Excavator Safe Work

Every workplace has to follow laws and rules to keep everyone safe. There are 4 main types:

Acts	These are laws that you have to follow.
Regulations	These explain what the law means.
Codes of Practice	These are instructions on how to follow the law, based on industry standards.
Australian Standards	These tell you what the minimum requirement is for a job, product or hazard.

Some states use OHS laws, and other states use WHS laws. They both talk about the same thing, but use different words or names for people.

Before starting your work you need to make sure you have access to all operations documentation for the job. This will help you to do your work in the safest way and make sure all work is compliant.

Operations documentation includes:

- **Site Details** – the information and safety requirements of the workplace environment (where you will be working).
- **Hazard Details** – any hazards in the work area or related to the work. This could also include instructions on how to handle dangerous or hazardous materials.
- **Task Details** – instructions of what the work is or what you will be doing (this can include diagrams or plans). Also instructions on how to safely do the job.
- **Faulty Equipment Procedures** – isolation procedures to follow or forms to fill out.
- **Signage** – site signage tells you what equipment you need to have, or areas that are not safe to be in.
- **Emergency Procedures** – instructions on what to do in emergency situations, for example if there is fire, accident or emergency where evacuation or first aid is needed.
- **Equipment and Work Instructions** – details of how to operate plant and equipment and the sequence of work to be done.

WHS law says that all companies and workers need to keep themselves and other people safe while they work. This is called a duty of care. To keep yourself and other workers safe you need to:

- Follow your instructions.
- Follow all workplace rules.
- Make sure all equipment is safe to use.
- Carry out your work safely.
- Report any problems.

If you think something is dangerous stop work immediately.

Your worksite should also have instructions for working safely including:

- Emergency procedures, including using fire fighting equipment, first aid and evacuation.
- Handling hazardous materials.
- Safe operating procedures.
- Personal protective clothing and equipment.
- Safe use of tools and equipment.

You need to be clear about what work you will be doing. Make sure you have everything about the job written down before you start. This includes what you will be doing, how you will be doing it and what equipment you will be using.

Make sure you have all of the details about where you will be working. For example:

- **The Site** – Is there clear access for all equipment? Are there obstacles in the way? What are the ground conditions like? Is the site ready for work to begin? Are there structures, workers, traffic or areas you need to avoid?
- **The Weather** – Is there wind, rain or other bad weather? Is it too dark?
- **Traffic** – Are there people, vehicles or other equipment in the area that you need to think about? Do you need to get them moved out of the area? Do you need to set up barriers or signs?
- **Hazards** – Are there dangerous materials to work around or think about? Will you be working close to power lines or other people?

You also need to make sure you have all of the details about the kind of work you will be doing:

- **The Task** – What kind of material is being moved? How much is there to move? How long do you have to complete the work? Where will the load be discharged? Does the job need a special type of bucket or attachment?
- **Plant** – What type of plant will be used? How big is it? How much room does it need?
- **Attachments** – What equipment will you need to shift the load safely? Is the equipment available?
- **Communications** – How are you going to communicate with other workers?
- **Procedures and Rules** – Do you need any special permits or licences for the work? Are there site rules that affect the way you will do the work, e.g. traffic control requirements?
- Many worksites require a work method statement before any work can start. A work method statement is a list of steps that outlines how a job will be done. It also includes any hazards that occur at each step, and what you need to do about them.
- These statements can also be known as Safe Work Method Statement (SWMS), Job Safety Analysis (JSA) or Safe Operating Procedure (SOP).
- Work method statements are a great tool for organising your work activities and making sure you have completed everything. They will also outline the details of all tools, equipment and coordination with other workers relating to your job. Make sure all of these are available and ready before you start.

Before you start work, you need to check for any hazards or dangers in the work area. If you find a hazard or danger you need to do something to control it. This will help to make the workplace safer.

The best way to control hazards is to use a simple problem-solving approach:

1. **Identify the problem.** What is the hazard?
2. **Identify the cause of the problem.** What is causing the hazard?
3. **Work out the different options that you have to solve the problem.** What can be done to eliminate or minimise the hazard as much as possible?
4. **Choose the best option to solve the problem and apply it.** What is the best option to eliminate or minimise the hazard?
5. **Check to see if the problem has been solved.** Has the hazard been eliminated or reduced to a safe level? If not, you will need to use additional, or better options for fixing the problem (controlling the hazard).

