, i.e. 1 in 4 or 14 degrees to the horizontal, for rollers.

For truck-mounted plant, the emergency brake must be capable of stopping the truck within the distances shown in the table below:

Plant operating mass	Stopping distance from 30 km/h
Up to 2,500 kg	22 metres
Greater than 2,500 kg	34 metres

2.2.4 Emergency Stop Devices

Emergency stops must be prominent, clearly and durably labelled and easily accessible to the operator. Handles, bars or push buttons must be coloured red. These devices must not be affected by any electrical or electronic malfunction.

2.2.5 Protective Structures

Earthmoving machinery (designed to have a mass of 700 to 100,000 kg) must be fitted with a protective structure conforming to AS 2294.

Tractors designed to have a mass of 560 kg or more, but less than 15,000 kg, must be fitted with a protective structure conforming to AS 1636.

The following International Standards may also be applicable for excavators:

- (a) ISO 12117;
- (b) ISO 12117-2.

Exceptions:

There are exceptions to the rules about protective structures. To apply these exceptions, a risk assessment for the risks from falling objects or tip-over or roll-over must be carried out and alternative control measures established.

The following types of earth-moving machinery may be excepted:

- (i) power shovels;
- (ii) draglines;
- (iii) paving machines;
- (iv) equipment designed to be operated by a person in a standing position.

2.2.6 Seat Belts

All earth-moving machinery fitted with a roll-over protective structure must be fitted with seat belts conforming to one of the following Standards:

- Australian Standard AS 2664;
- Society of Automotive Engineers SAE J386;
- International Standard ISO 6683.

All tractors fitted with a roll-over protective structure must be fitted with seat belts conforming to one of the following Standards:

- Australian/New Zealand Standard AS/NZS 2596;
- Society of Automotive Engineers SAE J386 or equivalent.

Each seat belt assembly or part assembly must be permanently and legibly marked with the following:

- (a) manufacturer's name and trademark;
- (b) date of manufacture by month and year;
- (c) manufacturer's identification code (relevant standard).

Exclusions:

Earthmoving equipment, which under the previous Clause 2.2.5 may or may not be required to have protective structures, must be assessed individually for their requirement for seat belts, depending upon their safe operation and risk assessment outcomes; for example, earthmoving equipment, which has been designed for safe operation with the operator in a standing position.

The exclusions outlined above may be applied providing that the risks associated with not complying with the above requirements have been identified and assessed and other means are used to control them. The risk assessment must be in writing and the controls must form part of the Safe Work Method Statement.

2.2.7 Reverse or Travel Alarm

All plant must be fitted with a reverse alarm, which is clearly audible and automatically activated when the reverse gear is selected.

Excavators and plant with restricted operator vision in both forward and reverse directions must be fitted with a travel alarm, which operates in both directions. Alternatively, two alarms may be fitted.

Alarms which vary the output in response to changes in the surrounding noise level, i.e. self-adjusting type alarms (e.g. “Smart Alarm”), are preferred.

The alarm’s base noise level must be not less than 87 dB(A) measured at a distance of 1 metre.

All self-adjusting tonal (beeper) and all broadband (squawker) alarms must be mounted with an unobstructed “vision” to the rear of the plant. Fixed output reverse alarms with a minimum noise level of 87 dB(A) are acceptable.

For rollers with an operating mass less than 4,500 kg, an alarm with a base noise level of 85 dB(A) is acceptable, provided the plant:

- (a) has a noise level less than 80 dB(A);
- (b) does not have an enclosed cab.

2.2.8 Compulsory Signs

Minimum compulsory sign requirements are shown in Table 1 at the end of this section.

1. Hearing Protection

Any plant with a noise level above 85 dB(A) must be fitted with two 225 mm hearing protection signs, one on each side, and one 50 mm hearing protection sign fitted to the operator’s console.

2. Safe Working Load

Safe working load signs must be distinctively labelled on all backhoes, excavators and loaders that are used for lifting loads.

3. Electrical Hazard Warning

Plant whose height can alter whilst working must be fitted with a NSW Electrical Hazard Warning notice that displays the minimum safe working distances.

