Excavation

HSEQ Operational Procedure

What this procedure describes

How to pole bore, trench and work near essential services and TasNetworks assets.

Note: This procedure does not cover the risks associated with tunnelling and shafts.

Why it is required

- To manage the risks associated with performing excavation work and manage the risk of damaging assets and infrastructure during excavation work.
- TasNetworks is required to manage the risks associated with excavation in accordance with the *Work Health and Safety Act* 2012, the *Electricity Supply Industry Act* 1995 and the *Environmental Management and Pollution Control Act 1994*.
- The procedure supports the TasNetworks goal of Zero Harm.

Who it applies to and when

This procedure applies to everyone working for or on behalf of TasNetworks.

Authorisation	
Issue date	Aug 17
Authorised by	GM Works and Service Delivery
Review Cycle	3 years

Revision History	
Date	**Revision Details**
17/04/2014	Aurora original issue
03/2011	Transend original issue
Aug 2017	TasNetworks original issue
June 2018	General review – metadata change status to approved

Contents

1. What is excavation work?

Excavation work means any form of excavation into the ground, the removal of soil or rock to form an open face, hole or cavity using tools, machinery or explosives. At TasNetworks, trenching work is required. The principles in the procedure shall be complied with as the minimum where there is no specific detailed Work Practice, Code Of Practice or Guideline that applies.

Where there is a risk of a compromised atmosphere e.g. depleted oxygen or exposure to harmfull gasses such as carbon monoxide including trench callapse; refer to the Confined Space Procedure .

2. The risks associated with excavating

Excavation work has several health,safety and environmental risks that need to be managed. People involved with excavation work are at risk of falls, exposure to essential services (below and above ground), being trapped by collapsed earth, being struck by a falling object (tools or materials being used) or being exposed to an airborne contaminant (such as solvent being used during work).

Erosion, sedimentation, dewatering, contaminated acid sulphate soils and Aboriginal heritage may need to be managed. TasNetworks Environmental Handbook provides information about how to address these hazards. Environmental risks are also managed within TasNetworks by using Project Environmental and Safety Assessment (PESA), Environmental Management Plans and work permits.TasNetworks is required to manage these risks at the excavation site including the manner the work will be performed.

3. Planning and risk assessment for excavation work

People, such as the: TasNetworks project representative; the principal contractor (if applicable); the excavation contractor; designers; plant operators; traffic controllers; and workers need to be consulted to reach agreement on how the excavation work is to be performed. Any risks need to be managed and recorded in project management documentation (the 'work pack'), the job risk analysis (JRA) and/or Safe Work Method Statements (SWMS).

Planning involves discussing the following factors with all people involved with the work and deciding on how to control any risk before the work begins:

Factors that must be considered when planning pole boring and other excavations less than 1.5 metres in depth:

- Any existing essential services and their location;
- Permits, equipment and arrangements needed to manage environmental risk. Note: some industrial sites may require the contractor to seek a permit prior to undertaking any excavation or ground penetration work on their site. The

contractor must determine and comply with any such requirements at the planning stage.

- What exposures might occur, such as noise or hazardous chemicals (e.g. ingress of hazardous fumes into the excavation);
- Public safety, controlling unauthorised access and safety of workers;
- Local site conditions, including: access, ground slope, adjacent buildings and structural stability, water courses (including underground seepage) and trees i.e. static and dynamic loads near the proposed excavation;
- Interaction with other trades;
- Any specialised plant or work methods required (for example, ground support);
- The method(s) of transport, haul routes and disposal (i.e. when transporting poles);
- Type of equipment used for excavation work (for example, mobile plant needs to suit site access, height restrictions, ground conditions, etc.);
- Management of excavated material (including fly rock contacting surrounding structures), erosion and sedimentation; disturbance of contaminated soil (e.g. hydrocarbons, asbestos);
- Disturbance of environmental values including Aboriginal relics, historic artefacts, threatened plant and animal species or communities;
- Managing vehicular traffic and ground vibration to prevent impacts on the excavation or surrounding structures;
- Local weather conditions;
- Whether a soil and water management plan is required prior to excavation; and
- The controls from this procedure that apply to excavations within transmission line easements.

Additional requirements for trenching and other excavations greater than 1.5 metres

The following requirements are needed in addition to the factors provided above:

- Public safety and controlled unauthorised access with consideration to the length of time the excavation will be open (i.e. isolating the site with more permanent fencing and security);
- Contractors and subcontractors must have a SWMS prepared;
- Providing access to the excavation (i.e. a ladder excavated steps and/or ramps);
- Soil properties, including: variable soil types, stability, shear strength, cohesion, presence of ground water, and effect of exposure to the elements;
- Fractures or faults in rocks, including: joints, bedding planes, dip and strike directions and angles, and clay seams; and
- Stationary and moving loads near the excavation.

3.1 Risk Assessment

The contractor must conduct a risk assessment prior to the commencement of any excavation. Items identified as relevant during the consultation and planning process above in Section 3 must be addressed in the risk assessment.

In addition, the risk assessment must give consideration to the hazards listed below:

- public safety;
- unplanned contact with any underground services (direct buried or protected);
- unplanned contact with overhead electrical conductors or structures, or encroaching on safe approach distances;
- potential damage to or disturbance of substation earth mats;
- persons falling into the excavation; and
- access and emergency egress of persons to and from the excavation or adjacent sites.

