

# SOUTHERN PORTS ESPERANCE

## PERMIT TO EXCAVATE PROCEDURE

<b>Revision</b>	<b>Approved</b>	<b>Date</b>	<b>Description</b>
2	Tony Leeson, Adam Dardha, Brandt Grundy	15/01/2014	
3	Tony Leeson	16/02/2015	Header up dated wording corrected.
<b>Version</b>	<b>Approved</b>	<b>Date</b>	<b>Description</b>
2	Tony Leeson	11/09/2017	Addition of requirement for permit to be signed off by environment/safety
3	Alex Leonard	30/10/2017	Addition of section 5.9. Generation and Disposal of Fill

# Permit to Excavate Procedure

## TABLE OF CONTENTS

<b>1. PURPOSE .....</b>	<b>3</b>
<b>2. SCOPE .....</b>	<b>3</b>
<b>3. ACCOUNTABILITY .....</b>	<b>3</b>
3.1. GENERAL MANAGER .....	3
3.2. AUTHORISED PERMIT TO EXCAVATE ISSUER .....	3
3.3. ELECTRICAL SUPERVISOR .....	3
3.4. PERMIT RECIPIENT.....	3
3.5. EXCAVATION SUPERVISOR .....	3
3.6. PERMIT INITIATOR .....	3
3.7. PERMIT ISSUER .....	3
<b>4. DEFINITIONS .....</b>	<b>4</b>
4.1. EXCAVATION .....	4
<b>5. REQUIREMENTS .....</b>	<b>4</b>
5.1. GENERAL .....	4
5.2. KNOWLEDGE OF SITE .....	5
5.3. SCANNING FOR SERVICES .....	5
5.4. MINIMISING RISK FOR CONCEALED SERVICES.....	5
5.5. AUTHORITY TO ISSUE A PERMIT TO DIG CERTIFICATE.....	6
5.6. DISCOVERY AND REPORTING OF UNKNOWN OR UNEXPECTED SERVICES.....	7
5.7. DISCOVERY AND REPORTING OF POSSIBLE FIBROUS/ASBESTOS CONTAINING MATERIAL	7
5.8. EXCAVATIONS AND TRENCHES.....	7
5.9. GENERATION AND DISPOSAL OF FILL.....	8
<b>6. OTHER AUTHORISATIONS.....</b>	<b>8</b>
<b>7. ATTACHMENTS.....</b>	<b>9</b>

# Permit to Excavate Procedure

## 1. PURPOSE

To minimise the risks to persons undertaking work where, concealed services are likely to be present and other excavation/trenching work.

## 2. SCOPE

Applies to; any disturbance of ground by means of digging and or trenching and forcing and drilling implements into the ground.

## 3. ACCOUNTABILITY

### 3.1. General Manager

- Ensure compliance with the requirements of this procedure.

### 3.2. Authorised Permit to Excavate Issuer

- Any authorised appointed person.
- The person appointed by the General Manager, who is the only person on site accountable to authorise Permit to Excavate and or Excavation Procedure for the site, including determining and approving risk analysis and controls.

### 3.3. Electrical Supervisor

- Ensure the Permit to Excavate is filled out correctly and signed off.
- Ensure copies of the Permit to Excavate are recorded and filled.

### 3.4. Permit Recipient

- The person who ensures that all the requirements (control measures i.e. Restrictions and Controls) on the Permit to Dig and or Excavation form are adhered to.

### 3.5. Excavation Supervisor

- Where the Permit Recipient is not experienced in excavation activities, an Excavation Supervisor shall be appointed to manage the specific requirements associated with the excavation activities.

### 3.6. Permit Initiator

- Ensure a Permit to Dig and or Excavation form is initiated and obtained before work is carried out.
- Ensure drawings are updated where alterations to services have resulted or new services found.
- Shall apply for a permit to dig certificate via a Work Request or email to the appropriate Maintenance Supervisor.

### 3.7. Permit Issuer

- Ensures there will be two (2) authorised permit issuers from the Electrical department.
- Ensures the Environment and/or Safety team has been consulted in regards to possible ACM or contaminated ground being located in the excavation area.
- Reviews access methods to suit scope of excavation.
- Surveys area of work, identifies and marks out location of services on site plan should they not already be available.
- Completes Permit to Excavate and issues to permit recipient, ensuring the permit recipient acknowledges all procedures specified in permit.
- Ensures Permit to Dig and or Excavation is updated or re-issued within seven (7) days.