Part of your job is to look around to see if you can find any hazards before you start any work.

A **hazard** is the thing or situation that causes injury, harm or damage.

When you start checking for hazards, make sure you look everywhere. A good way to do this is to check:

- Up high above your head.
- All around you at eye level.
- Down low on the ground (and also think about what is under the ground).

Some hazards you should check for in the work area are:

- Overhead and underground services.
- Uneven, soft, slippery or unstable terrain.
- Trees.
- Fires.
- Bridges.
- Excavations.
- Buildings.
- Traffic.
- Embankments.
- Cuttings.
- Hazardous materials.
- Structures such as site offices and scaffolds.
- The weather and environment.
- Other workers or site visitors.
- Pedestrians and other public traffic.
- On-site vehicles, plant, equipment and machinery.
- Poorly maintained or faulty equipment.
- Hazards from components of the excavator (e.g. hoses under pressure, hydraulic tanks, cooling systems or braking systems).
- Road surface and edge solidity.
- Handling characteristics of the excavator.
- Effects of the load as you move or scoop it.
- Chemical hazards such as fuel, chemicals, contaminants, gases or dusts.

Working Near Power Lines

Working near power lines can be very dangerous if you are not careful.

It is very important that you know the safe operating distances for different types of power lines and the steps you must take if your job needs you to work closer than the safe distances.

Generally, if you need to work closer than the safe work distance you must:

- Contact the local electrical authority for permission to work closer (this is called an exemption).
- Have the power lines shut off. If this is not possible then have the power lines insulated.
- Use a spotter (depending on local laws and rules).

Distances are different depending on the voltage of the power lines and the state/territory you are working in. You should check with the local electrical authority for information and advice to find out the voltage of power lines in your work area.

QLD

The Queensland Electrical Safety Regulation breaks down the distances in detail. Exclusion zones are broken down not only by size of electric/power line but also by the competency level of the operator. This means that the requirements should be clarified with the electrical authority before work commences even if the distance appears to be outside the zones.

The following minimum distances are provided as guidance:

Electric/Power Line Type	**Distance**
Up to 132kV	3.0m
132kV up to 330kV	6.0m
330kV and above	8.0m

NSW

In New South Wales, for anyone who is not accredited, equipment operation may not be any closer than the following distances to electric/power lines:

Electric/Power Line Type	**Distance**
Up to and including 132kV	3.0m

Above 132kV up to and including 330kV	6.0m
Above 330kV	8.0m

To work closer than these distances requires authority from the relevant electrical authority and adherence to cl.64(2)(e) of the regulations.

ACT

In the ACT mobile plant operators and persons erecting or working from scaffolding must maintain a safe minimum distance to power lines as outlined in the table below:

Electric/Power Line Type	**Distance**
Less than 33kv	4.0m
33kV or more (transmission lines)	5.0m

VIC

In Victoria the Framework for Undertaking Work Near Overhead and Underground Assets states that equipment must not be closer than the following distances to electric/power lines:

Electric/Power Line Type	**Distance**
Distribution lines up to and including 66kV (power poles)	6.4m (or 3.0m with a qualified spotter)
Transmission lines greater than 66kV (towers)	10m (or 8m with a qualified spotter)

TAS

In Tasmania equipment must not be closer than the following distances to electric/power lines:

Electric/Power Line Type	**Distance**
Up to and including 133kV (poles)	6.4m (or 3m with a safety observer)
Greater than 133kV (towers)	10m (or 8m with a safety observer)

SA

In South Australia mobile plant operators and persons erecting or working from scaffolding must maintain a safe minimum distance to power lines as outlined in the table below:

Electric/Power Line Type	**Distance**
Up to 132kv (including 132kv poles)	6.4m (or 3.0m with a spotter)
132kv or more (including 132kv towers)	10.0m (or 8.0m with a spotter)

WA

In Western Australia this falls under Regulation 3.64 from the OSH Regulations and states the following as the minimum distances:

Electric/Power Line Type	**Distance**
Up to 1kV (insulated)	0.5m
Up to 1kV (uninsulated)	1.0m
Above 1kV and up to 33kV	3.0m
Above 33kV	6.0m

NT

In the Northern Territory equipment must not be closer than the following distances to electric/power lines:

Electric/Power Line Type	**Distance**
Up to and including 132kV (distribution lines)	6.4m (or 3m with a spotter)
Greater than 132kV (transmission lines)	10m (or 8m with a spotter)

Tiger Tails

Tiger tails are used as a visual aid to identify the location of overhead power lines.

