CS ENERGY PROCEDURE FOR

DIGGING AND EXCAVATION WORK
CS-PTW-02

Responsible Officer: Production Risk Manager Approved: GM Production

Contents

1. Purpose

The Digging and Excavation Procedure is designed to ensure that all workers at CS Energy Sites understand the:

- process to be used when obtaining a Dig Permit
- control methods and work practices to be used during excavation and digging work.

2. Scope

This procedure includes any work occurring on sites owned or operated by CS Energy that is:

- digging,
- excavation,
- trenching,
- spike driving,
- etc.

100mm or deeper.

3. Actions

3.1 Permit to Dig

The Permit to Dig Flowchart (Attachment 1) is to be read in conjunction with this section.

A Permit to Dig must be collected prior to any excavation work being started. This will allow the dig crew to dig safely without running the risk of digging up any underground services.

The Permit to Dig must be completed five days prior to the digging work starting (unless prior arrangements have been made or an unplanned breakdown, etc. has occurred) and given to the mechanical and electrical Permit Issuing Officers. This will allow the Permit Issuing Officers enough time to prepare drawings and other requirements.

Along with the Permit to Dig, the dig party also needs to supply details about:

- the approximate location
- the method to be used to dig
- the width of the excavation
- the depth of the excavation

This will help the Issuing Officers work out the extent and location of the services to be checked for.

The dig party must mark on the ground the location of the digging work. This must be done using white marking paint (as per the table in Attachment 2).

The issuing officers will locate cables, pipes and other services by using:

- Drawings,
- Photos and
- Services location equipment

This will ensure that all services are located and marked. Only approved personnel can perform the testing for underground services. The list of approved personnel is available at the PTW Issuing desk.

All services that are located must be marked as per the table in Attachment 2.

The Permit to Dig with digging instructions must be issued to the dig party along with a Permit to Work. This can be obtained from the control room as per the standard Permit to Work Processes.

3.2 Excavation

Care must be taken when performing excavation work. Trench collapses can and do occur.

The following methods can be used to ensure that a collapse does not occur:

- Benching
- Battering
- Shoring

See the Definitions and Attachment 3 for details of these.

Benching, Battering and Shoring will be required when the trench is:

- less than 1.5 m and prone to collapse and a person is to enter the trench; or
- deeper than 1.5m (unless a qualified engineer states that the trench will not collapse – this will need to be assessed daily and a certificate or signed document supplied prior to work starting).

Battering and Benching may affect the area that needs to be excavated so this information must be provided to the Issuing Officers so that they can locate the services for the entire area.

Other precautions must be considered based on the type of work being performed. This may range from the type of equipment used to the method for back filling the trench.

It is absolutely crucial that proper barricading of trenches and excavations is done. Full fence barricading with solid posts must be used. The use of barricade tape is not acceptable. Barricade mesh is the minimum standard. The entire trench or excavation must be barricaded to prevent persons falling into the trench. If workers are required to be in the trench, a larger barricaded area will need to be provided and an accessway created.

Other requirements for digging work are detailed in the Advisory Standard for Excavation. This advisory standard is available from your supervisor or the Risk and Safety Adviser.

When digging near natural gas lines care must be taken. At Mica Creek Power Station digging near a buried gas line is permitted provided certain controls are employed.

When digging within 2 metres of a gas line only hand tools (shovels, picks and crowbars) are permitted. Machinery or jackhammers must not be used.

If an electrical service is dug up, or damaged, immediate notification to the Site Risk and Safety Adviser, Supervisor or Electrical Engineering staff is required. If a mechanical service is dug up or damaged immediate notification to the Risk and Safety Adviser, Supervisor or Mechanical Engineering staff is required. This is to ensure that all necessary action is taken to make sure the equipment is isolated, safe, damage is assessed and repairs made accordingly

Any contamination resulting from a dug up service or damaged service found during excavation work is to be immediately notified to the Site Environment Risk Adviser.

4. Definitions

Battering – a method of cutting a wall so that it does not exceed an angle of 45^0.

Benching – a method of cutting steps into a wall so that the step is less than 1.5m long and 1.5 m high.

Certificate – is the document signed by the qualified Civil Engineer who assesses the ground for its stability.

Electrical Issuing Officer – the person who is qualified to locate electrical services using the location equipment and completes the relevant section on the Permit to Dig

IT Issuing Officer – the person assisting the electrical issuing officer locate any phone or IT buried services

Mechanical Issuing Officer – the person qualified to locate mechanical services and advise on how to prevent them from being damaged. This person also completes the relevant sections of the Permit to Dig.

Operations Issuing Officer – the senior shift person who will assist in locating any services that other issuing officers may not be familiar with.

Shoring – the installation of temporary supports to prevent wall collapse in the trench