## Permit to Excavate Procedure

### 4. DEFINITIONS

#### 4.1. Excavation

Any activity of:

- Digging, trenching, drilling, post hole boring, underground boring etc. of ground or
- Driving of star pickets, posts, piles, stakes and the like.

### 5. REQUIREMENTS

#### 5.1. General

- Preparations and risk assessment for all excavations shall assume a live, unknown service will be discovered.
- An Application for Permit to Excavate form (D16/173) shall be completed and authorised prior to all excavation work being performed.
- The authorised Permit to Excavate form shall be available at the job location, at all times during the excavation work.
- The authorised permit to dig issuer shall advise whether a Permit to Excavate is required and consideration shall be given to alternative methods other than excavation.
- The Permit Initiator shall ensure that appropriate construction drawings of existing services are prepared prior to requesting an Permit to Excavate. The drawings shall indicate the new location of or modification of the following underground services:
  - Electrical Services
  - Pressure Services
  - Communication Services
  - Sewerage Services
  - Fire Hydrants and Alarms
  - Water Mains and Isolation Valves
  - General Drainage layout
  - High Voltage Cables.
- Prior to requesting authorisation of an Permit to Excavate authorisation, the excavation supervisor shall mark out the limits of the excavation to allow site inspection by the authorised permit to dig issuer.
- Construction drawings shall be converted to As Built drawings at the completion of work, if applicable and is the responsibility of the Permit Initiator.
- Allow 48 hours Monday to Friday only for the Permit to Excavate to be given approval.
- In an emergency the 48 hours will be revoked but a Permit to Excavate must still be obtained.

##### 5.1.1 Document Control

- Once the Permit to Excavate has been issued to the Recipient, a copy shall be placed in a folder within the Electrical Superintendents office area by the end of that business day, or as soon as is practicable.
  - The Electrical Supervisor shall then enter the Permit to Excavate into the register.
-

## Permit to Excavate Procedure

- The Permit Initiator shall ensure that all services installed within the ground shall be recorded by a Surveyor and drawing shall be supplied to the Maintenance Department within 7 days. An electronic version of this drawing shall be supplied.
- On completion of the work, a copy of the Permit to Excavate is to be returned from the recipient to the issuer.
- Once the Permit has been cancelled a copy of the Permit to Excavate can then be filed away with the Electrical Superintendent.

### 5.2. Knowledge of Site

The Permit to Excavate will not be authorised without reference to:

- Where possible, records detailing concealed cables, pipelines and services, including original vendor drawings and;
- Records detailing contaminated ground.
- Drawings shall be attached to Permit to Excavate showing the exact location of the work and any known services where ground penetration is required.
- Known persons who may have historical local knowledge of concealed services shall be actively sought out and consulted.
- After completion of the work, the Permit Holder/Excavation Supervisor shall ensure that the original Permit to Excavate and drawings are returned to the Permit initiator.
- The Permit Initiator shall verify that any previously unidentified services (found through the work) are included into site drawings if required. The drawing shall then be updated in the system through the electrical Superintendent and the survey department.

### 5.3. Scanning for Services

- Scanning may discover a concealed service. Scanning does not guarantee discovery of any or all services.
- Electrical “ground” scanning shall be used as an aid to excavation risk assessment and control. The Permit Holder/Excavation Supervisor shall mark out the general area that requires scanning, using marking paint.
- Scans shall be conducted by a person appropriately trained and authorised.
- Scanning equipment shall be maintained to manufacturer’s specifications, with records of calibration and maintenance.
- During the scanning process, all identified services shall be marked out with marking paint of a different colour than used for marking a scanning area.

### 5.4. Minimising Risk for Concealed Services

All reasonably practical measures to minimise the risk to those carrying out the work shall be implemented. These shall include all or some of:

- Clearly demarcating boundaries of the work area
  - Keeping the demarcated area as small as practicable on the drawings.
  - Clearly marking the excavation route on the ground, using paint (by the Excavation Supervisor)
  - Identifying and determining the depth of the position of concealed cables, pipelines and services using scanning equipment (by the Electrical Department)
-

## Permit to Excavate Procedure

- Hydro-vacuuming to determine the location of hidden services
- Marking the location of these services on the ground using paint.
- Isolating or protecting the services, including shutting down plant
- Assigning a spotter to constantly watch the excavation for hazards.
- Identifying overhead, adjacent and manual handling hazards
- Identifying chemical, radioactive, asbestos or other hazards.
- Ensure that only a bladed bucket is used on the excavation equipment.