It is important to note that tiger tails **DO NOT** insulate the power lines so exclusion zones and safe operating distances must still be maintained, even when tiger tails are present.

Contact with Power Lines

If the excavator makes contact with live power lines you should:

1. Stay calm, remain in your seat, and warn others to keep away.
2. Try to break contact by lowering the bucket and get someone to switch off the power if possible.
3. If it is unsafe to stay in the machine, jump well clear and don't make contact with the ground and the machine at the same time.
4. Remain a safe distance from the machine and warn others to keep clear.
5. Have someone notify the supervisor, who should contact the appropriate electrical authority.

Controlling Hazards

Thinking about these things will help you to choose how to control the hazards. Hazards controls need to follow:

- Legislation (laws).
- Australian Standards.
- Codes of Practice.
- Manufacturers' specifications.
- Industry standards.
- **Controlling Hazards**
- The best way to control hazards is to use the Hierarchy of Hazard Control. The hierarchy of hazard control is a range of options that can eliminate, or reduce the risk of hazards.
- You start at the top of the list and see if you can take away (eliminate) the hazard or danger.
- If you can't take it away you move down the list to see if you can swap it for something safer (substitution).
- Keep working through the list until you find something that controls that hazard or danger.

Hierarchy Level	Action
1. Elimination	Completely remove the hazard. This is the best kind of hazard control.
2. Substitution	Swap a dangerous work method or situation for one that is less dangerous.
3. Isolation	Isolate or restrict access to the hazard.
4. Engineering Controls	Use equipment to lower the risk level.
5. Administrative Controls	Site rules and policies attempt to control a hazard.
6. Personal Protective Equipment	The least effective control. Use PPE while you carry out your work.

It is important to think about all of the options available when deciding on the best hazard controls. You may need to use more than one control measure to bring the risk level down to an acceptable level.

Check the situation after you have applied a control measure to see if more controls, or different controls are needed to make the job safe. If more controls are needed, make sure they are applied before you start or continue the work.

Talk to your supervisor or safety officer if you are not sure if it is safe enough to carry out your work. If you think the hazard is still too dangerous you should not try to do the work.

Personal Protective Equipment (PPE)

Personal Protective Equipment (PPE) is clothing and equipment designed to lower the chance of you being hurt on the job. It is required to enter most work sites.

It includes:

- **Head protection** – hard hats and helmets.
- **Foot protection** – non-slip work boots.
- **Hand protection** – gloves.
- **Eye protection** – goggles, visors or glasses.
- **Ear protection** – plugs or muffs.
- **Breathing protection** – masks or respirators.
- **Hi-visibility clothing** – clothing that makes you stand out and lets other people know where you are.
- **Weather protection** – clothing that protects you from the sun or from the cold.

Make sure any PPE you are wearing is in good condition, fits well and is right for the job.

If you find any PPE that is not in good condition, tag it and remove it from service. Tell your supervisor about the problem and they will organise to repair or replace the PPE.

Traffic Control Barricades and Signage

In some cases you may need to isolate the work area. Set up barricades and signage to warn others that you are working in the area and that it is dangerous for them to come too close.

On worksites it is often necessary to control the movement of traffic around and through the site. To do this there are 2 different types of traffic management plans:

In the traffic or vehicle management plan, signs and the distances between signs will be listed. Reading the plans will show you where particular signs need to be placed.

Signs and barriers may include:

- Danger or warning signs like speed limits, ‘workmen ahead’ or ‘reduce speed’.
- Flashing lights.
- Barricades and fences.

Environment

Environmental protection requirements are part of every worksite. Make sure you check with your supervisor about what environmental issues need to be managed during your work.