A copy of the risk assessment for the excavation works must be made available on site and provided to TasNetworks. Where stipulated by TasNetworks, safe work methodologies must be provided to TasNetworks for review prior to the commencement of excavation work. The excavation risk assessment may be submitted as an appendix of the contractor's safety management plan, developed under the Procurement Policy.docx

3.2 Risk Control

The system of work and control measures selected must be determined by individual job factors identified by the planning and risk assessment processes. They must meet therequirements defined in the contract documents and the hierarchy of controls (elimination, substitution, isolation, etc) specified in the *Work Health and Safety Regulations 2012.*

The following control measures are mandatory:

a) cable locators must be used in an initial survey to assist with the identification of undergroundservices;
b) the ground must be clearly marked to identify the proposed excavation area or path;
c) proposed excavations must be highlighted on works drawings;
d) civil excavation drawings must be overlaid with electrical (cable layout or Dial Before You Dig) drawings to assist with the identification of underground services. If this cannot be achieved a copy of both drawings must be issued to the personnel undertaking the excavation;
e) a copy of the drawings with the highlighted excavation area or path must be issued to personnel undertaking the excavation e.g. the machine operator. A copy of the drawing must be kept on the excavation machine or in close proximity to the excavation site at all times for persons to reference;
f) where a proposed excavation crosses the path of, or runs parallel to and within *200mm of a distribution cable or 300mm of a transmission cable* that is energised

and direct buried, isolation of the direct buried service must be requested. Where isolation of the service is not practicable the contractor must develop and have approved by TasNetworks, a detailed excavation safe work methodology prior to the excavation work commencing; refer Section 8.1 of this document.

g) when a trench is excavated to within approximately one metre of a direct buried service, mechanical excavation must stop and hand digging must occur to positively identify the service. A safety observer must be appointed at this stage;
h) where underground services (direct buried or protected) cannot be accurately identified, 'trial' pits (pot holes) are to be dug at appropriate intervals along the proposed excavation path to assist in identifying services. Trial pits must be dug by hand held tools;
i) a safety observer must be used where machinery has the potential to breach safe approach distances, or where the excavation path crosses or is in close proximity to underground services (direct buried or protected);
j) Dial Before You Dig services must be contacted (phone 1100) for all proposed excavations outside of substation environments;
k) excavations with vertical walls higher than 1.5 metres must be adequately supported or benched to prevent earth, rock or other material from burying, trapping or striking workers within the excavation;
l) trenches considered to be confined spaces based on the risk of potentially containing concentrations of airborne contaminants that may cause impairment, loss of consciousness or asphyxiation' will require the following control measures:
    - Confined space entry permit;
    - Signage during confined space entry;
    - Communication and safety monitoring;
    - Specific control of the atmosphere;
    - Emergency procedures;
    - Personal protective equipment in emergencies;
    - Information, training and instruction of workers; and
    - Confined space entry permit & risk assessment record keeping.
m) at the end of each working day, all open excavations must be provided with edge protection (barriers or fences) that are clearly visible to prevent persons or live stock from falling into the excavation. Covers of adequate strength and size, which cannot be dislodged by livestock, may substitute barriers and fencing;
n) excavations of depth greater than 2 metres must be provided with edge protection at all times. Access points to the excavation may be left open during working hours;
o) inspection holes may be exempt from items (l) and (m) provided that the hole is open for short duration only, and there is a safety observer in attendance at all times while the hole is open.The risk assessment must determine whether shoring is warranted for inspection holes;
p) excavations around transmission towers must not expose more than one foundation/tower leg footing at a time, as the integrity of the tower itself can be greatly affected;
q) trailing earths must be applied to excavation machinery when working within transmission substation boundaries and where specified by TasNetworks under transmission lines;

r) where substation earth mats are damaged during excavation work, temporary repairs using approved earth bonds or jumper leads are to be made immediately. All earth mat repairs (temporary or permanent) are to be made by a qualified electrical technician;
s) where TasNetworks or the contractor identifies potentially contaminated soil, it must be tested to determine the level of contamination by a suitably qualified person in accordance with the relevant Australian Standards;
t) contaminated material which requires offsite disposal must be classified, transported and disposed of in accordance with the Waste Management Procedure.docx
u) Copies of transport and disposal permits/authorities must be kept by the contractor and provided to TasNetworks on request;
v) persons exposed to, or required to handle contaminated soil must follow any safety precautions, handling and personal protective equipment requirements as specified on the relevant material safety data sheet for the identified contaminant. In particular, where Polychlorinated Biphenyls (PCBs) are identified in contaminated soil, disposable overalls, chemical resistant gloves and eye protection must be worn when handling such soils;
w) the maximum peak particle velocity (PPV) resulting from blasting must not exceed 200mm/s at any transmission tower footing, and where practicable should be limited to 100mm/s. If PPV levels are anticipated to be between 100mm/s and 200mm/s, the contractor must contact TasNetworks to obtain approval for the associated blast management plan; and
x) the contractor must put in place suitable equipment and materials, supported by appropriate procedures and training, to respond to likely emergency situations. All persons involved in the works must be familiar with and understand emergency procedures.

4. Contaminated soils

There have been several incidents of exposure to gas deposits and other contaminants in the soil in the Hobart central business district in recent years (Figure 1).

Figure 1: Location of contaminated soils (Hobart CBD - TasNetworks Safety Alert #63 2012)

Prior to commencing any planned excavation work in the highlighted area of Figure 1, a full risk assessment must be conducted in consultation with safety and environmental advisors. Refer to Old Town Gas Pipes Actions Required at: http://www.justice.tas.gov.au/building/gas/old_town_gas_pipes.