5. Reference Documentation

Workplace Health and Safety Act

Workplace Health and Safety Regulations

Advisory Standard for Digging and Excavation

Form S1327 – Permit to Dig

6. Attachments

Attachment 1 – Permit to Dig Flowchart

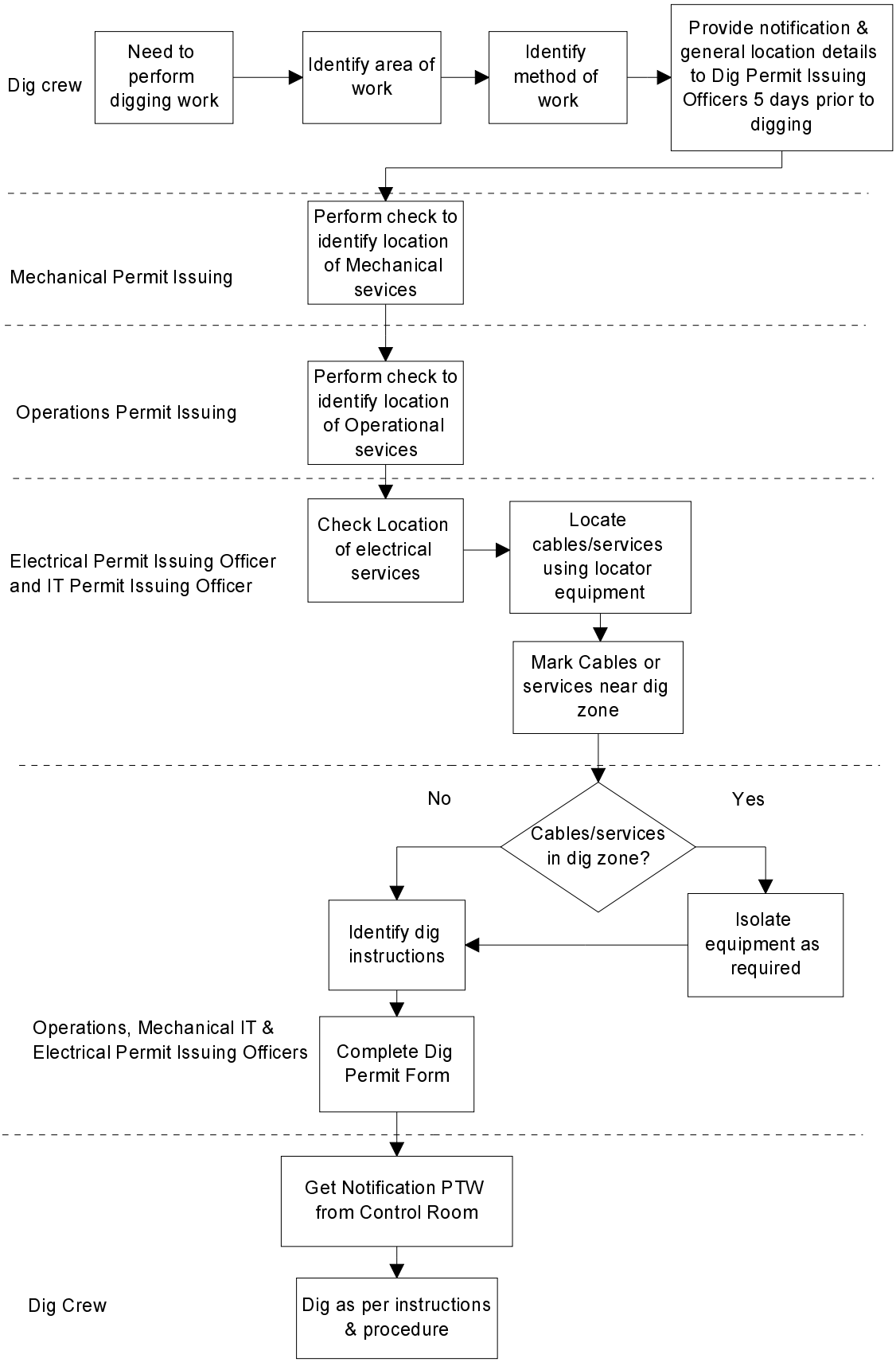
Attachment 2 – Colours for marking of services and dig zone

Attachment 3 – Wall collapse control options

7. Document History

Issue Date	Nature of Changes
3/04/01	Original Issue

Attachment 1 - Permit to Dig Flowchart



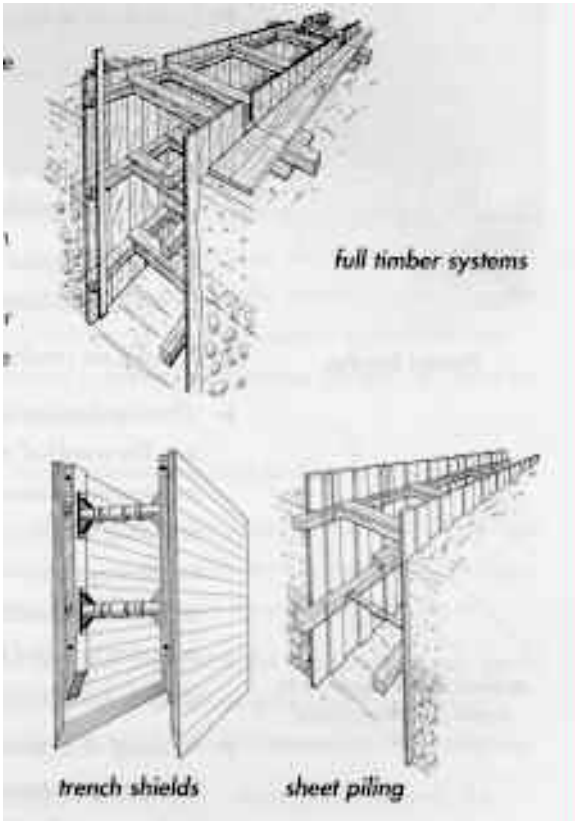
Attachment 2

The following is a list of colours to be used when marking for excavation work.

Service	Colour
Pipes (excluding gas) – sewerage, water, fuel, etc.	Green
Power and communication cables	Red
Gas line	Yellow
Where digging is to occur	White

Attachment 3

Shoring is the method of using temporary supports to stop the trench collapsing as shown below:



The methods of Benching and Battering use extra digging to prevent the possibility of wall collapse and are shown below: