



The Essential First Step.

Best Practice Guide for Locating Underground Services

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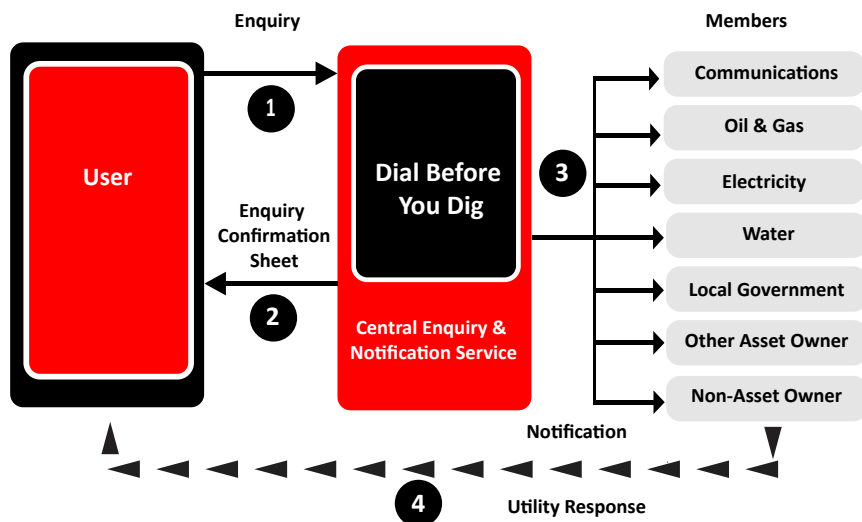
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The Dial Before You Dig service

Dial Before You Dig is a Not for Profit organisation that delivers a vital national community service designed to assist in preventing damage and disruption to Australia's vast infrastructure networks which provide essential services we use every day.

Most of Australia's major infrastructure asset owners are Members of Dial Before You Dig. Our unique service offers a single point of contact to request information about the infrastructure networks at the planned project site without the need to contact utility organisations individually. Dial Before You Dig is the essential first step in protecting Australia's vital infrastructure networks.

The Dial Before You Dig Service



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Guide to lodging a FREE enquiry

Lodging an enquiry is a simple process, which can be done in three ways:

- Online via the Dial Before You Dig website;
- Mobile website or iPhone app;
- By phone call 1100 (toll free, during business hours).

To lodge an enquiry online is a simple process. If you are new to the Dial Before You Dig service, just register as a new User first.

You will then receive an email confirming your user name and password. Keep these details handy and use them each time you want to review past enquiries or lodge a new enquiry.

To lodge your enquiry online, follow these three simple steps:

1. Enquiry Details

- Provide details of your project, including start and expected completion date, type of work and the location of your project.
- Tell us if you are working on behalf of a utility, council or private entity. All information provided will help Dial Before You Dig Members provide you with the correct information to assist your project.

2. Map Screen

- Use the search tools to locate your project location.
- Use the mapping tools to draw your proposed project site.
- Describe the project in detail so utilities can provide an accurate set of plans.
- Submit enquiry.

3. Enquiry Summary

- View a list of asset owners and their contact details that Dial Before You Dig have informed.
- Each utility class is identified by a symbol for easy identification.

Receiving Information

Plans are the most common form of information you will receive from infrastructure owners (generally within two business days) detailing the location of their assets.

These plans **DO NOT** come from Dial Before You Dig.

It is important NOT to proceed until you have received the relevant information from ALL asset owners affected by your project.

Should you require further information or assistance, asset owner contact details are provided on the Enquiry Confirmation Sheet.



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Process chart

Lodge a free enquiry via www.1100.com.au, a mobile device or by calling 1100 during business hours.

Dial Before You Dig will send you an Enquiry Confirmation Sheet, listing the asset owners affected by your project.

Plans from asset owners are usually received within 2 business days, detailing information about the affected asset.

Review the plans and any conditions associated with working around the affected asset.

Contact the asset owner directly for further clarification.

Visit the site with your plans to visually check if there are any unrecorded assets or services. If so, contact the asset owner as soon as possible.

Record any additional information you receive from any asset owner and create both a digital and hard copy file of the plans for your supervisor.

Before excavating, work out how you will verify the position of the assets. If there is any significant risk, call a certified locator.

If the risk is great, contact a certified locator and await their assessment; then record its location and depth on the supervisor's plans.

If the risk is small, and there is a good chance of finding the asset using the plans. Pothole by hand or use non-destructive excavation methods.