Prior to commencing any unplanned (fault response) excavation work in the highlighted area of Figure 1, potential soil contamination must be considered as part of the pre-start risk assessment and the following controls must be used as a minimum:

- Wear impervious gloves to avoid contact with soil and liquids;
- Agree on an emergency meeting point at least 20 metres away from the worksite and an alarm signal;
- Use monitoring equipment continuously to detect gas emissions from the soil; and
- Contact emergency services on phone 000 or 112 in the event of an emergency.

5. Essential services

Gas, water, sewerage, telecommunications, electricity, chemicals, fuel and refrigerant in pipes or lines must be identified at the site and adjacent to the site before work begins. Contact Service Locations Officers to conduct Dial Before You Dig to access this information.

6. When to seek advice from a Geotechnical Engineer

Advice from a competent person (a person with skills and knowledge gained from training, qualifications and experience), such as a geotechnical engineer may be required when:

- An excavation is below the level of the footing of any structure (including retaining walls) that could affect the stability of the structure;
- Designing the benching and battering of excavated walls, hydraulic shoring systems or ground anchors;
- Information on the stability and safety of a trench is needed (for instance, if there is uncertainty);
- An exemption from using shoring, benching or battering for an excavation that is more than 1.5 metres deep is being sought;
- Vibration or concussion could adversely affect other buildings; and/or
- There is a risk of engulfment.

7. Notification to de-energise assets

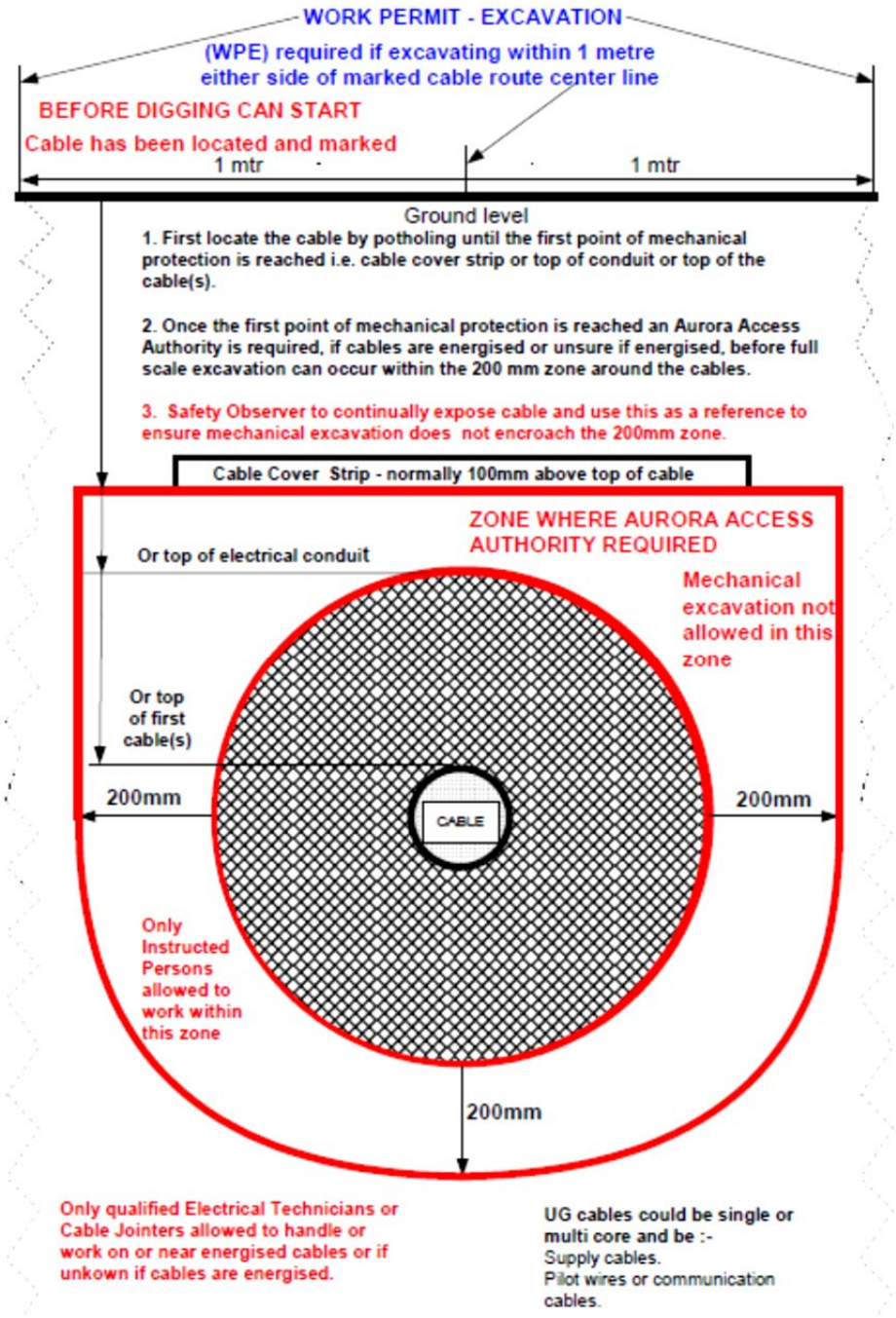
If excavation is to occur within one metre of an energised cable or in the proximity of overhead assets refer to the TasNetworks Power System Safety Rules (PSSR) Power System Safety Rules {Tables 3 and 4}, if the cable or O/H assets needs to be de-energised, 14 days notice is required. Notifications need to be provided to the TasNetworks Distribution Operations on (03) 6208 7807 (Southern Tasmania) or (03) 6208 7808 (Northern Tasmania).