The Excavation Supervisor shall minimise risk by:

- Excavating only in the area demarcated on the ground and identified in the Permit to Excavate (before signing the Permit to Excavate). The Excavation Supervisor shall inspect the excavation site to ensure the area marked, as scanned, is where the excavation will take place.
- Informing all people working on the excavation of the risks and controls, through an initial talk and daily “prestart” meetings.
- Hand excavating (Hydro Vac considered) within one meter of any known service to expose and confirm identification, exact location, direction and depth prior to any mechanical digging
- Assuming the presence of other services, not identified on drawings or masked by existing services (such as 415V, 3.3kV or 11kV services, Fibre optic cable and telephone) and taking precautions by:
  - Using only flat bladed buckets on machines for excavation work
  - Digging carefully, only 50 to 100mm at a time; and
  - Watching for tell-tale signs such as changes in soil type (strata types, sand or small aggregate), or orange tape, bricks or concrete.
- Assuming all services are live and taking necessary precautions.
- Where the exact location of cables and pipes or services is not known, but they are expected to exist, or where layout drawings are not available, the initial scope of work shall be restricted. Additional controls shall then apply, such as “hand digging only” or use of Hydro-Vac in specified areas.
- The Permit to Excavate and attachments shall be kept at the worksite for routine reference and recording until the excavations is complete.
- The Excavation Supervisor shall ensure that all cables, pipelines and services exposed by preliminary Excavation are inspected by a competent person. Any relaxation or additional controls unauthorised shall be based on the competent person’s report to the Permit to Dig Issuer for authorisation.
- The Permit to Excavate will remain valid for no more than seven (7) working days, unless stated shorter on the Permit to Excavate and where a drill program has been supplied, then the permit may remain in place for the period of that program, providing that the boundaries of that program are not breached.

### 5.5. Authority to Issue a Permit to Dig Certificate

The Permit to Dig Issuer shall authorise the Permit to Excavate when satisfied that:

- All marking out is complete and all boundaries of the excavation site have been clearly established.

## Permit to Excavate Procedure

- An area inspection and assessment has been conducted by the Electrical Services delegate except where defined within the exclusion areas.
- People with historical knowledge have been consulted, and
- Appropriate control measures shall be implemented completely and effectively.

### Built-up Area's

- Shall be defined as any area in which fixed and permanent structures or buildings are present.

### 5.6. Discovery and Reporting of Unknown or Unexpected Services

If an unidentified or unknown service is discovered, the Excavation Supervisor shall:

- Immediately stop excavation and breakthrough work
- Ensure no-one is exposed to any hazards, barricade the area and notify the relevant authorised Permit to Dig Issuer, and,
- Stand down the excavation crew and equipment until the incident is investigated and situation deemed safe by the authorised Permit to Dig Issuer, as well as ensuring all drawings are updated as necessary.

The Permit Initiator shall ensure that drawings are updated, including master underground services drawings by:

- Ensuring the survey department and Electrical Superintendent liaises with the person who has inspected the services, to ensure the services are measured for inclusion in site drawings and
- Ensuring that the relevant drawings are updated and returns the original Permit to Dig and or Excavation certificate, attachments and updated drawing copies to the Permit Initiator.

### 5.7. Discovery and Reporting of Possible Fibrous/Asbestos Containing Material

If suspected fibrous or asbestos containing material (ACM) is found, it must be reported to the Safety & Security Manager or the Ventilation Officer immediately.

- The suspect fibrous/asbestos material is not to be disturbed or handled and should remain in situ.
- The immediate area where the material is located, should be marked with appropriate signage and cordoned off.
- The area will then be inspected by the Safety & Security Manager or the Ventilation Officer. (Environment staff will be notified if soil contamination is suspected).

### 5.8. Excavations and Trenches

#### Risk from all excavations

Before excavation work or any work in an excavation commences, hazards, their risk and control shall be identified and implemented for any of the following events:

- A person being trapped by the collapse of the excavation
- A person being struck by an object falling into the excavation
- A person falling into the excavation
- A person inhaling or otherwise being exposed to, carbon monoxide or another impurity of the air in the excavation.

#### Risk from any trench or exposed hole up to 1.5m deep

## Permit to Excavate Procedure

Where practicable, a barricade at least 900mm high shall be erected to restrict access, where persons other than those involved in trench work are in the vicinity of the trench. Where a barrier e.g. permanent fence, wall or pile of excavated material already exists beside a part of the trench and restricts access, then a barricade is not required for that part of the trench.