4. Roll-over Hazard - Seat Belt Warning

All plant fitted with a roll-over protective structure (ROPS) canopy must have a safety sign warning that a roll-over hazard exists, requiring the operator to wear the seat belt.

5. Articulation Joint Crush Zone

6. Hydraulic Steering

Plant with hydraulic steering must have a sign warning of the importance of maintaining hydraulic fluid level.

7. Confined Space

Plant with a confined space, e.g. water tankers, must have a sign fitted near the entry point to the confined space.

8. Dual Control

9. Left Hand Drive

10. Water-filled Tyres

Plant with water-filled tyres must have a warning sign adjacent to each tyre.

11. Lime/Cement Spreaders

Lime/cement spreaders are to be fitted with the following warning signs to advise the operator of the personal protective equipment to be worn:

- (i) dust mask;
- (ii) eye protection (goggles not glasses);
- (iii) gloves;
- (iv) overalls.

2.2.9 Quickhitch

All hydraulic quickhitches must comply with AS 4772:2008. The quickhitch and all attachments must be correctly matched to each other.

Hitches must be identified with:

- (a) a unique identification mark;
- (b) manufacturer's name and model;
- (c) maximum rated attachment capacity;
- (d) mass of the hitch;
- (e) lift point capacity (kg).

2.2.10 Machinery Guards

All rotating, moving or hot components must be fitted with an appropriate safety guard to prevent injury to any person.

2.2.11 Plant Operating and Safety Information

Ensure that the operator's manual and any other safety information provided for the plant is readily available for the use of plant operators and other persons affected by the operation of the plant.

A copy of plant risk assessment and safe work method statement must also be readily available for use by the plant operator.

2.2.12 Daily Inspection and Service/Maintenance Records

Daily inspections must be carried out and reports must be filled out prior to the commencement of each shift and must be available in the plant item for inspection.

Evidence of service records must be readily available in the plant.

2.3 MECHANICAL REQUIREMENTS

2.3.1 Leaks

The engine, transmission, drive-line, hydraulics and fuel system must not have any leaks which allow oil or fuel to drip on the road surface, or on exhaust system or on brake components. Steering and brake systems must be free from leaks. Use of catch trays or tanks to contain leaks is unacceptable as a remedy.

2.3.2 Engine

The engine must start easily and provide sufficient power. Frequent jump-starting is dangerous and unacceptable.

2.3.3 Cooling System

The cooling system must provide efficient cooling for all climatic conditions. All drive belts and hoses must be free from deterioration and/or leaks.

2.3.4 Exhaust System

The exhaust system must be free from leaks and be securely mounted.

2.3.5 Exhaust Smoke

Plant must not emit visible smoke for continuous periods of more than 10 seconds each (refer *Protection of the Environment Operations Act 1997 (NSW)*).

2.3.6 Transmission and Final Drive

The transmission and final drive must operate to the manufacturer's specifications and be free of leaks.

Manual transmissions coupled to a hydrostatic drive must be locked in gear to prevent accidental gear selection, when a separate effective service brake is not fitted.

2.3.7 Hydraulics

All hydraulic functions must respond quickly and smoothly, and be free from leaks and hydraulic creep. The time for the hydraulics to "warm up" must be within manufacturer's specifications.

Plant used as a crane with a safe working load greater than 1,000 kg must be fitted with anti-drop valves.

2.4 CHASSIS REQUIREMENTS

2.4.1 Chassis/Frame

The chassis/frame must be free from cracks, advanced rust, missing or loose bolts, sharp edges or protrusions that could cause personal injury.

2.4.2 Body/Cabin/Steps/Handrails

The body/cabin/steps/handrails must be free from cracks, advanced rust, missing or loose bolts, sharp edges or protrusions that could cause injury. All doors, door locks and latches must be secure and functional.

Plant with fully enclosed cabins that have no opening windows must have an operational air conditioner fitted.

Steps and handrails must be in good condition as originally manufactured.

2.4.3 Windows

The windscreen and all other windows must be free from defects that impair visibility. All glass must be of an approved safety type.

All window tint must comply with Vehicle Standards Information Sheet VSI 3 “Windscreens and window tinting”.