Contractors and subcontractors engaged by TasNetworks must confirm with their TasNetworks Representative that notification has been provided to the relevant areas of the business.

8. Excavation work permit

When excavating within a one metre radius of an energised underground cable or if unsure if energised, an excavation permit is required (refer to Figure 2). This permit can only be issued by a Person In Charge (PIC) according to the PSSR. A new permit must be issued each day with all relevant parties signing on/off; and the original copy must be kept on site for audit purposes.

Figure 2: Work locations requiring a work permit or an access authority for an existing cable



8.1 Access authority

Where excavation is required within a 200 mm radius of energised highvoltage or low voltage cables an access authority must be issued by an issuing officer authorised under the PSSR. If there is any uncertainty as to whether the cable is energised or not, it will be assumed that it is energised.

Distribution Overhead Line Design and Construction Manual.pdf

Distribution Underground Cable Design and Construction Manual

Transmission Manual

9. Conducting excavation work

9.1 Securing the work area

An open trench or excavation that is 1.5 metres or more deep must be secured from unauthorised access at all times. There are several ways in which a site can be secured:

- Establishing an exclusion zone two meters back from the edge ;
- Using bollards with 'DANGER' tape/ extendable barriers;
- Using bollards with high visibility net fencing;
- Using a sufficient number of traffic cones and extendable barriers to barricade the area; and/or
- Using temporary fencing for more substantial construction works.

9.2 Potholing

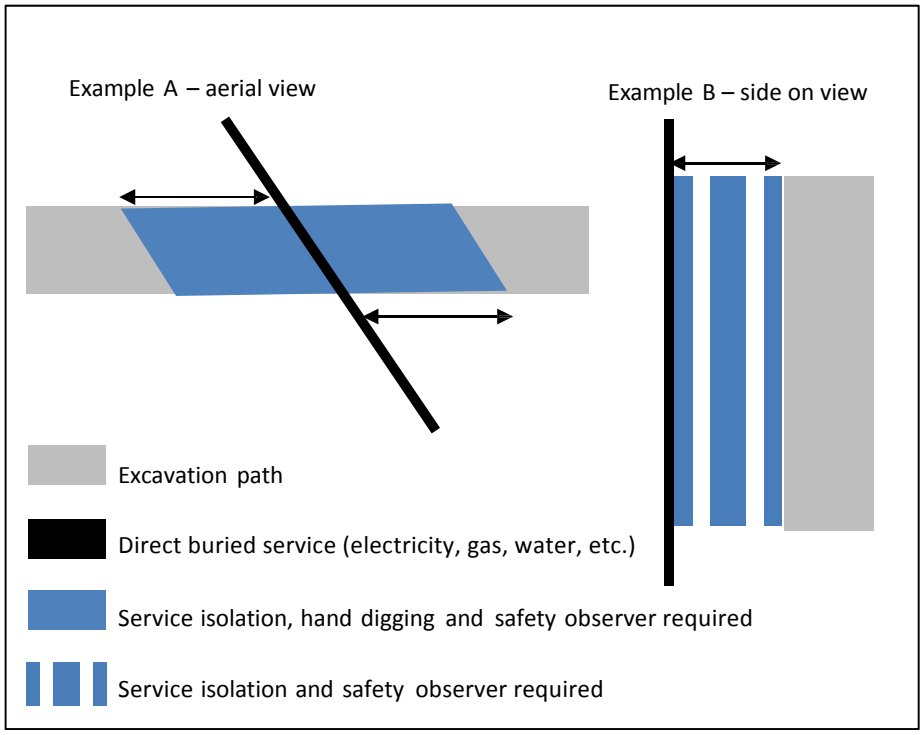
Before excavation commences, the location of cable routes should be marked. This could be done using a cable locator; with a one-metre approach distance on either side.

Because essential services information is not always accurate, a small section of the excavation site should be carefully exposed to confirm that the underground cabling is present and in the correct location.

Trial pits must be dug by hand held tools or vacuuming until the: cable cover strips, electrical conduits or top of the cables appear (refer 3.2 (h) & (g) above).

When a trench is excavated to within approximately one metre of a direct buried service, mechanical excavation must stop and hand digging must occur to positively identify the service (Figure 3). A safety observer must be appointed at this stage.

Figure 3: Excavating in the proximity of a direct buried service



10. Controls

Businesses are required to work through the following hierarchy of controls to achieve the highest level of protection that is reasonably practicable in the circumstances. With the exception of the controls provided as 'where possible', all of the following controls apply to each excavation site that is 1.5 metres in depth or more.

The system of work and control measures selected must be determined by individual job factors identified by the consultation and risk assessment processes (Sections 3 and 3.1) as well as any requirements defined in the contract documents and the hierarchy of controls (elimination, substitution, isolation, etc.) specified in the *Work Health and Safety Regulations 2012*.

Table 1. Controls for Excavation

Level	Task	Control methods
Level 1	Eliminate the risk	• Use technologies or a structure that eliminates the need to excavate in the future, where possible.
Level 2	Substitute the technique used to excavate	• Use an excavator with a rock breaker rather than using a jackhammer, where possible.
Level 2	Isolation of the worksite	• Use barriers to separate pedestrians and vehicles from the worksite. • At the end of each working day, all open excavations must be provided with edge protection (barriers or fences) that are clearly visible to prevent persons or live stock from falling into the excavation. Covers of adequate strength and size, which cannot be dislodged by livestock, may substitute barriers and fencing. • Excavations of depth greater than 2 metres must be provided with edge protection at all times. Access points to the excavation may be left open during working hours. Note: inspection holes may be edge protection provided that the hole is open for short duration only, and there is a safety observer in attendance at all times while the hole is open. The risk assessment must determine whether shoring is warranted for inspection holes.