All environmental details should be listed in an ‘Environmental Management Plan’ for the site. It can include details for:

- Waste management.
- Water quality protection.
- Noise control.
- Vibration control.
- Dust management.

The plan will outline the steps and processes needed to prevent or minimise damage to the environment through the use of machinery and equipment.

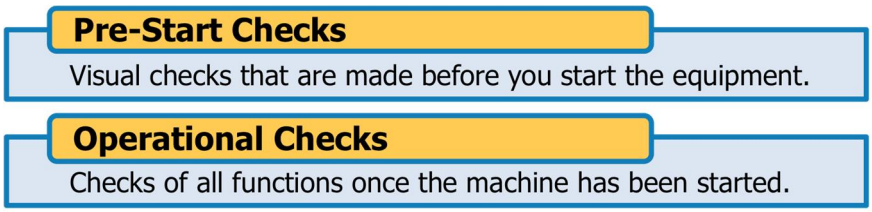
Load Limits

Check the operator’s manual and manufacturer’s specifications for information about:

- Load limits.
- Balance requirements with and without a loaded bucket.
- The limits on slopes that can be negotiated both loaded and unloaded.
- Manoeuvering capability, such as turning radius and stopping distances.
- Attachment use.
- Use of slings and guide ropes.
- Materials and handling requirements.

- **Fitting and Removing Attachments**
- Once you have decided that the attachment is right, you need to attach it securely using approved attachment points and methods.
- Each attachment will have its own requirements for how and where it is fitted on the excavator. You can find this information in the operator's manual or manufacturer's instructions.
- Make sure you take appropriate safety precautions (such as releasing hydraulic pressures where needed) before fitting or removing attachments.

Generally, to **remove an attachment**:

1. Collect any required tools or equipment.
2. Ensure the excavator is safely parked and removal of the attachment will not cause a hazard.
3. Ensure any pressure couplings have the pressure released before detaching.
4. Disconnect connectors in correct order and using recommended safety procedures.
5. **Conduct Routine Checks**
6. Routine checks are made up of:
7. 

8. Generally, routine checks are performed at the start of each day or shift.
9. You can use an inspection checklist to keep a record of the checks you have made.
10. **Pre-Start Checks**
11. Pre-start checks are done before the engine is started. Walk around the excavator and look for anything that is out of the ordinary.

Part or Component	**What to Check**
Structure	Check the general condition of the excavator. Check for oil or other fluid leaks. Check for any signs of visual weaknesses, damage, stressed welds or paint separation.
Tyres or Tracks	Check for mud, which may be thrown from the tyres and cause damage.

	Check the condition and air pressure of the tyres to make sure they are within the manufacturer's specifications. Check the condition and tension of tracks. Check that the track pin is centred over the track roller, and that track sag is within acceptable limits. The track tension should be adjusted if it is too loose. To check the tension of tracks place a straight edge on the track from the roller to the drive wheel/cog and measure the distance from the edge down to the track. As a general rule, the allowable track sag is 2.5-3.8cm but you need to check the manufacturer's specifications for the excavator you are operating to be sure.
Bucket	Check the bucket for worn or broken components e.g. teeth, blade, bolts. Inspect the hydraulics and connections for wear and tear. Check the condition of the pivot pins.
Boom Arm	Make sure you check the arm for damage or defects, but be careful not to put yourself in a position where you could be crushed if there is a malfunction. If you find excessive wear in the power arms and connections that make the excavator dangerous to operate you need to inform your supervisor or an authorised person. Then isolate the excavator and don't use it until it is repaired.
Safety Pins	Check all pins and keeper plates are in place and any loose bolts are tightened.
Fluids and Lubrication	Check that the oils (engine, transmission, hydraulic) and fuel are at the right levels. Check that the water or other approved coolant is at the right level. Transmission fluid needs to be checked in accordance with the manufacturer's specifications. Check that parts are lubricated to ensure smooth operation.
Engine	Check condition and security of battery. Check electrolyte levels. Check for any obvious signs of damage or wear.

