

**010265W02 Cable Hauling and Duct  
Preparation - Rodding, Roping and  
Proving**

** Telstra InfraCo**

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### Summary

This document provides instruction on rodding, roping and proving of conduits in Telstra InfraCo's network in preparation for hauling of cables.

### General

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## General

General

## 01 Purpose

The purpose of this document is to provide instructions on to how to safely install a haul rope in Telstra InfraCo's conduits in preparation for the installation of a new cable.

## 02 Introduction

Prior to the installation of cables into the network, the constructor must carry out the following activities to ensure that the underground network is capable of accommodating the proposed cables.

- Ensure that any pit and conduit is upgraded as required.
- Identify and clear any blockages in the conduits.
- Prove that the available space in the conduits will accommodate the proposed cable size.
- Install a hauling rope between all pits and manholes.

## 03 Scope

This document has been written for reference by Telstra employees and Telstra contractors. The term constructor refers to both Telstra employees and Telstra contractors.

This document supersedes and replaces all previous documents on this topic.

This document is subject to change. Before using it, please ensure you have the latest issue.

All material shall be approved by Telstra unless otherwise directed.

The term conduit in this document includes ducts and pipes.

## 04 Safety and Environment

### 4.1. Land Access

As a licensed telecommunications carrier, Telstra InfraCo has an obligation to comply fully with all relevant Commonwealth legislation, including the Telecommunications Act and its related regulations and instruments. Also, where applicable, Telstra InfraCo must comply with relevant State and Territory legislation.

Contractors engaged by Telstra InfraCo to undertake network facility activities, such as survey and inspection, maintenance which includes pit replacement on a like for like basis, and installation of low impact facilities such as pits/manholes, and who are under contract must comply fully with all relevant legislation. Contractors are also required to understand and comply with all Telstra's InfraCo policies and procedures relating to land access and environmental matters.

From time to time, Telstra InfraCo's network facilities may need to be relocated for various reasons. Where the facility relocation is at the request of another party (the "Disturber"), certain land access requirements must be satisfied before Telstra InfraCo will agree to the relocation of its facilities. This is to ensure that the relocated facilities retain full rights of tenure and accessibility at the new site or location.

It is the responsibility of all staff and contractors (including sub-contractors) to ensure that no harm comes to the environment via the activities carried out by them while acting on Telstra's behalf.

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Please contact the Land Stewardship, Engagement and Compliance (LSEC) team if you have any further queries.

[InfraCo - Land Stewardship Engagement and Compliance](#)

## 4.2. Asbestos Containing Material (ACM)

All Telstra staff and contractors must follow the [Asbestos Risk Standard](#).

Prior to commencing any Asbestos related works in the Access Network, workers are to consider alternative construction methods that will avoid asbestos disturbance.

Cement pits do not contain asbestos if:

- They are labelled “NON-ACM”, or
- They have been confirmed by a [competent person](#) able to identify asbestos as defined by WorkSafe Australia as not containing asbestos.

**Note:** ACM Ducts shall not enter any new/replacement pits or manholes. Refer to work instruction 010254W02 and 010254W06.

## 4.3. Excess Soil Management

Works likely to involve excess soil must follow Telstra’s [Soil Management Procedure](#). This procedure involves:

- Preliminary soil screening (desktop review) to categorise the potential for soil contamination. This will also dictate the preferred methods for excavation, or if soil sampling is required.
- Visual assessment of the site prior to and during excavation to identify potential contaminants.
- Disposal from site in accordance with known and observed contaminants (including ACM).

## 4.4. Locating Underground Assets

Before any excavation works are to be carried out all constructors shall comply with the [Working on or Adjacent to Underground Assets Procedure](#) and complete a [Working on or Adjacent to Underground Assets Permit](#).

## 4.5. Fire Ants

To prevent the spread of fire ants, the government has implemented movement controls where this pest species has been detected. These controls apply to individuals and commercial operators and restrict the movement of materials that could carry fire ants.

It is an offence if you do not comply with movement controls within fire ant biosecurity zones. Breaches of these controls can potentially impact the community, economy, and the environment.

To help prevent the spread of fire ants, you should:

- Understand what fire ants look like and what materials (i.e. fire ant carriers) they might be moved in.
- Be aware if you are living or working in a fire ant biosecurity zone.
- Take all reasonable steps to ensure you do not spread fire ants.

More information can be found at the [National Fire Ant Eradication Program \(fireants.org.au\)](#) website.

## 4.6. Earth Potential Rise

Earth Potential Rise (EPR) is a condition where a fault on High Voltage power line causes a high current to flow through the associated earthing system, raising the voltage on the earthing system and surrounding soil with respect to a remote earth. This rise in voltage can be hazardous. It may occur at any time without warning at or near HV structures.

It is preferable to not install any new pits or manholes within an EPR zone, however, if a pit or manhole is to be installed within an ERP zone, they shall only be for hauling purposes i.e. no joints or equipment shall be installed in them. The pit or manhole installed within an EPR zone shall have an EPR Danger sign attached (material number 14800288) and be recorded as a SWL.

Refer to the 013926 series of documents for more details.

## 05 Management of Existing Plant

Care must be taken to not damage any existing infrastructure during the course of using the rods or installing the rope.

Lead cables tend to be more fragile than plastic cables and have a low tolerance to movement.

If the cables and/or joints need to be moved during work tasks, they are to be handled carefully and replaced correctly in the pit or manhole at completion of the task.

Avoid lacing the rope through existing cables.

Always use cable hauling lubricant on the cables, rods, rope and mandrel when overhauling existing cables.

## 06 Rodding

### 6.1. Solid Rodding Method

The following method details how to rod a conduit:

- Clean out all build-up of debris or siltation in the pits.
- Use either a continuous fibreglass rodder or PVC sectional rods with couplings as appropriate.
- Rod the conduit between pits or manholes.
- Attach a hauling/draw rope to the rods and pull back through the conduit.

#### 6.1.1. Continuous Fibreglass Rodder (CFGR)

The CFGR is a continuous length of fibreglass rod. Some are nylon jacketed for protection. The rod is transported on a steel dispensing reel.

Continuous fibreglass rods can be fitted with a "ball type" tip (N/S) to eliminate lacing with existing cables when rodding.

#### 6.1.2. PVC Sectional Rods

Conduit rods can be fitted with a "bulb type" tip (N/S) to eliminate the lacing with existing cables when rodding.

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## 07 Positive Pressure Roping

Positive pressure roping is not permitted in ACM conduits - refer to Section 3.2 for ACM practices.

Plant records shall be checked to identify the conduit material prior to positive pressure roping. Visual inspection of conduits entering pits or manholes shall also be conducted, noting that the material may vary along the length of the conduit route, e.g. PVC conduit extensions to ACM conduits may exist.

### 7.1. Actions

A cord may be blown or sucked along the route between manholes or pits. This process can be adopted regardless of the occupancy of the conduit.

The cord is then used to install an appropriate hauling/draw rope.

### 7.2. Installation Equipment

The equipment required to install a draw cord or rope using a cabling/roping device is:

- Air Compressor (Code: BMA) with facilities to override cut-off valve.
- Compressor hose.
- An approved Cabling/Roping Device, e.g. Fixed Head Cabling/Roping Device as shown in Figure 1.
- Cabling/Roping nozzle to suit Conduit diameter.
- Cabling/Roping Ferrules to suit cord or cable diameter.
- Projectile - parachute or roping bag type.
- Cord/Rope dispenser; with Cord (67500083) or B/Y Rope (67500294).

#### Notes:

1. A SWMS (Safe Work Method Statement) for the equipment and associated work practices shall be followed. If no SWMS exists, one must be developed prior to use of the equipment.
2. The equipment shall be operated only by staff trained in the use of the specific equipment.
3. When installed and operated, the equipment selected shall not cause damage to any Telstra InfraCo conduits, cables or other network components.
4. Refer to the manufacturer's instructions for full operating procedures.



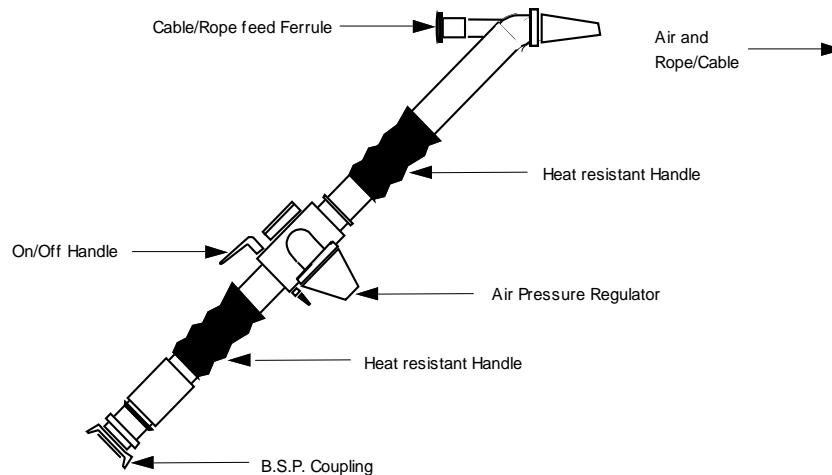


Figure 1 – Example of a fixed head cabling/roping device

### 7.3. Safety Notes

- With the required guarding around the manhole/pit, ensure that the work area is free of obstructions.
- Ensure that the compressor hose is in good condition with no repair points and there is a safety chain/pins attached across the hose connection to the compressor.
- Before using the cabling/roping device, ensure that all safety equipment is available for use and is used as required. Such items include goggles, gloves, earmuffs, helmet, vest.
- No person is to be in the receiving (far) manhole or pit during the cabling/roping operation.
- Ensure there is good communications between the compressor operator and the cabling/roping device operator.

## 08 Mandrels

The use of a mandrel or series of mandrels, to prove the duct space needed to accommodate the cables is mandatory. If more than one cable or a series of cables is to be hauled into the conduit, the required size mandrels are to be secured together in the cable hauling configuration i.e. the larger mandrels should be side by side with the smaller mandrel on the top.

For an occupied conduit the mandrel diameter(s) should be about 1.5 times the diameter(s) of the cable(s) to be installed. If difficulty is encountered using the recommended mandrel size(s), the hauling of 1 metre length(s) of similar size scrap cable secured in the desired configuration can be used as a mandrel.

For an unoccupied or new conduit the mandrel should be 95% of the size of the conduit.

There is a possibility that non-metallic mandrels will wear very quickly, and therefore the diameters should be checked regularly.

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## 8.1. Installation of Mandrels

1. Using the appropriate size mandrel, attach and secure the leading end to the rods or cord, covering the join with PVC tape or other appropriate method, ensuring that it will not obstruct the required flow through the conduit.
2. Attach polypropylene rope (Material No.67500294) to the loop or the other end of the mandrel and secure the free end of the rope, covering the join with PVC tape or other appropriate method.
3. Using the recommended cable hauling lubricant (Material No.09100030) and applicator, lubricate the mandrel and rope prior to insertion into the conduit entry.
4. Draw the rods and mandrel through the conduits.
5. Identify the rope with the project number as per Work Instruction 010257W06, by attaching a PVC tag (Material No.09700104) to the rope using cable ties if is not to be used immediately.
6. Fit appropriate size plugs into the conduit entries.
7. Continue this operation between all pits and manholes.

If the rods and suitable mandrel go through the conduit unobstructed, the conduit will be satisfactory to house the cable configuration.

## 09 Ropes and Attachments

Refer to section Work Instruction 010265W01.

## 010 Clearance of Obstructions

If major obstructions are encountered refer to Work Instruction 010260W03.

## 011 Material list

The following is a list of the main components that are referred to in this document. This list is specific to the currently contracted material and may be subject to change:

Material Description	Material No
Lubricant, Cable Type A Polywater	09100030
Rod, Conduit F/Glass 6 mm x 125 m C/W Frame	10200027
Rod, Conduit PVC 3.0 m C/W Couplings	10200010
Rope, Polypropylene Blue/Yellow 6 mm x 400 m	67500294
Tag, Ident PVC White 65 x 35 mm Box 100	09700104
Cord, Polypropylene Braided Orange 1000M	67500083

*Table 1 - Material List*

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## 012 References

Document number	Title
010256W01	Cable Hauling and Duct Preparation – Cable Hauling
010256W05	Cable Hauling and Duct Preparation –Over Hauling of Optical fibre Cable
010257W06	Tags and Labelling
010260W03	Conduit Installation and Maintenance - Clearance of Pipe And Conduit Blockages
010265W01	Cable Hauling and Duct Preparation – Cable Hauling

## 013 Definitions

Term	Definition
ACM	Asbestos Containing Material
CFGR	Continuous Fiberglass Rodder.
Mandrel	Manufactured device use to prove conduits.
Proving	Confirming that the desired cable configuration will fit into the required conduit or duct space. This is achieved by hauling a suitable mandrel with the hauling rope.
Rodding	The insertion of rods into the conduit, to be used as a hauling medium for the mandrel and rope.
Roping	The insertion of a rope or cord into the conduit, to be attached to the cable hauling grip or mandrel.
SWMS	Safe Work Method Statement

## 014 Attachments

Document number	Title
Nil	

### General

## 015 Document Control Sheet

This document has been formally approved by the person identified below:

<b>Approver Name</b>	<b>Leader, Warren</b>
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Who to reach out to if you have any queries, questions, changes or concerns.

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If you have a suggestion for improving this document, please contact the people listed above.

## 016 Record of Issue

Issue num'	Issue date	Details on the change
1	26 March, 1999	First Issue
2	21 March, 2002	Section 6 – Reference to App. 52 part 1 section 8 added to replace old text.
3	28 July, 2004	New Telstra Document Number - replaces Appendix 52 Part 2 Document placed in new template 8.6.8
4	11 September 2014	Reviewed and updated. BP
5	31/07/2015	Contents reviewed and new template applied. Serial/Item Numbers replaced with Material Numbers.
6	18/05/2016	Section 5.4 Clarified mandrel sizing Section 8 Added material list
7	18 October 2023	New template Section 3 – Updated all subsections. Section 5.11 – Removed length and diameter of CFGFR. Section 5.1.2 – changed “emerge from conduit” to “emerge from pit or manhole”.
8	21 May 2024	Section 2 – New heading. Section 4.5 – Removed incorrect phone number. Section 6.1.1 – Removed “how to” steps. Section 6.1.2 – Removed “how to” steps. Section 7 – New section on positive pressure roping. Content moved from 010265W03 which is now “Obsolete”. Other minor “word smithing”.

### General