If requested by the asset owner, tell them when you will be working near their asset.

If damage occurs, contact the asset owner immediately and if possible, make the site safe.

Replace any material you excavate with the same material and compact as required, particularly on driveways and paths.

Keep a record of any excavation information you received and any notes you made until the project is done and file these with your construction files. In the case of damage, the asset owner may seek damages and your records may be useful in demonstrating your Duty of Care and compliance with best practice.

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Necessary procedures prior to commencing any excavation work

Before excavation work is carried out, the principal contractor for the worksite must:

- Lodge a FREE Dial Before You Dig enquiry online at www.1100.com.au, via a mobile device, the iPhone app or call the call centre toll FREE on 1100 during business hours.
- Once you have successfully lodged your enquiry, Dial Before You Dig will send you an Enquiry Confirmation Sheet.
- The Enquiry Confirmation Sheet enables you to verify the details supplied for your planned dig site location. It also provides you with the contact details of the infrastructure owners, registered with Dial Before You Dig, relating to your enquiry.
- It is important NOT to proceed until you hear from ALL asset owners affected by your project, usually within two business days. Should you require further assistance, use the contact details provided on the Enquiry Confirmation Sheet to contact the relevant infrastructure owner directly.
- Visit the dig site and inspect for any other underground or overhead assets that may have not been registered with Dial Before You Dig.
- Look for evidence of underground or overhead services that may be connected to any property but not recorded on the plans received from the asset owning Member.
- Review the plans and conditions sent by asset owners as they are received.
- Ensure that the current plans held are not out of the validity date period. A new enquiry is to be lodged with Dial Before You Dig if the scope of the project has changed or falls outside of the validity date periods of the plan.
- Record the information gained from any other asset owners or other parties with areas of interest not registered with Dial Before You Dig.
- Establish a digital and/or hard copy file of the Dial Before You Dig plans, documents and other identified assets or areas of interest that can be used on site by the excavator and other affected contractors.
- Plan how the actual position of the asset or area of interest can be verified prior to any actual excavation work commencing. Some examples of different planning solutions are:
 - Where the risks require the accurate location to be proved and recorded by GPS, use a certified locator to confirm the position, then pothole by hand or use non-destructive excavation methods to find the asset and record its accurate position digitally on the plans for the excavator and other affected contractors.
 - Where the risks are less and chances of finding the asset from Dial Before You Dig information are good, pothole by hand or use non-destructive excavation methods to find the asset at the excavation worksite.

- Review the excavation works, and if requested by the asset owner, advise them when works are to be undertaken near their asset or Area of Interest.
- Keep all your recorded information and notes until construction is completed.
- File together with the as-built drawings.

A subcontractor must not start any excavation work unless the principal contractor has either advised there are no affected infrastructure assets or in the presence of any assets, communicated the prescribed information appropriately to all contractors on site and a Job Safety Analysis (JSA) has been signed off.

The appropriate person must then consider the information and;

- Follow the asset owner's conditions and any reasonable restrictions; and
- Implement the appropriate control measures.

Where the principal contractor has an agreement that the subcontractor is responsible for the identification and protection of assets, the subcontractor's delegated person shall follow the necessary procedures prior to commencing any excavation work.

If any doubt remains, either party should contact the asset owner and seek clarification before starting excavation work.



- **Using the service by all excavators, planners, design engineers and asset owners**

All excavators, planners and design engineers have a responsibility to use the Dial Before You Dig service for all jobs involving excavation prior to commencing work. Particularly in NSW as it is compulsory to notify Dial Before You Dig of the time and place of work; no more than thirty days prior to commencement under the Electricity Supply (General) Regulation 2001 and the Gas Supply (Safety and Network Management) Regulation 2013.

An effective Dial Before You Dig service also depends on all asset owners registering their assets and providing information, usually in the form of plans, to Users within a timely manner. If an asset owner of even the smallest network or infrastructure that has any risk of being damaged is not registered with the Dial Before You Dig service, the User will have to look elsewhere for the information and may then decide not to use the service for future jobs, resulting in expensive damages or even possible injury to workers or the public.



Without the full support of the excavators, planners, design engineers and asset owners, the service loses its integrity and possibly its benefits to the Users and Members.

The benefits gained by having a free enquiry service that can provide the locations of all the registered infrastructure assets at a worksite, is dependent on getting all the information within the one enquiry.