Hydraulic Rams and Hoses	Hydraulic rams and pressure hoses are checked for splits, leaks, fractures, bulges and bent piston rods.
Decals and Signage	Check that all decals and signage are present on the machine. This includes the load chart, which must be clearly readable for the excavator to be used.
Windows	Check that the windows are clean and you have good visibility from the operator's chair.
Cabin	Check that the seat and safety belt is in good condition. Check that the cabin is clean.
Service History and Logbook	Check the machine hour meter, manufacturer's recommendation and logbook to find out if the excavator needs to be serviced. You can also check the instruments or computer for this information on later models.

12. For exact details on the components for the machine you are operating, check the operator's manual as different brands may have different requirements.
13. **Operational Checks**
14. Operational checks are made once the engine is started.
15. Climb into the excavator using 3 points of contact at all times (2 hands and 1 foot or 2 feet and 1 hand). This is the safest way to climb in and out of the excavator.
16. Adjust the seat until comfortable and make sure you have maximum visibility. Secure your safety belt.
17. Start up the excavator by following the manufacturer's instructions.
18. You will need to let the engine idle for the required amount of time. Depending upon the individual machine this idle time could range from 3 to 10 minutes.
19. **Controls and functions that need to be checked on the excavator:**

Part or Function	**What to Check**

All Controls	Test all arm and bucket movements.
Gauges and Instruments	Check that all instruments are displaying properly and are not signalling any alarms or warnings.
Safety Devices	Test all lights, alarms and other warning devices.
Attachments	Check that the attachment is secured and connected to the excavator properly. Check the condition of the attachment. Check that it works properly.
Travel, Turning and Brakes	Test all movements and brakes, including the emergency stopping device.
Ancillary Equipment	Test out all communications devices and any other systems or functions fitted, e.g. positioning instrumentation (GPS, auto levelling controls).

20. Once you have finished your operational checks it is a good idea to check for external signs of oil or fluid leaks. It is common for the start-up process to cause a leak through hoses breaking.

It is important to coordinate your activities with other workers when you are planning and carrying out the work to make sure everyone knows:

- The work being completed.
- How, when and where you will be operating.
- What they need to do.

All workers on site must understand their own role and the roles of others before starting work. It helps to make sure work is done safely and efficiently.

Workers you may need to coordinate with include:

- Supervisors and management.
- Other plant and vehicle operators.
- Traffic controllers or other workers on the site.
- Team leaders.
- Site safety personnel.

Assessing Materials to be Excavated

You will need to assess the materials you are working with to figure out the best way to handle it. For example, clay is more cohesive and harder to excavate than topsoil.

There may be different types of materials being handled at the worksite. They may include:

Material	Description
Clays and Mud	Clay and mud can tend to be dense and sticky and may not discharge cleanly if wet or damp. Sometimes, particularly with damp materials, the dump process may be longer than normal. Mud can purge from the excavator, rather than discharge smoothly.
Topsoil and Organic Materials	Generally these types of materials are loose and will dump cleanly. As topsoil can be reused in re-vegetation activities, it will normally be dumped in a quarantine area to keep it free from contaminants. It may be necessary to clean down the machine before starting work in other areas or prior to hauling topsoil or organic matter to prevent contamination.
Stones, Rocks and Gravel	The operating techniques needed will depend on the type of rock, and the size of gravel and stones. For example: • **Metamorphic** rocks are heavy and hard. • **Igneous** rock is volcanic and can be hard but may also be very light. Igneous rock can be very abrasive and may cause damage to the excavator or wear down ripping points quickly. • **Sedimentary** rocks and shale could peel out when cut and removed.
Silts and Sands	Depending on the amount of moisture, silts and sands can move cleanly and easily or can be difficult because of the fine and sometimes crumbly nature of the materials.
Construction Site Materials	Construction site materials can be blended materials, bituminous mixes and waste materials. How these materials handle will depend on the properties of the materials and the environmental conditions such as the moisture levels.

Knowing the material and how it reacts during operational activities is essential in order to complete required tasks efficiently and achieve optimum output.