2.4.4 Suspension

Suspension components must not be broken, loose, cracked, cut, missing or modified. All nuts, bolts and locking devices must be in place and secure. The maximum allowable wear in any suspension component is 3 mm.

2.4.5 Steering

Steering components must not be broken, loose, cracked, cut, missing or modified. All nuts, bolts and locking devices must be in place and secure. The maximum allowable free play in any steering joint is 3 mm. Rotational free play at the steering wheel must not exceed 100 mm.

The steering must operate smoothly in both directions. The operation of the steering, from lock to lock, on plant with full hydraulic steering is to be checked at approximately half the maximum engine speed.

2.4.6 Tyres

Tyres must be free from deep cuts, bulges, exposed cords or other signs of carcass failure. Traction tyres must provide adequate grip. Tyres must be of the correct type, load rating and size to suit the wheel rims.

2.4.7 Tracks

Tracks and related equipment must be in good condition and must provide sufficient traction.

2.5 MISCELLANEOUS REQUIREMENTS

2.5.1 Controls and Switches

All controls and switches must:

- (i) be secure;
- (ii) function correctly and be free of excessive wear;
- (iii) perform as designed;

(iv) be permanently and clearly labelled to indicate the direction of the movement.

2.5.2 Seat

The operator's seat must be in good condition, secure and must not affect the operator's ability to operate the plant.

2.5.3 Work Attachments/Tools

All attachments must be securely mounted, free from cracks, leaks or any defects and be in good working order (attachments include items such as buckets, blades, cutting edges, tynes, hydraulic tools, etc).

2.5.4 Articulation Joints

Clearance in the articulation joint must be within the manufacturer's specifications. There must also be a means of locking the articulation joint.

2.5.5 Electrical System

All electrical equipment must operate as intended by the manufacturer. Electrical wiring and connections, both inside and outside the plant, must be secure and free from any damage or corrosion. Insulation must not be chafed or exposed to excessive heat.

The battery must be securely mounted and free from any cracks or leaks. Loose connections, which could cause arcing, are unacceptable.

2.5.6 Plant Security

Parts of the plant that are critical to its operation and are subject to vandalism must be adequately protected, e.g. engine covers, console covers and cabins, by appropriate locking devices.

2.5.7 Noise Level

Determine the noise level at the operator's position in accordance with AS/NZS 1269.1. The noise level will be:

- (a) included in the information required by Clause 2.2.11 and the Project WHS Management Plan where appropriate;
- (b) the controls, that ensure people on the site are not exposed to noise levels which exceed a level equivalent to 85 decibels [85 dB(A)] over an eight hour day, are incorporated into the Safe Work Method Statement.

2.5.8 Lifting Requirements

Plant that may be used as cranes, e.g. backhoes, loaders and excavators, having components used for lifting, e.g. hooks and lugs, that do not have a manufacturer's ID and SWL, require a structural engineer's certificate for these components.

2.6 NONCONFORMITIES

Plant with any of the following defects must not be used on the Site for the Works, and if the plant is located on the Site at the time the defect is identified, must be immediately removed from the Site:

- (a) defective neutral start switch;

- (b) defective service, park or emergency brakes;
- (c) defective seat belt or absence of a seat belt when ROPS is fitted;
- (d) inoperative or inaudible reverse/travel alarm;
- (e) mechanical lock pin not available or not fitted to the quick hitch;
- (f) machinery guards not fitted;
- (g) no manual transmission lock where required;
- (h) dangerous suspension, steering or tyres;
- (i) any other condition, which could impair the safe operation of the plant.