If excavators do not use the service, and damage or accidents occur, asset owners suffer unnecessary costs and inconvenient service interruptions.

Dial Before You Dig places a high priority on safe site practices and on promoting and raising awareness of the service to excavators and asset owners.

- **Using the plans and to seek more information**

The Dial Before You Dig service relies on the asset owner sending the plans to the User following an enquiry to Dial Before You Dig, usually within two business days. Users must contact an asset

owner using the details provided on the Enquiry Confirmation Sheet:

- 1) If plans or information from the asset owner listed on the Enquiry Confirmation Sheet have not been received, or
- 2) If plans cannot be understood or require further explanation

Every effort must be made to find out what assets are within the vicinity of the worksite following safe site practices. The use of an underground asset locating device or a certified locator to verify the asset location shown on the plans sourced through the Dial Before You Dig service can save time before potholing by hand or employing other non-destructive excavation methods.

Original marked-up colour copies of plans (where appropriate) that are provided by asset owners must be on site. These plans should be kept as part of a file of all asset owner contact details and information, to demonstrate that a User has made all reasonable efforts to fulfil their Duty of Care.

- **Pothole prior to full excavation**

Potholing, excavating by hand or using non-destructive excavation methods along the underground asset is the preferred method and deemed best practice by the asset owners and the regulators to prove the existence and location of an asset. Additionally some asset owners have made it a mandatory requirement to expose assets before commencing any works. The excavator can use an underground asset-locating device or a certified locator to reduce the amount of hand digging needed to find the alignment of the asset.

Dial Before You Dig endorses the Work Safe No Go Zone guides (see page 10) for underground assets that recommend potholing by hand, or non-destructive excavation methods to prove the location for all types of underground assets.

- **Using underground asset location devices and services**

Underground asset locating devices are constantly being improved with new products and models helping reduce the time spent locating assets. Where a worksite includes many underground assets or where there are a large number of sites interfacing with underground assets, the use of an underground asset-locating device will reduce the amount of time potholing.

It is highly recommended to engage with certified locators who have the requisite skills and appropriate locating equipment to locate underground infrastructures.

Some locators will have specific training to meet the requirements of a varied set of asset owners; while some asset owners may specify their own certified locators who have had specific training and have access to specialised equipment to work on their infrastructure. If instructed by the asset owner through the plans provided, contact the recommended certified locator to locate their underground infrastructure.

Electromagnetic locating

Electromagnetic locating is the most frequently employed method used to detect underground assets made of or containing conductive materials such as steel or copper. Infrastructure assets such as water, natural gas, fuel lines, electricity and telephone would utilise this method of locating.

In order to detect these assets using the electromagnetic technique, a radio frequency is induced onto the asset which the signal is then carried by the conductor along its length and is detected above ground with radio frequency antenna.

When employed correctly, electromagnetic locating can be a safe and reliable means of locating the most common underground assets. It can also be used in combination with other techniques, such as ground penetrating radar and vacuum excavation, to identify the approximate location of underground structures.

Radar-based technologies

Another form of locating infrastructure assets are radar based methods such as ground penetrating radar and associated technologies which can be used to determine the approximate location of non-conductive underground infrastructure assets.

The employment of either electromagnetic or radar based technologies to locate underground infrastructure assets should be from a certified locator. Never rely solely on digital depth; operating the specialist equipment requires training and knowledge to interpret the results assessed by a certified locator.

- **Work within the No Go Zone guides**

Guides and information are available from state based authorities and asset owners that declare minimum clearance distances to the No Go Zone around particular assets. These guides recommend the provision of a Safe Work Method instruction and excavation practices, be it hand or machinery, within the No Go Zones. These can usually be found on the Duty of Care provided by asset owners.

To be able to satisfy a commitment to the Duty of Care statements, companies and excavators need to follow the No Go Zone restrictions for underground and overhead assets as set by each State's Safety Regulators and / or asset owners.

If a minimum clearance cannot be maintained, contact the asset owner immediately for additional information and guidance.



The Dial Before You Dig service is the Essential First Step of safe site practices and is the preferred method for obtaining information regarding the location of infrastructure assets. Using the service is referred as best practice in numerous industry publications.

Organisations or excavators representing an organization have a Duty of Care to locate underground assets that are within the vicinity of any worksite prior to any project commencement.

Irrespective of size, any excavation work has the potential to damage assets located around the worksite, leading to service interruptions, delays to the project, costly repairs and in the worst case scenario, injury or death.