Level	Task	Control methods
Level 2	Engineering controls	• Bench or batter trenches. Excavations with vertical walls higher than 1.5 metres must be adequately supported or benched to prevent earth, rock or other material from burying, trapping or striking workers within the excavation (*Appendix A – Trenching Guidance)*; • Use pumps or other dewatering systems to remove water and prevent build-up. • Choose suitable plant, for example, choose the right sized excavator. • Choose plant that is suitable for the haul route and travel and tipping conditions. • Install ramps or cut away steps to avoid falls. • Use mechanical ventilation where air quality is poor. • Excavations around transmission towers must not expose more than one foundation/tower leg footing at a time, as the integrity of the tower can be affected. • Trailing earths must be applied to excavation machinery when working within transmission substation boundaries and where specified by TasNetworks under transmission lines. • Where substation earth mats are damaged during excavation work, temporary repairs using approved earth bonds or jumper leads are to be made immediately. All earth mat repairs are to be made by a qualified electrical technician. • The contractor must put in place suitable equipment and materials, supported by appropriate procedures and training, to respond to likely emergency situations. All persons involved in the works must be familiar with and understand emergency procedures.

Level	Task	Control methods
Level 3	Administrative controls	• Clearly mark the ground where to identify the proposed excavation area or path. • Where a proposed excavation crosses the path of, or runs parallel to and within 300 mm of an energised direct buried service, isolation of the direct buried service must be requested (Refer section 8.1 of this document). • Install warning signs near the excavation. • Obtain information from Dial Before You Dig (phone 1100) when required by permit and notify TasNetworks of work on or near assets. • Use cable locator to update drawings and potholing to confirm the location of essential services. • Proposed works must be clearly highlighted on works drawings including electrical (cable layout). A copy of drawings must be issued to personnel undertaking the excavation e.g. the machine operator and kept on the excavation machine or in close proximity to the excavation site at all times for persons to reference.Keep plant, spoil and materials outside the 'zone of influence'. • Use TasNetworks Environmental Handbook, procedures, work practices and job risk analysis. • Use SWMS, Environmental Management Plan, Project Environmental Consideration Reports, where required. • Implement a traffic management plan where it is required. • A safety observer must be used where machinery has the potential to breach safe approach distances, or where excavation path crosses or is in close proximity to underground services (direct buried or protected); • Rotate workers between tasks. • Where potentially contaminated soil is identified, it must be tested to determine the level of contamination by a suitably qualified person in accordance with the relevant Australian Standards (e.g. AS 4482.1 and AS 4482.2). Contaminated material which requires offsite disposal must be classified, transported and disposed of in accordance with the EPA Tasmania, Information Bulletin No. 105. Refer to Hazardous Substance Management Procedure • The maximum peak particle velocity (PPV) resulting from blasting must not exceed 200mm/s at any transmission tower footing, and where practicable should be limited to 100mm/s. If PPV levels are anticipated to be between 100mm/s and 200mm/s, the contractor must contact TasNetworks to obtain approval for the associated blast management plan.

Level	Task	Control methods
Level 3	Personal Protection Equipment (PPE)	• Wearing mandatory PPE • Persons exposed to, or required to handle contaminated soil must follow any safety precautions, handling and PPE requirements as specified on the relevant MSDS for the identified contaminant. In particular, where Polychlorinated Biphenyls (PCBs) are identified in contaminated soil, disposable overalls, chemical resistant gloves and eye protection must be worn when handling such soils.

10.1 Monitoring

The contractor must inspect excavations prior to allowing personnel to enter an excavation and regularly monitor the excavation thereafter. Excavation inspections must check that:

- The excavation sides are not being undercut by the excavator bucket;
- The supports are not being over stressed;
- The ground is not fretting or beginning to collapse into the excavation;
- Tension cracks are not appearing on the ground along the top of the excavation;
- The excavation walls are not sagging under the increased pressure of the excavator;
- Excessive water has not entered the excavation and weakened the side walls;
- Safe access and egress is being maintained; and
- Spoil heap erosion control measures are effective.

An inspection must be carried out at the commencement of each day where access to excavations is required.

11. Responsibilities

11.1 TasNetworks Board and Senior Management

An *'Officer'* under the *WHS Act* is a person who makes, or helps make, decisions that affect the whole, or a substantial part, of a business or undertaking including members of the Board and some senior managers. Officers must exercise *due diligence* to ensure that TasNetworks manages risks identified during work. This involves ensuring TasNetworks puts appropriate controls in place to eliminate, or where not reasonably practicable, minimise the risk resulting from a hazard.

11.2 Designers

- Design structures without risks to the health and safety of persons who will work with them.