Table 1 - Minimum Compulsory Sign Requirements

Plant Item	Hearing Protection	SWL	Electrical Hazard Plate	Roll-over Hazard, Wear Seat Belt	Articulation Joint Crush Zone	Hydraulic Steering Warning ⁽¹⁾	Confined Spaces	Dual Control ⁽¹⁾	Left Hand Drive ⁽¹⁾
Backhoe loader	Yes ⁽³⁾	Yes ⁽²⁾	Yes	Yes	No ⁽⁴⁾	Yes	No	No	No
Compactor	Yes ⁽³⁾	No	No	Yes	Yes	Yes	No	No	No
Crane	Yes ⁽³⁾	Yes	Yes	No	Yes ⁽²⁾	Yes ⁽²⁾	No	No	Yes ⁽²⁾
Dozer	Yes ⁽³⁾	No	No	Yes	No	Yes	No	No	No
Dump truck	Yes ⁽³⁾	No	Yes	Yes	Yes	Yes	No	No	Yes ⁽²⁾
Elevating work platform	Yes ⁽³⁾	Yes ⁽²⁾	Yes	No	No	No	No	No	No
Excavator	Yes ⁽³⁾	Yes ⁽²⁾	Yes	Yes ⁽²⁾	No	Yes	No	No	Yes ⁽²⁾
Grader	Yes ⁽³⁾	No	No	Yes	Yes ⁽²⁾	Yes	No	No	No
Lime/cement spreader ⁽⁵⁾	Yes ⁽³⁾	No	No	No	Yes ⁽²⁾	No	Yes	No	No
Loader	Yes ⁽³⁾	Yes ⁽²⁾	Yes	Yes	Yes ⁽²⁾	Yes	No	No	No
Multi tyred roller	Yes ⁽³⁾	No	No	Yes	No	Yes	Yes ⁽²⁾	Yes ⁽²⁾	Yes ⁽²⁾
Padfoot roller	Yes ⁽³⁾	No	No	Yes	Yes	Yes	No	Yes ⁽²⁾	No
Paver	Yes ⁽³⁾	No	No	No	No	Yes	No	Yes ⁽²⁾	Yes ⁽²⁾
Profiler	Yes ⁽³⁾	No	Yes	No	No	Yes	No	Yes ⁽²⁾	Yes ⁽²⁾
Scraper	Yes ⁽³⁾	No	No	Yes	Yes	Yes	No	No	Yes ²
Skid steer loader	Yes ⁽³⁾	Yes ⁽²⁾	Yes ⁽²⁾	Yes	No	Yes	No	No	No
Smooth drum roller	Yes ⁽³⁾	No	No	Yes	Yes	Yes	No	Yes ⁽²⁾	No
Soil stabiliser	Yes ⁽³⁾	No	No	Yes ⁽²⁾	Yes ⁽²⁾	Yes	No	Yes ⁽²⁾	Yes ⁽²⁾
Sweeper	Yes ⁽³⁾	No	Yes ⁽²⁾	No	Yes ⁽²⁾	Yes ⁽²⁾	Yes	Yes ⁽²⁾	No
Tandem drum roller	Yes ⁽³⁾	No	No	Yes	Yes	Yes	No	Yes ⁽²⁾	No
3 point roller	Yes ⁽³⁾	No	No	Yes	Yes	Yes	No	Yes ⁽²⁾	No
Tractor	Yes ⁽³⁾	Yes ⁽²⁾	No	Yes	No	Yes	No	No	No
Water tanker	Yes ⁽³⁾	No	No	Yes ⁽²⁾	Yes ⁽²⁾	Yes ⁽²⁾	Yes	No	No

Notes:

- (1) Denotes items required for registration.
- (2) Denotes that these warning signs must be fitted where applicable.
- (3) Hearing protection signs must be fitted when noise levels exceed 85 dB(A).
- (4) Recommended that these signs be fitted near the boom area.
- (5) Lime/cement spreaders must be fitted with warning signs to advise eye protection, dust mask, gloves and overalls must be worn during operation.
- (6) All plant with water-filled tyres must have a warning sign adjacent to each tyre.
- (7) Emergency stop devices must be clearly marked/labelled.