In order to avoid these incidents, it is essential to recognise the Duty of Care to:

- Comply with local State and Territory Work Health and Safety (WHS) legislation and regulations, particularly the regulations that relate to Excavation Work Codes of Practice (refer Appendix B).
- Comply with any legislative requirements regarding the protection of particular asset owners' licensed infrastructure such as gas pipelines and transmission infrastructure.
- Protect workers and the public from serious injury due to the rupture of an underground asset such as a natural gas pipe, high voltage electricity cable, petroleum or industrial gas pipe. Any damage to these assets can cause very serious damage to structures and potential injury to many people.
- Minimise the potential for damage and loss of service due to damage or rupture of the same assets. Extensive networks can be closed down for long periods with serious

consequences of disruption and may incur penalties to the person causing the damage. The repair and replacement can be very costly.

Dial Before You Dig does not hold plans or detailed information regarding infrastructure assets. Enquiries are referred directly to our Asset Owning Members, who register and update their Area of Interest with Dial Before You Dig who in turn respond directly to the User with the appropriate information.

Information relating to the privately owned assets (e.g. private storm water pipes, or pipes and cables on the customers' side of the meter) that are located on private properties connected to asset owners' infrastructure is limited and enquiries should be made directly to the asset owner.

To obtain more information about a particular infrastructure asset, refer to the Enquiry Confirmation Sheet and contact the asset owner directly.

Underground services and assets registered with the Dial Before You Dig service include:

- Any underground service or asset within the road reserve that is from one property boundary line to another.
- Any underground service or asset laid within public owned open space, or rights of way, or easements on public property.
- Any underground service or asset within an easement, and in some cases on private property.

Excavators should always use the Dial Before You Dig service before commencing any worksite activity. It is also prudent to investigate the site themselves for evidence of any surrounding infrastructure assets as information packs from asset owners may not take into account:

- The installation of a new main or service belonging to an Asset Owning Member of Dial Before You Dig that has not yet been included on the asset owner's database and registered with the Dial Before You Dig service.
- An existing service or asset that has been altered or modified recently, and has not yet been updated on the asset owner's database.
- Construction plans that show the location of underground assets that may have been specified earlier by the project designer, but are no longer applicable.
- The chance that the owner of an asset may not be a Member of Dial Before You Dig, and will therefore not have registered the asset with the Dial Before You Dig service.

Plans provided by the asset owner only indicate the presence of infrastructure assets within the vicinity of the project site and DO NOT pinpoint the exact location.

Unfortunately not all of Australia's infrastructure asset owners are Members of Dial Before You Dig and assumptions SHOULD NOT be made that the plans received represent the only

infrastructure assets affected by the project worksite. If any infrastructure asset found at the worksite is not listed on the Enquiry Confirmation Sheet, the asset owner should be contacted directly. In order to protect their asset from future projects, refer the asset owner to Dial Before You Dig for Membership.

To avoid damage, you must first locate the pipes, cables or any other underground infrastructure by following the Four Ps of Safe Excavation guidelines to ensure the right steps are taken:

The Four Ps of Safe Excavation

Plan

Plan ahead by lodging your Dial Before You Dig enquiry at least two business days before starting any excavation to ensure you have the correct information and safety measures in place.

Pothole

To establish the exact location of all underground infrastructure, **pothole** if permitted using the asset owner's stated method as specified on the asset owner's plan and / or information pack.

Protect

If potholing has occurred, **protect** the infrastructure by using various methods; such as communicating to all working on site, erecting barriers and / or marking the location of the exposed infrastructure.

Proceed

You should only **proceed** with your excavation work after you have planned, potholed (unless prohibited) and have protective measures in place.

Never assume the depth, location or alignment of an infrastructure asset. If you have any doubt about the location of the underground assets, contact the asset owner using the details on the Enquiry Confirmation Sheet or engage with an certified locator if assistance is required to locate the infrastructure assets.

At every stage of the project, there are further measures that can be taken to ensure the safety of those involved in the project and others.