- When designing underground projects, ensure that Dial Before You Dig is done during the scoping phase.
- Ensure the information resulting from Dial Before You Dig is included in the work pack and the people performing the work are aware of the information.
- Give a report specifying any known hazards relating to a design to the company who commissioned the design.
- TasNetworks designers need to ensure that environmental impacts are covered in the Project Environmental and Safety Assessment. (PESA)

11.3 Engineering and Design Team (including Asset Officers)

- Before work begins, take all reasonable steps to obtain current underground essential services information for areas surrounding an excavation site.
- Consult with designers who have been commissioned to manage WHS risks.
- Take all reasonable steps to obtain the designer's safety report for a commissioned work.
- Ensure a geotechnical report or advice is sought where required by this procedure, refer to Section 6.
- Use the TasNetworks Risk Management Procedure to manage construction risks, especially when the value of the construction work is $250 000 or more and a HSE Management Plan must be prepared.

11.4 Project Managers (including principal contractors)

- Ensure all planning has been considered, managed and documented in consultation with the people involved with the work before commencing excavation work.
- Notify the TasNetworks Distribution Operation prior to excavating near electrical assets on a planned excavation (Transmission lines exempt).
- Keep records of planning (refer to Section 3) at the excavation site for reference and inspection. Records must be kept until the work is completed; or records must be kept for two years if an incident occurs at the site and WorkSafe Tasmania is notified.
- Use shoring, benching and/or battering for trenches 1.5 metres or deeper (refer to Appendix A).
- Where any conflict exists between this procedure and any other ducment, the contractor must bring the conflict to the attention of TasNetworks for resolution.

11.5 Contract Owner

- Contract Managers and Project Managers review the Excavation Contractor's JRA and SWMS where stipulated in a contract to ensure that the contractor is compliant.

11.6 Workers (including staff at all levels)

- Intervene to stop behaviours or actions that may result in an incident occurring.

- Must be accredited as per the PSSR. The person managing the excavation work must be a PIC, authorised as per the PSSR, where working near electrical assets.
- Workers must be: competent to work within 200 mm radius of underground cables; and have accreditation as an 'Instructed Person' under the PSSR as a minimum.
- Workers who operate plant in close proximity to electrical assets must have: accreditation as an 'Instructed Person' under the PSSR; and have undertaken the Conductor Identification and Electrical Awareness course.
- Must have a current license, including heavy combination licence, to operate a pole borer or erector. Further information is provided in the Managing Plant Procedure.
- Must ensure that Dial Before You Dig is conducted and is current prior to excavation.
- Operators of pole hole borer erectors must be assessed by the TasNetworks Training School prior to erecting poles in or through (LV) and then (HV) assets. HV must be assessed annually.
- When excavating beneath traffic easements in Hobart, Glenorchy and Launceston, follow WorkSafe Tasmania's specific measures for managing Redundant Town Gas Pipes.
- Contractors and subcontractors must confirm with their TasNetworks contract owner that notification to work near and/or notification to de-energise assets have been provided to the relevant areas of the business.
- Contractors and subcontractors must use SWMS when excavating or working in trenches greater than 1.5 metres in depth or where there is a risk of falling more than 2 metres. The SWMS must either meet or exceed the TasNetworks standards. SWMS Template.
- Must perform any work involving shoring, shielding or using explosives in accordance with the Code of Practice for Excavation Work, WorkSafe Tasmania.
- Where any conflict exists between this procedure and any other ducment, the contractor must bring the conflict to the attention of TasNetworks for resolution.

How everyone contributes to managing health safety and environmental matters in general is provided in TasNetworks Responsibilities procedure.

11.7 HSE and Technical Competence

- Maintain this procedure
- Routinely audit compliance with this procedure and report any non-compliance.

12. Reference Documents

The following documents were reviewed as part of developing this procedure:

Legislation
• *Work Health and Safety Act 2012* • *Work Health and Safety Regulations 2012* • *Electricity Supply Industry Act 1995* • *Code of Practice Excavation Work 2015*

Codes of Practice, Industry Codes, etc

- AS 2187.2 – Explosives–Storage and use. Part 2: Use of explosives
- AS 4482.1 – Guide to the investigation and sampling of potentially contaminated soil. Part 1: Non- volatile and semi-volatile compounds
- AS 4482.2 – Guide to the sampling and investigation of potentially contaminated soil. Part 2: Volatile substances.
- Excavation Work Code of Practice, WorkSafe Tasmania
  http://www.safeworkaustralia.gov.au/sites/swa/about/publications/pages/excavation-work
  Code Of Practice Excavation Work (Safe Work Australia).
- http://www.1100.com.au/images/pdfs/DBYD%20Best%20Practice%20Guide_Technical_June%202015.pdf
- General Guide For Working In Vicinity OG UG and OH (Safe Work Australia)
- Old Town Gas Pipes Actions Required
  (http://www.justice.tas.gov.au/building/gas/old_town_gas_pipes)

TasNetworks Documents

- Excavation Near Cable Pits & Trenches Work Practice
- Using Excavators
- Field Guideline Reinstatement Of Council Surfaces
- Guidelines When Working Near TasNetworks Electrical Assets
- NBN Process For Working Near TasNetworks Assets
- Underground Scope Of Work For Authorised Service Providers
- Developers Tool Kit For Contestable Underground Work
- Sign Off Inspection Forms For Completion Of Underground Work
- TasNetworks Underground Construction Manual
- Pole Staking Field Guideline
- Line Workers Reference Handbook covering :
  - Excavation of power pole holes.
  - Blasting work.
  - Installation of stays.
- Operate Portable Post Hole Digger Work Practice.
- Draft Locate Underground Services Work Practice (currently sent out for field comment)
- Environmental Handbook
- Identification & Location Of Underground Cables Work Practice
- Confined Space Code of Practice 2016
- Cutting Underground Cables Work Practice
- Using Pole Hole Borer Erector (Proline)
- Carry Out Energised Joint Pit Rescue
- Asset Inspectors Work Practice/Technical Specification

Forms
• Project Environmental Consideration Report • Work Permit – Excavation.
Other Documents/Resources
• Environment Protection Authority (EPA) Tasmania. Information Bulletin No. 105: Classification and management of contaminated soil for disposal. November 2010. (EPA website http://epa.tas.gov.au/documents/ib105_classification_and_management_of_contaminated_soil_2012.pdf)

13. Records Arising from this Procedure

Record	Storage Location
Stored Documents and associated correspondence and approvals etc.	ZONE- Intranet site

14. Glossary

Direct buried service – A service (electricity, gas, water, sewerage, etc) buried in the ground and not encased/protected in conduit or by other means.