Table 2 - Minimum Plant/Equipment Requirements

Plant item	Amber rotating beacon ⁽¹⁾	Brake lights & turn signals ⁽¹⁾	Headlights, tail lights & clearance lights ⁽¹⁾	Rear reflectors ⁽¹⁾	Reflective tape ⁽¹⁾		Rear vision mirror(s) ⁽¹⁾	Horn ⁽¹⁾	Reverse or travel alarm	Neutral Start
					Rear	Side				
Backhoe loader	Yes	Yes	Yes ⁽²⁾	Yes	No	No	Yes	Yes	Yes	Yes
Compactor	Yes	Yes	No	Yes	Yes ⁽³⁾	Yes	Yes	Yes	Yes	Yes
Crane	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes ⁽⁴⁾
Dozer	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes
Dump truck	Yes	Yes	Yes	Yes	Yes ⁽³⁾	Yes	Yes	Yes	Yes	Yes
Elevating work platform	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes ⁽⁴⁾
Excavator	Yes	No	No	Yes	No	No	Yes	Yes	Yes	Yes
Grader	Yes	Yes	Yes ⁽²⁾	Yes	Yes ⁽³⁾	No ⁽⁵⁾	Yes	Yes	Yes	Yes
Lime/cement spreader	Yes	Yes	Yes ⁽²⁾	Yes	No	No	Yes ⁽⁴⁾	Yes ⁽⁴⁾	Yes ⁽⁴⁾	Yes
Loader	Yes	Yes	Yes ⁽²⁾	Yes	Yes ⁽³⁾	No	Yes	Yes	Yes	Yes
Multi tyred roller	Yes	Yes	No	No	Yes ⁽³⁾	Yes	Yes	Yes	Yes	Yes
Padfoot roller	Yes	Yes	No	No	Yes ⁽³⁾	Yes	Yes	Yes	Yes	Yes
3 Point roller	Yes	Yes	No	No	Yes ⁽³⁾	Yes	Yes	Yes	Yes	Yes
Paver	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Profiler	Yes	No	No	No	Yes	Yes	Yes	Yes	Yes	Yes
Scraper	Yes	Yes	No	Yes	Yes ⁽³⁾	Yes	Yes	Yes	Yes	Yes
Skid steer loader	Yes	No	No	Yes	Yes ⁽³⁾	No	Yes	Yes	Yes	Yes
Smooth drum roller	Yes	Yes	No	No	Yes ⁽³⁾	Yes	Yes	Yes	Yes	Yes
Soil stabiliser	Yes	Yes	No	Yes	Yes ⁽³⁾	Yes	Yes	Yes	Yes	Yes
Sweeper	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes
Tandem drum roller	Yes	Yes	No	No	Yes ⁽³⁾	Yes	Yes	Yes	Yes	Yes
Tractor	Yes	Yes	Yes ⁽¹⁾	Yes	No	No	Yes	Yes	Yes	Yes
Water tanker	Yes	Yes	Yes	Yes	No	No	Yes	Yes	Yes	Yes ⁽⁴⁾

Notes:

- ⁽¹⁾ Denotes items required for registration.
⁽²⁾ Only required if plant item is on full 24 hour use registration.
⁽³⁾ If no rear reflectors.
⁽⁴⁾ Where applicable.
⁽⁵⁾ Graders with 24 hr registration use require side amber reflectors to be fitted.

APPENDIX A – REFERENCED DOCUMENTS

Appendix A lists the full titles of documents referenced in this Specification.

Australian Standards

AS/NZS 1269.1	Occupational noise management – Measurement and assessment of noise immission and exposure
AS 1636	Tractors – Roll-over protective structure – Criteria and tests
AS/NZS 1906	Retroreflective materials and devices for road traffic control purposes
AS 2294	Earth-moving machinery – Protective structures
AS/NZS 2596	Seat belt assemblies for motor vehicles (ECC Regulation No. 16, MOD)
AS 2664	Earthmoving machinery – Seat belts and seat belt anchorages
AS 4772	Earth-moving machinery – Quickhitches for excavators and backhoe loaders

International Standards

ISO 6683	Earth-moving machinery – Seat belts and seat belt anchorages – Performance requirements and tests
ISO 12117	Earth-moving machinery – Tip-over protection structure (TOPS) for compact excavators – Laboratory tests and performance requirements
ISO 12117-2	Earth-moving machinery – Laboratory tests and performance requirements for protective structures of excavators – Part 2: Roll-over protective structures (ROPS) for excavators of over 6 t

NSW Government

Work Health and Safety Act 2011
Protection of the Environment Operations Act 1997

Society of Automotive Engineers

SAE J386	Operator Restraint System for Off-Road Work Machines
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