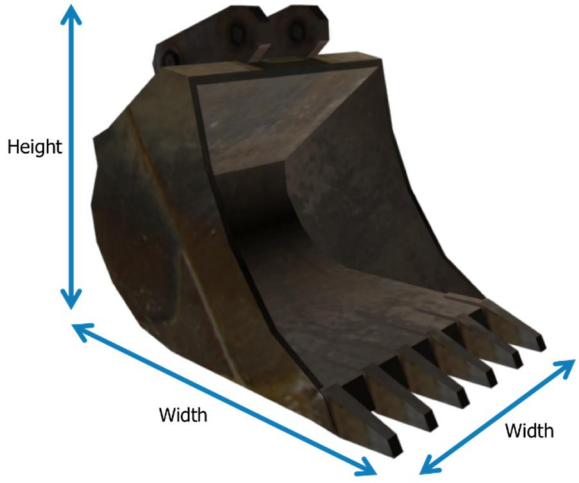
You will also need to assess the weight of the materials you are working with.

Material	Weight per Cubic Metre	Material	Weight per Cubic Metre
Bronze	8.5 t	**Lead**	11.4 t
Clay	1.9 t	**Lime** (stone)	2.6 t
Coal	864 kg	**Sand** (beach, dry)	2.0 t
Concrete	2.4 t	**Sand** (beach, wet)	2.3 t
Earth	1.9 t	**Sand** (river, wet)	1.5 t
Granite	2.6 t	**Shale**	2.6 t
Gypsum	2.3 t	**Terracotta**	1.8 t
Iron Ore	5.4 t	**Zinc**	7.0 t

Think about the size of the bucket you are using and work out the weight of the load.

To work out the volume that the bucket can hold, multiply the height (H), width (W) and length (L), then divide it by 2:

$$\frac{L \times W \times H}{2}$$



Check the weight of the materials against the manufacturer's specifications to make sure you don't overload the excavator. Keep in mind that uneven, rough, boggy or sloping ground can all reduce the amount of material that the excavator can safely carry.

Safe Operating Techniques

To make sure your work is done in a safe way it is important to follow some basic safe operating techniques.

Make sure the excavator is suitable for the ground conditions and that the bucket is suitable to the task.

Keep clear of holes or soft ground areas. Be careful when driving along the high side of a trench as it could cave in.

Keep in constant communication with other personnel throughout your excavator operations. Continuously monitor and check for hazards, and warn other workers if there is danger.

Report your progress on a regular basis to your supervisor and modify your work to meet any new project or quality requirements, or changing conditions.

While operating the excavator make sure movements are smooth, not jerky, and that you operate the excavator at a safe speed.

Operating the excavator too fast can cause instability.

Loading and unloading machinery

No person is authorised to load and unload equipment independently without first completing the relevant competency (RIIHAN308F or its future equivalent). Mobile plant and equipment can only be loaded/unloaded by:

1. A person who currently holds the competency for RIIHAN308F (or its equivalent), or
2. A person who is being directly assisted by someone who currently holds the competency for RIIHAN308F (or its equivalent).

Using Attachments

You need to know and understand the operational limits of the equipment you are using to make sure you don't damage it, or put yourself in danger.

Each attachment has been designed to do a specific type of work, for a specific type or range of materials. Do not ever use an attachment for any job other than the one it is designed for.

Make sure you have enough room to operate the attachment safely without putting other workers in danger.

Keep all operations within the limits and capabilities of the equipment. You could damage the attachment if you push it too hard.

After you have finished using the attachment, check your work to make sure it matches the plan.

Excavating or Loading Material

When using the excavator make sure you work safely and follow the work plan, including:

- Checking for underground services (power, telephone, gas, water, sewer, drainage and fibre optic cable lines) before starting to excavate. Talk to the site supervisor who will contact the supply authorities for council maps of the site.
- Checking state or territory standards for safe operating distances from power lines.
- Using barricades, guard rails or fencing and warning signs to prevent workers falling into a trench or vehicles and machines getting too close. No workers should be standing within operating radius of the excavator while you work.

If you are excavating a trench, deposit full buckets of material away from the trench. Loads should be placed at least 1m away with material coming to rest no closer than 0.5m from the excavation.

While you are excavating you need to check for signs that you are getting close to a previous excavation or an underground service. If you notice any of the following signs, stop operating immediately and hand dig to investigate:

- Crushed blue metal or plastic tape.
- Clean sand or sand bags.
- Broken tiles.
- Moisture.
- Any other unusual material.