Duty of Care to prevent damage and reduce the risk of injury

The commitment to exercise a Duty of Care to prevent damage and reduce the risk of injury includes:

- Following any special requirements set by the asset owner for their own assets when digging around or near their asset.
- Potholing and digging by hand or using non-destructive excavation where required or as directed by the asset owner.
- In particular gas pipeline and directly buried cables, asset owners generally do not allow the use of hydro-excavation over a gas pipeline, unless specifically approved by them.
- Excavating safely that protects workers and the general public at all times. This will require carrying out risk analysis and if necessary, the implementation of safe work method-statements where risk levels are significant.
- Isolating the work near underground assets from the public at all times.
- Following the Four Ps of Safe Excavation protect any exposed infrastructure asset by using various methods; such as communicating to all working on site, erecting barriers and / or marking the location of the exposed infrastructure.
- Reinstatement of any protective measures as directed by the asset owner including slabs, tapes or filling materials.



The Dial Before You Dig service is a useful and necessary tool for planners and design engineers, as infrastructure assets often impact on any construction works that involve excavation. The approximate location and depth of assets is critical in the planning and design process and information used in the design allows the works to be constructed in accordance with the plans. This reduces the risk of damage or injury and allows the works to be constructed without undue delays.

The location of infrastructure assets allows the planners to cost the works and plan around existing services. Long expensive delays can be caused when existing services are not identified early in the project and have to be relocated.

Planners and designers have a responsibility to provide as much legitimate and detailed information regarding infrastructure assets as possible on construction plans.

While a further enquiry will be lodged providing more recent information when construction commences, the information provided on the preliminary tender and construction plans is important to those tendering for and planning the work processes and to others that are required to review and approve the plans.

Planners and design engineers should consider:

- Showing the location of underground assets in different colours on each construction plan as per AS 5488.
- Providing details of the date of the latest Dial Before You Dig enquiry as well as confirmation that the plans show the latest information.
- Providing a statement that these plans have been designed with the latest information from asset owners received via the Dial Before You Dig service.
- Potholing by hand, non-destructive excavation methods or a certified locator to verify the location of assets as part of the design process.
- Consulting with affected asset owners regarding submitting a single detailed enquiry for large scaled projects instead of multiple individual enquiries.

Please note the Dial Before You Dig service is used primarily for excavation enquiries and some asset owners may treat planning and design enquiries differently to excavation activities. Charges may apply for the information provided and usually take longer to compile; up to ten (10) working days.

Organisations or excavators representing an organisation undertaking works in the road reserve must have in operation a traffic management plan as required by the appropriate State Authorities (i.e. road authorities). The authority should be able to provide guidance in preparing traffic management plans.

Unless specifically exempt, excavations within the road reserve require the prior written consent of the coordinating road authority responsible for the particular road reserve. Consent may not be provided unless evidence that an enquiry has been made to the Dial Before You Dig service.

The road reserve is defined as the area between property boundary lines.

The organisations or excavators representing an organisation is responsible for the work undertaken and must manage them in a manner that minimises damage to the road, surrounding road infrastructure, minimises disruption to road users and protects any significant roadside vegetation.

Further detail on the requirements when proposing to conduct excavations and other related work within the road reserve can be found by contacting the relevant State Authorities (i.e. road authorities).

If the excavation work to be carried out involves emergency type conditions or the timing makes it impractical to wait for the Dial Before You Dig service responses, then there are alternative methods available. These include:

- Lodging an enquiry with the Dial Before You Dig service and using the Confirmation Enquiry Sheet details to contact the asset owners while at the worksite.
- Utilising the Dial Before You Dig service online to look up the relevant emergency contact details for asset owners in your area and contact them.
- Maintaining a contact list associated with the authorities that can be contacted for location and advice regarding infrastructure asset during out of hours periods.
- Employing certified locators who have knowledge and an awareness of the locations of assets and the requirements of each asset owner. Some asset owners may provide a list of certified locators specific to locating their infrastructure asset.

- Generally it is the employees of an asset owner or their subcontractors that carry out emergency work. These employees or subcontractors must have experience and / or be accredited by the asset owner to work on their infrastructure.

12 Locating and marking practices

The Australian Standard Classification of Subsurface Utility Information (SUI) - AS 5488 recommends the utility code and line colour for each subsurface utility type. It is a 'mapping' standard that specifies requirements for recording the details of newly installed utility infrastructure that should be applied during the design and construction phase. It also recommends these standard practices be used for maintaining existing records of subsurface utility assets, networks and infrastructure.

The codes and colours AS 5488 recommends will facilitate easier identification of different subsurface utilities on plans, electronic versions and in the field. It recommends standard marking symbols and colours to be utilised to clearly indicate:

- What the infrastructure asset is (i.e. gas, water, telecoms, and sewer etc).
- What infrastructure asset is presented (number and size of pipe work, including orientation if available).
- The direction of the infrastructure asset.
- The suggested depth of the underground asset.

