

Checklist - planning for safe set-up and operations for excavation and trenching work

An excavation is a trench, tunnel or shaft, but is not a mine, water bore or a trench for use as an interment (burial grave). Excavation work generally means work involving the removal of soil or rock from a site to form an open face, hole, or cavity using tools, machinery or explosives. It can also include the filling or partly filling of an excavation.

Excavation work can present a risk of injury to workers from the following:

- Excavation or trench collapse: This can occur when excavated materials, plant or other heavy loads are placed close to an excavation. A collapse may be influenced by a number of factors, including the presence of an old or existing service line, water inrush, vibration of the surrounding area or the omission of reasonable control measures to prevent collapse (benching, battering or shoring).
- Mobile plant: This can contribute to an excavation collapse from the movement and vibration caused by mobile plant. The risk of being hit or crushed in or around an excavation, can also occur from mobile plant (excavators or skid steer loaders).
- Falling objects: This can occur when tools, equipment or machinery are placed near the excavation while workers are below.
- Falls from height: This can occur during excavation work when the trenching support system may not extend high enough or guard rails are not installed.
- Underground essential services: This can occur when services including electricity, gas, water or sewerage are contacted by plant or machinery during excavation work. Information on the location of the service should be obtained prior to excavation work (Dial Before You Dig).
- Exposure to an airborne contaminant: This can occur if there are hazardous chemicals in the soil or a hazardous atmosphere in the excavation caused by the use of solvents or fumes from machinery.

Why is planning important?

Planning is the first step in ensuring that work is done safely. Planning for excavation work should start as early as possible and involve consultation with everyone engaged in the work including the principal contractor, excavation contractor, mobile plant operators, workers and safety personnel. Structural and/or geotechnical engineers may also need to be consulted at this stage.

Good planning involves:

- identifying the nature and condition of the ground or work environment
- selecting the right plant and equipment for the excavation works

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- planning, scheduling and coordinating excavation works
- operating the mobile plant safely.

Effective planning will help identify ways to protect people who are:

- working in or near the excavation
- other workers involved in excavation work, such as plant operators
- performing other work activities at the workplace
- in an area adjacent to the excavation, including public areas.

How to use this checklist

This checklist can be used to assist with the set up and operation of excavation work at construction workplaces.

The assessment can be led by a principal contractor (PC), a person conducting a business or undertaking (PCBU), plant operator, safety advisor or health and safety representative (HSR) and should be completed in consultation, coordination and cooperation with everyone involved.

For example, a representative from the principal contractor might assemble a group of relevant people from the site to discuss each item and coordinate the actions required for any 'no' responses.

The *Work Health and Safety Act 2011* requires a PCBU to consult, so far as is reasonably practicable, with workers who are likely to be directly affected by a health and safety matter and with other duty-holders at the same workplace. Records of completed checklists can be kept to monitor and review items at a later date.

Part one – site details

Date of assessment:	
Assessment completed by:	

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Name of PC or PCBU:		
Site location:		
Part two – selecting the right plant		
Section		Response and comments
Determining earthmoving plant requirements	1. Is the type of earthmoving plant selected suitable for the work that needs to be performed? Consider: <ul style="list-style-type: none"> the type and extent of the excavation work (materials, loads) rated capacity, allowable gradient and other specifications of the plant type of attachments required the frequency and duration that the plant will be used proximity of other plant and structures workplace conditions (ground conditions, site access, public areas, power supply). 	<input type="checkbox"/> Yes <input type="checkbox"/> No Comments:
	2. Has a competent person conducted a documented inspection of the general plant involved in the excavation at regular intervals? This should cover but not be limited to: <ul style="list-style-type: none"> trench shields or boxes for correct installation, movement or damage sheet piling and ground anchors for correct installation, movement or damage shoring system components including trench jacks. 	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Comments:
Inspections and maintenance	3. Has a competent person conducted a documented inspection of the excavation site prior to starting work? This should cover, but not be limited to: <ul style="list-style-type: none"> the nature of the excavation and the proposed work any shoring or ground support system required the ground and soil conditions in and around the excavation the proposed means of entry and exit from the excavation 	<input type="checkbox"/> Yes <input type="checkbox"/> No Comments:

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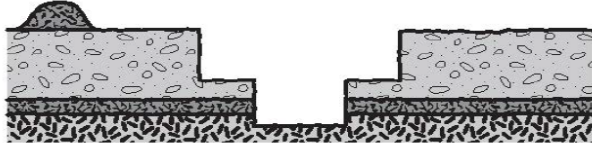

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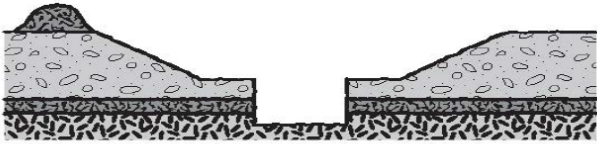
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	<ul style="list-style-type: none"> any written advice or report from a geo-tech engineer detailing the conditions and time periods relating to the stability of the excavation or trench that workers may enter. 	
Part three - planning, scheduling and coordinating the excavation work		
Training	<p>4. Has relevant information, training, and instructions been provided to workers who are required to install or work with ground support system? This should cover but not be limited to:</p> <ul style="list-style-type: none"> the specific installation methods for the ground support system safe entry and exit to the excavation rescue and emergency procedures effective communication between workers and the plant operator (blind spots). 	<input type="checkbox"/> Yes <input type="checkbox"/> No Comments:
Planning the work	<p>5. Has a Safe Work Method Statement (SWMS) been prepared for the high-risk construction work associated with work in a trench with an excavated depth greater than 1.5 metres and/or the risk of a person falling more than 2 metres, that:</p> <ul style="list-style-type: none"> describes the high-risk construction work to be undertaken sets out the steps required to perform the work identifies hazards describes the control measures to be used? 	<input type="checkbox"/> Yes <input type="checkbox"/> No Comments:
Risk assessment	<p>6. For work that is not designated high risk construction work (i.e. work associated with work in a trench with an excavated depth less than 1.5 metres and/or the risk of the person falling less than 2 metres) has a <u>risk assessment</u> been done before any excavation work commences? Consider:</p> <ul style="list-style-type: none"> the hazards and risks (e.g. potential injuries from a trench collapse) the nature of the excavation and proposed work the proposed safe methods to carry out the work(considering soil type) the means of entry and exit to the excavation. 	<input type="checkbox"/> Yes <input type="checkbox"/> No Comments:

Dial Before You Dig	<p>7. Is there any documented evidence that people with management or control of the excavation have obtained current information about any underground essential services before work starts?</p> <p>Note: Dial Before You Dig is a free enquiry service for information on underground assets anywhere in Australia (phone 1100 or submit an enquiry online at www.dialbeforeyoudig.com.au). Alternatively, contact relevant authorities for more information (e.g. electricity, communications, local government, water).</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No Comments:
	<p>8. If the information about underground services has been obtained, has this information been given to people doing the excavation work?</p>	<input type="checkbox"/> Yes <input type="checkbox"/> No Comments:
Consultation and Co-operation	<p>9. Has there been an adequate consultation process conducted with all relevant people prior to the excavation work commencing? This could include:</p> <ul style="list-style-type: none"> • principal contractor, engineers, sub-contractors, plant operators, HSRs, workers • meetings to discuss the hazards and risks associated with the proposed works • information shared among people with overlapping safety duties • scheduling and programming of works to minimise health and safety risks • planning on how to provide important training and information to workers and others • planning of emergency and evacuation procedures. 	<input type="checkbox"/> Yes <input type="checkbox"/> No Comments:
Part four – excavation work siting and setup		
Proximity to plant, structures and public areas	<p>10. If the excavation is located near other plant or structures, are there control measures in place to prevent injury to workers and members of public? This should consider:</p> <ul style="list-style-type: none"> • overhead electrical lines and underground essential services • nearby buildings and structures • cranes, EWPs or other potential obstructions (e.g. concrete placement booms). • roads, footpaths and other public areas. 	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Comments:

Exclusion zones	11. Have appropriate exclusion zones been established around the excavation to prevent: <ul style="list-style-type: none"> workers or public from falling into the excavated area other plant and vehicle traffic from entering the excavated area collapse of the excavated area from other plant and vehicle traffic workers or public from entering any unsafe trenches or excavated areas workers in the excavation from being struck by falling objects. 	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Comments:
	12. Have all relevant workers and plant operators been informed and understand where exclusion zones are established? Consider: <ul style="list-style-type: none"> specific and clearly marked haul routes for mobile plant and trucks (traffic management plans) clearly marked access and egress ways for workers clear delineation zones between mobile plant and workers. 	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Comments:
Installing and removing ground support systems	13. If there is a ground support system installed, is there a safe system of work in place to minimise the risk of injury from people installing and removing the system? Consider: <ul style="list-style-type: none"> training, information and instructions to workers for installation methods installation is in accordance with manufacturer's instructions and specifications work is supervised by a competent person components are assembled in the correct sequence specific lifting points are used for trench boxes correct tools and equipment are used personal protective equipment is being worn by workers. 	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Comments:
Part five – working in the excavation safely		
Managing the risk of falls	14. Is the risk of people falling into the excavation adequately controlled? Consider: <ul style="list-style-type: none"> physical control methods installed (trench box extensions, guard rails, scaffolding) backfilling as work progresses (safe system of work) providing clearly defined access and egress for workers (steps cut into the excavation) securing ladders into the excavation providing adequate barriers or barricades at a safe distance back from the excavation. 	<input type="checkbox"/> Yes <input type="checkbox"/> No Comments:

Managing the risk of being trapped by excavation collapse	<p>15. Is the risk of people being trapped from collapse adequately controlled for trenches at least 1.5 m deep? Consider:</p> <ul style="list-style-type: none"> • minimising the amount of time workers are required to be in the excavation (if at all) • benching, battering or combination of both • shoring or sheet piling • trench shields or boxes • geotechnical engineer providing signed advice or report including specific conditions and time periods for which the advice applies • adequate barriers or barricades at a safe distance from the excavation to prevent mobile plant, vehicles or people from getting close to the edge (wheel stoppers for plant). 	<input type="checkbox"/> Yes <input type="checkbox"/> No Comments:
	<p>Benching</p>  <p>Battering</p>  <p>Combination of benching and battering</p>	

		
Managing the risk of falling objects	<p>16. Is the risk of people being struck by falling objects adequately controlled? Consider:</p> <ul style="list-style-type: none"> • erecting adequate barriers or barricades at a safe distance from the excavation • ensuring adequate storage of materials and plant at a safe distance from the excavation • providing clearly defined pedestrian access ways • pre-starts conducted to identify any dislodgement of soil or rock • providing containment or support to excavation sides for unstable material. 	<input type="checkbox"/> Yes <input type="checkbox"/> No Comments:
Managing unauthorised access	<p>17. Has unauthorised access or inadvertent entry been adequately controlled for trenches at least 1.5 m deep? Consider:</p> <ul style="list-style-type: none"> • providing barriers, barricades or fencing • providing appropriate signage • providing training and instructions to other workers who are not involved in the excavation work. 	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Comments:
Managing additional hazards	<p>18. If there are additional hazards or risks associated with the excavation work, have they been adequately managed? Consider</p> <ul style="list-style-type: none"> • people exposed to airborne contaminants (fumes, hazardous chemicals in soil) • people exposed to eye, hand or crush injuries (PPE including high-visibility clothing) • people exposed to noise (jack-hammers, generators) • people exposed to dust (soil, silica). 	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A Comments:

What to do next

If you answered ‘no’ to any of the items during the assessment, further action should be taken. This should start with a discussion with the relevant people on site to gather more information and decide on a course of action. Keeping a record of the completed assessment will help to monitor and review items at a later date.

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More information on the safe excavation work can be found in the [Excavation Work Code of Practice 2013](#).

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