Excavation work – Any activity involving the excavation or penetration of the ground, or any other surfaces such as concrete and bitumen. Activity examples include excavating, boring, drilling, blasting.

Hand digging – Using non-powered (electrical, mechanical, pneumatic or other) hand held tools such as a shovel.

HSEQ – Health Safety Environment and Quality

HV – High Voltage

JRA – Job Risk Analysis

LV – Low Voltage

PESA– Project Environmental and Safety Assessment

PHBE – Pole Hole Borer Erector

PIC – Person in charge

Protected service – and electricity cable protected in conduit, concrete or by other means.

PSSR – Power System Safety Rules

Risk assessment – A documented process, involving identifying, evaluating and controlling risks.

SWMS – Safe Work Method Statements

Worker – A worker is someone who carries out work for TasNetworks. It includes employees, outworkers, apprentices, trainees, students gaining work experience, volunteers, contractors or subcontractors and their employees.

Appendix A – Trenching Guidance

Benching is the creation of a series of steps in the vertical wall of an excavation to reduce the wall height and ensure stability. Benching should be the primary way of eliminating the risk of structural collapse when trenching.

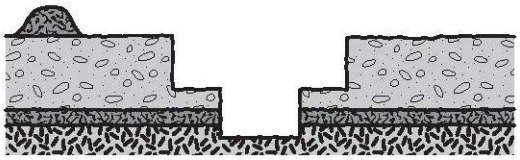


Figure 4: Benching

Battering is where the wall of an excavation is sloped back to an angle to ensure stability.

Figure 5: Battering

If possibly practicable, a combination of both benching and battering can be used to eliminate the risk of ground collapse.

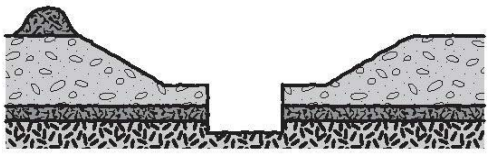


Figure 6: Combination of benching and battering

When trenching, consideration should be given to safe access to the trench. This can be conducted in several ways, one of which is to create additional steps for access to the space. This ensures that equipment can be carried into the space with little additional effort.

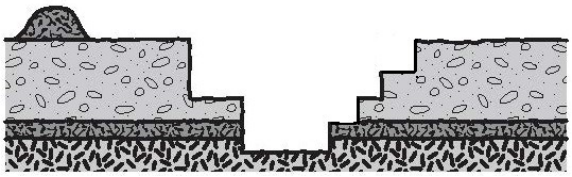


Figure 7: Example of excavating stairs into the trench to allow for safe entry

Mechanical plant, vehicles, storage of materials (including excavated material) or any other heavy loads should not be located in the 'zone of influence' of an excavation.

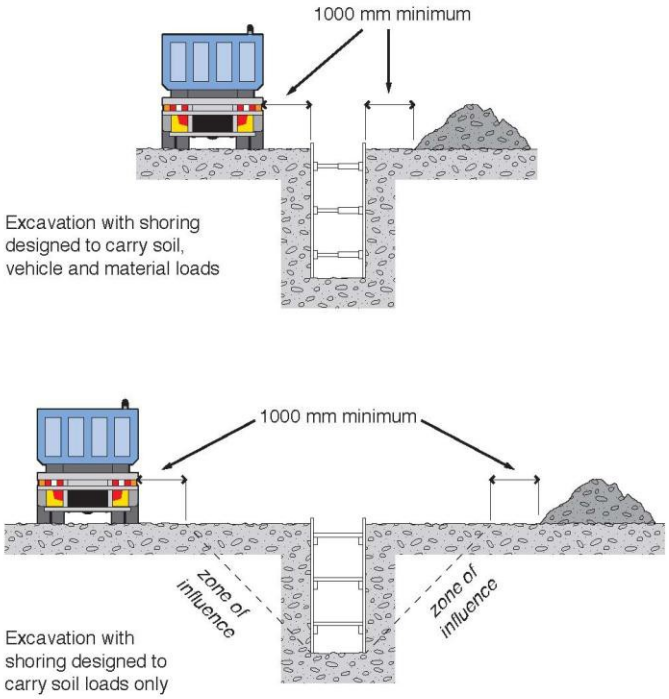


Figure 8: Suggested location of excavated load and plant in relation to the excavated worksite.

Appendix B – Trenching Guide

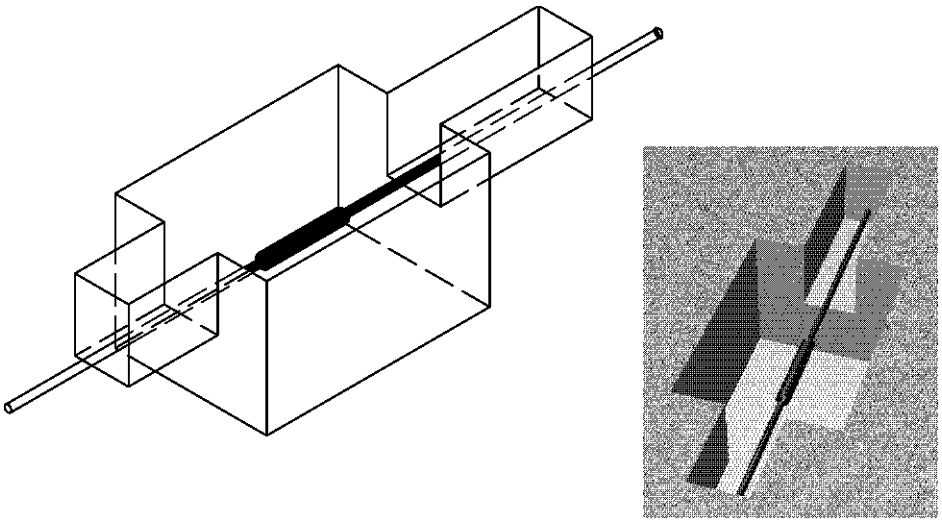


Figure 9: Suggested location of excavated load and plant in relation to the excavated worksite.

- Battering, Benching or Shoring must be provided for excavations greater than, or equal to 1.5m deep and less in bad ground conditions.
- Joint pit edges to be chamfered to allow pit rescue.
- Stairs or ramp shall be cut into pit to allow simple access and egress for cable jointers. (*Refer to Work Health and Safety Regulations 2012*)

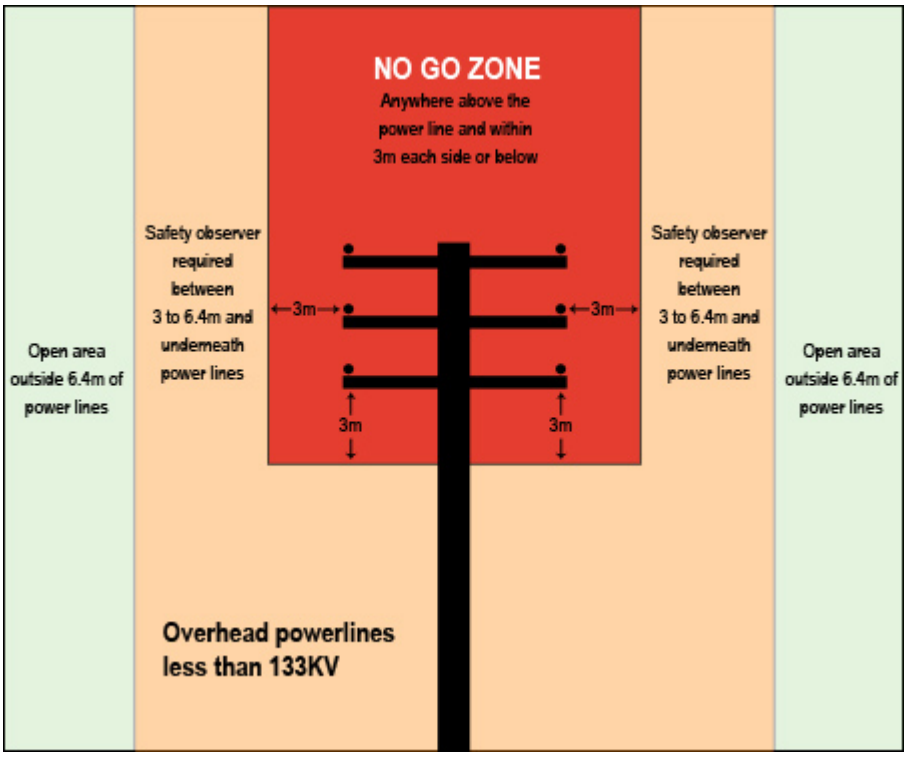
Appendix C – Working near powerlines

Working near powerlines and underground cables can be very dangerous and it is important that safe distances are maintained. If you are undertaking any work you need to know the relevant guidelines to ensure your safety and the safety of those around you.

Guidelines for working near powerlines apply to work done from ladders and scaffolding or using machinery.

No one may work within the 3 metre No Go Zone of powerlines, unless they have advised TasNetworks and received written authorisation for the work.

Figure 10: No Go Zone distances



Written authorisation still requires safe measures and controls to be implemented before and during the work activities, and these may include any or all of the following:

- turning off the overhead conductors
- relocation or removal of the overhead conductors
- restricted worksite entry
- control of work activity should the planned activities change
- the use of safety observers
- installation of appropriate barriers, hoarding or warning devices, etc.

Work within safe approach distances can be undertaken, as long as physical warnings are provided and no one else enters the area. Safe approach distances are based on the type of work and need to be assessed individually.

The type of cables that can be found underground include high and low voltage, oil-filled cables, submarine cables, consumer mains, earth and road light switch and pilot wires. The depths that these cables are buried at can vary - generally they are approximately 500mm deep or below, but in some cases cables can be 300-350mm deep.

If you intend to dig more than 300mm you need to call Dial Before You Dig on 1100, you can also view the Dial Before You Dig website here.

To find out more about working near powerlines, visit the WorkSafe Tasmania website or view TasNetworks' guidelines here (PDF 739kb.)

To arrange for an assessment, please contact TasNetworks' Call Centre on**1300 137 008**.