While Dial Before You Dig supports the use of the Australian Standard Classification of Subsurface Utility Information (SUI) - AS 5488, not all asset owners have adopted this practice. It is encouraged that organisations or excavators representing an organisation still employ the Four Ps of Safe Excavation and / or engagement of a certified locator when locating infrastructure assets.

13 Considerations for safely locating infrastructure assets

It is the responsibility of the organisations or excavators representing an organisation to establish when and how the infrastructure asset will be identified. Excavators have a particular Duty of Care to protect workers and the community from serious injury due to the rupture of infrastructure assets.

In Australia, each state and territory has its own WHS legislation and most States have new legislation that specifically refers to the Safe Work Australia Model Code of Practice for the Construction Industry, which provides practical guidance to principal contractors and other persons who carry out construction work, including excavation work.

The Safe Work Australia Code of Practice (and the state WHS Acts and Regulations that reference

the Code) refers to Regulation 304 that says excavators should take all reasonable steps to obtain infrastructure asset information before commencing any excavation work.

Employers also have a general obligation to provide a safe and healthy workplace for their workers and contractors. This includes providing and maintaining safe systems of work and making sure workers have adequate information, instruction, training and supervision to work in a safe and healthy manner. Employers must also ensure other people including members of the general public, are not endangered by the conduct of their business by providing protective measures, such as erecting barriers around construction pits or any exposed infrastructure asset.

All hazards associated with locating infrastructure assets need to be identified and appropriate controls and measures conforming to federal, state/territory, local and industry standards and WHS legislation should be established.

Pre-work safety considerations:

- **Site background data.** Site information is gathered to determine hazards, exposures and / or other potential safety problems that might be encountered in connection with on-site location work. This information may be gathered from the asset records and from visual inspection.
- **Site familiarisation.** Site characteristics which could affect location work are analysed. Areas to be considered include:
 - **Obstructions.** The site is analysed to determine if physical obstructions are present on the property, which would make locating assets unsafe. Measures would need to be in place to work around obstructions.
 - **Traffic.** Vehicular arteries (highways, roadways, railways, etc.) at the worksite need to be identified to determine if such traffic would pose any safety hazard when locating assets. Measures such as the need for road traffic and pedestrian management controls to be in place.
 - **Physical site conditions.** Soil conditions and other factors (such as trenches, pits, bores, standing water, etc.) that could affect the safety of the job site are identified. Measures would be needed to be developed to identify and safely work around these hazards.
 - **Observations.** Observe the worksite closely and look for clues of surrounding infrastructure assets; such as pits, marker posts, warning signs, meters, etc. Changes may have occurred to the area without the knowledge of the asset owner due to other project works, changing the alignment and / or depth of the infrastructure asset.
- **Emergency Situations.** Information regarding safety procedures should be established and on site in the event of an accident or incident (such as an employee illness). Details such as the location and contact information of the nearest hospital, police, fire and

emergency services. In addition, access routes and travel plans to emergency response facilities are defined.

- **Work plan.** Work plans in which procedures and process, employee roles, equipment requirements, time requirements and other factors are considered and developed to define the most efficient means for safely accomplishing required location work.
- **Job briefing.** Information developed in the preceding items is used to conduct a job briefing, prior to commencement of locating infrastructure assets. The job briefing focuses on safety aspects of the required work.

Work safety considerations when locating infrastructure assets

- **Road traffic and pedestrian management/control capabilities** are provided to ensure the safety of personnel on site and the general community in situations where infrastructure asset locating disrupt road traffic or pedestrian flow or otherwise occupy hazardous positions. All employees on site should wear the appropriate safety attire for adequate visibility of the worker and personal protection against hazards.
- **Equipment.** All equipment used in connection with locating work is suitable for the intended uses. Items such as ladders, electrical test devices and other instruments are inspected from a safety perspective prior to use. Safety features such as locking devices, grounding, insulation, etc. are also required to be thoroughly inspected.
- **Exposures.** In cases where location work requires personnel to enter into spaces with potentially unsafe conditions, appropriate training and testing is accomplished prior to entry. During times when such spaces are occupied, adequate monitoring and / or ventilation devices are present and properly operating during occupancy. Some asset owners have restrictions in place when working in Confined Spaces, requiring specific training, equipment, notifications prior to commencing work and additional supervision at all times.
- **Work activities.** All locating work activities are conducted with safety given first priority. All employees are thoroughly trained and briefed regarding safety measures such as minimising exposures to potentially hazardous conditions, avoiding unnecessary risks and placing safety as a priority.

Post work safety considerations

- **Termination of work activities.** After locating work is completed, the site is restored and left in such a condition that no safety hazards associated with the locating work activities remain. All personnel and equipment utilised in connection with the work are accounted for and no unsafe conditions remain at the site. Any safety-related equipment used in connection with the work is returned and / or restored to pre-work status.
- **Debriefing.** After completions of locate work, a debriefing safety review of work activities should be conducted to review any applicable Safe Work Method Statements (SWMS) and Job Safety Analysis (JSA) reports initiated prior to the start of work. These reviews

are conducted with the objective of looking at the safety aspects of all work processes involved and identify where unnecessary exposures may have occurred and where improvements could be made.

14 Reinstatement and restoration of the excavation

All infrastructure assets must be restored to the condition required by the registered asset owner. You will generally be required to replace all embedment material with the same material and provide compaction if the embedment material is disturbed.

Please note the bedding and backfill requirements may be different to the construction standards when the asset was originally installed.

Written consent issued by road authorities provide details of the requirements for backfilling and reinstatement of any excavated areas of roadway, pathway or roadside. Organisations or excavators representing an organisation must satisfy all these consent requirements.

Records of the consent history of any work undertaken and the reinstatement completed, should be filed with the job file. The excavator should close out the consent by advising the relevant road authority once the work has been completed.

15 What to do if an infrastructure asset is damaged

If any damage occurs to an infrastructure asset, immediately contact the relevant asset owner via the contact numbers provided on the Enquiry Confirmation Sheet, on the plans from the asset owner or via any other emergency contact details.

Damage to an infrastructure asset does not just mean rupturing a pipe or cable; it includes damage to tracer wire, marker tape or pipe coating; pipeline protection such as slabbing and casings; when you mistakenly bury valves; any street furnishings owned by an asset owner; manhole covers; removal of signage etc.



As-built Drawing: A detailed depiction of facilities as installed in the field.

Area of Interest: The geographical area in which an Asset Owning Member has underground infrastructure, and registers it with Dial Before You Dig. If an enquirer intends to excavate within this geographical area, a referral will be sent to the Asset Owning Member, who in turn contacts the enquirer.

Asset: An underground or submerged conductor, pipe or structure used in providing electric or communications service (including, but not limited to, traffic control loops and similar underground or submerged devices), or an underground or submerged pipe.

Asset owner: Any person, utility, municipality, authority, political subdivision or other person or entity who owns, operates or controls the operation of an underground asset.

Backfill: To fill the void created by excavating.

Compliance: Adherence to the statute and its regulations.

Confined Space: Confined space as defined in Australian Standard AS/NZS 2865 confined spaces. It is an enclosed or partially enclosed space that is not intended or designed primarily for human occupancy, and may include a vat, tank, pit, pipe, duct, flue, chimney, silo, container, pressure vessel, underground sewer, wet or dry well, shaft, trench or tunnel.

Damage: Any impact or exposure that results in the need to repair an underground asset due to a weakening or the partial or complete destruction of the asset, including, but not limited to, the protective coating, lateral support, cathodic protection or the housing for the line, device or asset.

Damage Reporting: The immediate reporting to the relevant asset owner/operator of any damage made or discovered in the course of excavation work. To alert immediately the occupants of premises as to any emergency that such person may create or discover at or near such premises. If the situation warrants contact 000 emergency as soon as possible.

Designer: Any architect, engineer or other person who prepares or issues a drawing or blueprint for a construction or other project that requires excavation or demolition work.

Dial Before You Dig: The Dial Before You Dig referral service is for anyone to make an enquiry for plans and documentation from asset owners to enable location of all utility services prior to excavations.

Digital Imagery: A computer compatible version of land related information including, for example, topography, physical features, road/street networks and buried asset networks obtained from a variety of sources including, for example, aerial photographs, satellite photographs, road maps, survey plans and buried asset records.

Enquiry Confirmation Sheet: A confirmation email sent by Dial Before You Dig to the User as a result of an enquiry to Dial Before You Dig, detailing the job number, asset owners and their contact details.

Excavate or Excavation: Any operation using non-mechanical or mechanical equipment or explosives used in the movement of earth, rock or other material below existing grade. This includes, but is not limited to, auguring, blasting, boring, digging, ditching, dredging, drilling, driving-in, grading, ploughing-in, pulling-in, ripping, scraping, trenching, and tunnelling.

Excavator: Any person proposing to or engaging in excavation work for themselves or for another person.

Facility: An underground or submerged conductor, pipe or structure providing electric or communications service (including, but not limited to, traffic control loops and similar underground or submerged devices), one providing, gas, oil or oil product, sewage, storm drainage, water or other liquid service (including, but not limited to, irrigation systems), and accessories to it.

Facility Owner/Operator: Any person, utility, municipality, authority, political subdivision or other person or entity who owns, operates or controls an underground line/facility.

Grounding Systems: A system of one or more ground conductors or ground rods providing a low resistance path to earth ground potential, through a mechanical connection to structures, conductors and equipment.

Ground-penetrating Radar: A geophysical method that uses radar pulses to image the subsurface. This non-destructive method uses electromagnetic radiation in the microwave band (UHF/VHF frequencies) of the radio spectrum, and detects the reflected signals from subsurface structures.

Latitude (Lat): Distance measured north or south of the equator.

Longitude (Long): Distance measured east or west from a reference meridian (Greenwich).

Marking Standards: The methods by which an asset owner/operator indicates its line or asset in accordance with their standards.

No Go Zone: The specified clearance area surrounding underground or overhead assets, which will vary depending on the type of asset from 300mm to 3000mm. Some asset owners require greater clearances that will specify when responding to an asset enquiry.

Non-conductive Assets: An asset composed of material that does not conduct electricity or electromagnetic radiation and does not have a tracer wire affixed or in close proximity to enable the detection by locating equipment e.g. plastic pipe, optic fibre cable.

Pothole: Exposure of an asset by careful hand digging to locate the precise horizontal and vertical position of underground infrastructure.

Project Owner: The person responsible for the undertaking of a project that involves excavation.

Regulations and Industry Codes: Work Health and Safety (WHS) Regulations being enacted across Australia to harmonise work health and safety laws, coordinated by Safe Work Australia. Industry Codes (or Codes of Practice) provide practical guidance to Project Owners and people doing excavation and construction work on how to meet legal regulatory requirements.

Road Reserve: The road reserve is the land controlled by the local road authority that is located between one property boundary line and the property boundary line on the other side of the road reserve.

Subsurface Utility Engineering (SUE): An engineering process for accurately identifying the quality of underground utility information needed for excavation plans for acquiring and managing that level of information during the development of a project.

Vacuum Excavation: Vacuum excavation is defined as a means of soil extraction through vacuum; water or air jet devices are commonly used for breaking the ground.

The references contained here are intended to be supplemental references for existing and/or new practices found within the Best Practice Guides.

Dial Before You Dig

- Online Service Guide
- Service Guidelines for Victoria
- The Essential First Step (Brochure)
- Home Owners' Guide (Brochure)

Safe Work Australia (as referred in WHS legislation in all states (except Vic and WA)

- Excavation Work Code of Practice
- Construction Work Code of Practice

Standards Australia

- Classification of Subsurface Utility Information (SUI) AS 5488
- Pipelines - Gas and liquid petroleum - General requirements AS 2885.0

Queensland

- Cooperative Research Centre (CRC) - Guide to Best Practice for Safer Construction

New South Wales

- WorkCover NSW
 - Work Near Underground Assets: Guide
- NSW Streets Opening Conference - Guide to Codes and Practices for Streets Opening

South Australia

- SafeWork SA
 - Construction Site Safety 1
 - Trenching and Excavation
 - SA Building and Civil Construction Industry Common Site Safety Induction Course Pocket Book

Victoria

- WorkSafe Victoria
- Framework for Undertaking Work near Overhead and Underground Assets
- Guide for Undertaking Work near Underground Assets
- VicRoads
 - The Code of Practice for Worksite Safety - Traffic Management

Western Australia

- Occupational Safety and Health Regulations (WA)
- WA Utility Providers Code of Practice
- WorkSafe WA Code of Practice - Excavation
- WorkSafe WA Guideline - Horizontal Directional Drilling

Overseas

- TSA (UK) - The Essential Guide to Utility Surveys
- Common Ground Alliance (USA) - Best Practices
- Infrastructure Resources (USA) - Excavation Safety Guide and Directory
- NZ Utilities Advisory Group - National Code of practice for Utility Operators' Access to Transport Corridors

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The Essential First Step.