



Te Kaunihera-ā-Rohe o Ngāmotu

# New Plymouth District Council

## Excavation

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## Table of Contents

1.0	Introduction	3
2.0	Scope	3
3.0	References	3
4.0	Definitions	3
5.0	Responsibilities	4
6.0	Training & Competency	4
7.0	Requirements for Excavation Work	5
8.0	Attachments/links	6



## 1.0 Introduction

The purpose of this document is to define the requirements to be met for work involving excavation to ensure all work carried out is controlled and clearly documented to ensure people, the environment and assets are protected from harm.

Excavation includes all work which breaks the ground to a depth of 300mm or more. Excavation includes digging by hand or mechanical means. This can include trenching, digging, boring, drilling, grading, pile driving or any other form of work likely to disturb the strata below the grounds surface.

## 2.0 Scope

This procedure applies to all persons working for and on behalf of NPDC i.e. workers, contractors, subcontractors etc., when the work scope involves excavation, digging or boring on or around NPDC owned or operated facilities.

This procedure must be read in conjunction with the [NPDC Permit to Work Procedure](#).

## 3.0 References

- [Health and Safety at Work Act 2015](#)
- [Health and Safety at Work \(General Risk and Workplace Management\) Regulations 2016](#)
- [Worksafe NZ best practice guide to Excavation Safety](#)
- [Worksafe notification of particularly hazardous work](#)

## 4.0 Definitions

<b>Benching</b>	The horizontal stepping of an excavation face to provide stability to the face of the excavation.
<b>Battered</b>	Is where the wall of an excavation is sloped back to a predetermined angle to ensure stability. Battering reduces the risk of ground collapse by cutting the excavated face back to a safe slope.
<b>Exclusion zone</b>	An area from which all persons are excluded during excavation work.
<b>Excavation</b>	Includes all work which breaks the ground to a depth of 300mm or more. Excavation includes digging by hand or mechanical means. This can include trenching, digging, boring, drilling, grading, pile driving or any other form of work likely to disturb the strata below the grounds surface.
<b>Face</b>	The exposed slope or vertical
<b>Shoring</b>	Shoring provides support to excavated faces to prevent soil moving and ground collapse.
<b>Shaft</b>	A type of excavation, involving a vertical or inclined opening from the surface downwards, the dimensions of which are less than its depth.
<b>Trench</b>	A type of excavation, involving a long narrow excavation deeper than it is wide and open to the surface along its whole length.
<b>Zone of influence</b>	The volume of soil around the excavation where actions may influence the excavation stability or the excavation may influence the stability of any nearby structures.



## 5.0 Responsibilities

In addition to the responsibilities listed in the NPDC Permit to Work Procedure, the specific responsibilities in relation to Excavations are:

### Permit Issuer

- Ensure the workplace environment and site conditions will enable the excavation to take place safely.
- That overhead clearances are adequate for the equipment.
- That roadways blocked have alternative emergency access and that all other sections of the attachment certificate have been correctly filled out.
- PI is responsible for audits of the system and permit control during the period of work being done.

### Permit Receiver/PICWS (person in control of the work site)

- Ensures that requests to excavate are made in sufficient time e.g. 7 days for appropriate technical expertise to identify underground services.
- Identify the excavation work scope, discuss the restrictions of plant and machinery, and how and where the soil will be disposed of.
- Identify the methods of shoring and stabilisation to ensure adjacent plant and equipment is not put at risk.
- Identify the hazards of excavation activity and the activities that are likely to be conducted in the excavation.
- Identify support and transport to move through critical process plant.
- Have specialist personnel identify and mark down all known and underground services in the vicinity of excavation.
- Identify overhead obstacles and structures.
- Notify excavation work to [Worksafe](#) if it meets the criteria.
- Be competent in the application of the Worksafe NZ Good Practice Guidelines Excavation Safety.

### Safety Observer

- Is required when the excavation is notifiable or when it is considered to be a Confined Space and at the discretion of the PI for mechanical digging where there is a possibility of hazardous underground services.
- Watch for warning tape or concrete and boards at the excavation face indicating electrical, gas, water or communication services.
- Continual communication with mechanical excavator operators.
- Never enter the excavation
- To stop work if an unidentified service is exposed and report to the PI. Work may not restart without the approval of the PI.

## 6.0 Training & Competency

Specialised training and competencies are required before an individual is to perform excavation work. Only a competent person should be designing temporary works.

These and other training requirements can be found on the [NPDC Training Matrix](#).

NPDC Document Management <i>ECM: 8513009</i>	Approved By: David Langford	Rev: 1	Rev Date: September 2023
			Page 4 of 7



Excavation depth and type – normal conditions	Recommended competency
<b>Up to 1.5m</b> Shored, benched and /or battered	Recent experience in carrying out or supervising excavation work
<b>1.5m -3m</b> Flat, open ground, no surcharge  Shored, benched and/or battered	Recent experience in carrying out or supervising excavation work at these depths  Technical or trade qualification (e.g. as a civil engineer or drain layer)
<b>3m – 6m</b> Flat, open ground, no surcharge  Shored, benched and/or battered, waller and brace solution up to 6m in depth	<ul style="list-style-type: none"><li>• Technical or trade qualification (e.g. as a civil engineer or drain layer)</li><li>• Recent experience in carrying out or supervising</li><li>• Excavation work in similar ground at these depths</li><li>• Experienced temporary works designer able to interpret the sites soil information</li><li>• Monitoring recommended</li></ul>

## 7.0 Requirements for Excavation Work

Excavation Work shall be managed under the [NPDC PTW System, and has four key requirements:](#)

- A Permit attachment certificate;
- Excavation safety requirements
- Notification of works; and
- Development of a Rescue Plan.

### Permit Attachment Certificate

An Excavation attachment certificate must be used in conjunction with the permit to provide a high level of detail on the controls to be put in place to manage the activity. It may include but is not limited to the following:

- Location of excavation work
- Reason for excavation
- Boundaries/ extent of width, breadth and depth
- Date the excavation is planned to commence
- Date the excavation is to be completed by
- Proposed methods and control of excavation.
- Appropriate drawings or additional support material (services)
- Name of supervisor in charge of excavation
- Details of notification to WorkSafe NZ as required. (see Notification of works section below)



## Excavation safety requirements

- Details of excavation construction and hazard management shall be as per Worksafe NZ good Practice guidelines for excavation safety.
- The Excavation Certificate including a marked-up underground services drawing showing the proposed excavation is to be submitted by the PR/PICWS to the PI before a permit will be issued for an excavation. Then permit is then processed in the normal manner.
- Drawings of the location of the excavation are to be submitted to the construction engineer who is responsible to ensure that the location has been checked against the underground services drawing for civil, mechanical and electrical obstacles and to provide the appropriate controls.
- The area of the proposed excavation should be surveyed using a service locate device to identify/confirm the locations of the underground services.
- Prior to a machine excavation, the position of underground pipe-work and cables shall be determined by hand digging (potholing) at selected locations. Such services must be uncovered and identified/confirmed irrespective of whether they are deemed to be below the target excavation depth. Potholing does not require a separate permit, but must be completed before machine digging.
- If the excavation comes within 500mm (half a metre) of a known underground service the excavation must be dug by hand.
- Any cables or pipe-work uncovered which are not shown on the site drawings are to be reported immediately to the PI and work must stop until authorised to proceed by the PI.
- The excavation construction engineer and the PICWS are to inspect the excavation each morning prior to work starting on the excavation, and weekly where an excavation remains open but no work is being performed.

## Notification of works

Notification of “notifiable work” covered by the following criteria must be made by the person in charge of the work to WorkSafe NZ at least 24 hours prior to commencement. The criteria is:

- Any trenching shaft or pit more than 1.5 metres deep and which has a depth greater than the horizontal width at the top.
- Any excavation in which workers are required to work with a ground cover overhead.
- Any excavation in which any face has a vertical height of more than 5 meters and an average slope steeper than a ratio of 1 horizontal 2 vertical.

## Development of a Rescue Plan

A rescue plan must be prepared in conjunction with the safety observer before a work permit can be issued excavation work. The plan must identify the equipment, the trained personnel required and the method to effectively get a person out of the excavation safely.

NPDC Document Management <i>ECM: 8513009</i>	Approved By: David Langford	Rev: 1	Rev Date: September 2023
			Page 6 of 7



## 8.0 Attachments/links

- [Permit to work procedure](#)
- [Permit to work flowchart and criteria](#)
- [Excavation certificate](#)

NPDC Document Management <i>ECM: 8513009</i>	Approved By: David Langford	Rev: 1	Rev Date: September 2023
			Page 7 of 7