The barricade shall be positioned at least the same distance away from the trench as the excavation is deep. (1:1 ratio minimum)

### **Risk from trench more than 1.5m deep**

Where a person will enter a trench more than 1.5m deep, one or a combination of the following control measures shall be implemented:

- Shoring all sides of the trench by shielding or in another way
- Benching all sides of the trench
- Battering all sides of the trench

Have a geo-technical engineer approve in writing;

- All sides of the trench as safe from collapse, and
- State how long the approval lasts if there is no stated natural occurrence that could adversely affect the stability of the trench and
- State the natural occurrences that could adversely affect the stability of the trench.

If access to and from a trench is by ladders, a ladder shall be installed in every 9m length of trench where a person will be.

### **5.9. Generation and Disposal of Fill**

If material removed during excavation (fill) is excess and requires disposal, the Environment team must be contacted for a decision on treating fill as clean or contaminated.

## **6. OTHER AUTHORISATIONS**

Whilst the Permit to Excavate is being performed, consideration shall be given to all precautions necessary, including the need for supplementary authorisation including High Voltage vicinity access permitting work within the power-line corridor, Hot Work, introduction of ignition sources into hazardous areas and entry into Confined Spaces.

Reference shall also be made to arrangements for the implementation of Site Standards related to work with asbestos, exposure to chemicals assessment of protective clothing and equipment needs and for any notification to the site's emergency services for road closure.



## Permit to Excavate Procedure

### 7. ATTACHMENTS

#### ATTACHMENT 1: PERMIT TO DIG/EXCAVATION WORKFLOW

Step #	Step	Active Contribution	Accountable
1	Prepare construction drawings for all proposed underground services	Permit Initiator Maintenance	Permit Initiator
2	Raise Permit to Dig/Breakthrough clearance request	Permit Initiator	Permit Initiator
3	Mark out the actual excavation, indicating the excavation limits. <ul style="list-style-type: none"> <li>White mark out for the excavation limits</li> </ul>	Permit Initiator	Excavation Supervisor
4	Raise order for drawing checks and for scanning	Permit Initiator	Permit Initiator
5	Perform drawing checks	Permit Initiator	Maintenance
5a	Contact Environment / Safety team to check for the presence of potential ACM	Permit Initiator	Permit Initiator Permit Authoriser
6	Walk over job location, identify hazards, mark area for excavation to be scanned and all known services <ul style="list-style-type: none"> <li>Red mark out for area to be scanned</li> <li>Orange mark out for known services</li> </ul>	Local knowledge personnel Area Engineer/Excavation Supervisor	Permit Initiator
7	Receive drawings, perform scan, mark services/concerns found on drawings <ul style="list-style-type: none"> <li>All services found through the scan shall be marked out in Orange</li> </ul>	Excavation Supervisor Electrical/Mechanical Section	Scanning Technician
8	Marked drawings, notes, draft clearance certificate passed to Maintenance Superintendent or delegate	Permit Initiator	Permit Initiator
9	Determine control measures and document on clearance certificate	Maintenance Superintendent or delegate	Maintenance Superintendent or delegate
10	Explain excavation control measures to Excavation Supervisor, ensuring controls and conditions understood Authorise Permit to Dig/Breakthrough Certificate	Maintenance Superintendent or delegate	Maintenance Superintendent or delegate
11	JSA developed with excavation team, based on clearance certificate control measures	Excavation Team	Excavation Supervisor
12	Conduct talk and/or Prestart with Excavation Team	Excavation Team Originator	Excavation Supervisor
13	Sign Excavation Team on to PTW, assess/verify JSA and clearance certificate	Supervisor	Excavation Supervisor
14	Commence excavation	Excavation Team	Excavation Supervisor
14a	<b>Unidentified service located</b> <b>STOP WORK</b> , barricade, report to Excavation Supervisor, Maintenance Site Services Superintendent and Originator	Excavation Supervisor Excavation Team	Excavation Supervisor
14b	<b>Unidentified service located</b> Re assess risks and controls. Record services found	Excavation Supervisor	Maintenance Superintendent or delegate
14c	<b>Suspected fibrous / asbestos containing material is found.</b> <b>STOP WORK.</b> barricade, report per SWI Reporting Suspected Fibrous / Asbestos Containing Material. (D17/14562)	Excavation Supervisor	Excavation Supervisor
15	Complete Excavation	Excavation Supervisor	Maintenance Superintendent or delegate
16	Update drawings with new installed service and/or discovered services	Electrical Supervisor	Area Supervisor