If cutting a trench across a footpath:

- Gather information and permits from relevant authorities who may run services under the footpath.
- Excavate slowly towards any underground services.
- Set barricades and signs to isolate the area.

When dumping material into a truck:

- Approach the truck slowly or wait until it is correctly positioned.
- Make sure you know where the driver is at all times.
- Make sure the turntable is level when slewing to prevent the machine from overturning.
- Place a layer of soil in the truck to take the impact of large rocks.
- Never slew a load over the cabin of the truck as the bucket could hit the cabin or load could drop onto the cabin.
- Be careful of large boulders tipping out of the bucket onto the truck.
- Make sure anyone in the area is at a safe distance from loading operations and that they stay within your view.

Excavation depths

Excavations deeper than 1.5m that workers need to enter or that are likely to collapse due to the material will require you to bench or batter the sides. Then trench shields can be lowered into position before workers enter the excavation.

While you are working and moving materials, the site will change.

Lighting Changes

Twilight is the time when your eyes might become more tired and difficult to focus. It could be more difficult to see the terrain and to judge distances. Set up temporary lighting where possible and go slowly.

Weather Conditions

Rain, sleet, snow, wind and humidity can all affect both your excavator and the materials you are working with. Additional moisture from any source will change the composition of the materials, possibly making them heavier and slippery. This means you will not be able to lift or haul as much and you will need to adjust the quantities you are dealing with in each load.

Changing Work Conditions

As more materials are moved around or removed from a site the work conditions may change. Materials that you are working with can change throughout a project. As you excavate deeper or move onto other stages of the civil construction project you will be working with different materials, attachments and personnel.

You need to coordinate with authorised personnel to work out the weight of the load to make sure your excavator can safely lift it without damaging the equipment, attachment or making it unstable.

The weight of the load can be found in a number of ways:

- Check for weight markings on the load.
- Check delivery dockets or information sheets.
- Check the weighbridge certificate.
- Calculate the weight of the load or material.

If you cannot be sure of the weight and cannot calculate it, do not lift the load.

Once you know the weight of the load you need to make sure the excavator you are using has the capacity to lift it safely. You can check the capacity of the excavator in the operator's manual or manufacturer's specifications.

If you are using an attachment to lift the load you need to check that it is also rated to be able to lift the load. Keep in mind that using an attachment may also reduce the overall capacity of the excavator.

Pass on any information about machine and equipment capacity to the person slinging the load.

When using the excavator for lifting, make sure it is fitted with the correct lifting attachment or that the machine has the appropriate lifting lugs. Always use an approved lifting lug or lift connection that is clearly marked with the Safe Working Load (SWL).

Lifting gear needs to be selected based on the type, size, weight and shape of the load to be lifted. Only a licensed dogger or rigger is authorised to select and inspect lifting gear, determine the weight of loads and select and apply slinging techniques.

Remember: Only a licensed dogger or rigger can select, inspect and apply slinging techniques and determine the weight of loads. You may only participate in these activities under the direct guidance of a qualified dogger or rigger.

Operating Techniques for Lifting Loads	
Follow directions from the dogger to position the lifting point over the centre of gravity of the load to keep the load from swinging.	☐
When you are given the signal perform a test lift then lower the load again so that any changes to the slings and load can be made.	☐
Keep all movements smooth and slow.	☐
Stop the lift immediately if the weight of the load causes the machine to tilt or if the hydraulics begin to strain.	☐
Check the hydraulic hoses and rams before and after lifting to make sure no damage has been done to the equipment.	☐
Materials should be moved shortest distance possible to maintain effective and efficient control of the machine and the load.	☐
Constantly monitor the load during the move.	☐
Keep the load as low as safe and practical if travelling with the load.	☐
Monitor your speed of travel and stay within safe speed limits.	☐
Maintain a safe distance from exposed edges.	☐
Follow all hand signals or other designated signals.	☐

If the slings shift on the load being lifted stop the excavator, warn workers in the area, carefully lower the load and have the slings re-positioned and secured.	☐
Make sure that if lowering objects such as pipes into trenches that the trench is shored and workers are standing a safe distance away.	☐
Land the load at the designated location. Ensure that it is secure and stable.	☐
Make sure lifting equipment is properly detached before moving off.