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Erection and Retension of Dropwire

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Table of Content

1	INTRODUCTION	8
2	SCOPE	8
3	SAFETY	8
4	WORKING IN THE VICINITY OF POWER LINES	9
5	WORKING IN LOW AMBIENT LIGHT CONDITIONS (WITHOD)	9
6	ERECTION OF THE DROPWIRE	9
7	JOBS REQUIRING ASSISTANCE	12
8	PRELIMINARY WORK	12
9	MINIMUM FIXING HEIGHT FOR DROPWIRE CLAMP	13
10	CHECKING DROPWIRE CLEARANCE	14
11	ENTERING PROPERTY OTHER THAN THE END USER'S	15
12	ATTACHING THE DROPWIRE TO POLE TOP FITTINGS	15
12.1	WOODEN POLE TOP	15
12.2	HOLLOW POLES	18
12.3	FIXING DROPWIRES TO POLES WITH NO RINGHEAD OR TO OTHER POSITIONS ON THE POLE	18
13	PROCESSES FOR THE PROVISION OF DROPWIRE TO END USER'S PREMISES	21
14	PROCEDURES FOR THE PROVISION OF DROPWIRE TO END USER'S PREMISES	34
14.1	PROCEDURE 1 - RIG HOLLOW POLE	35
14.2	PROCEDURE 2 - RIG WOODEN POLE	40
14.3	PROCEDURE 3(A) ATTACHMENT AT END USER'S PREMISES	40
14.4	PROCEDURE 3(B) - ATTACHMENT AT END USER'S PREMISES WHERE A LOW VOLTAGE OVERHEAD POWER FEED EXISTS	41
14.5	PROCEDURE 4 - SASHLINE AND PULLEY DROPWIRE 5/6 AT END USER'S PREMISES	41
14.6	PROCEDURE 5 - DROPWIRE TERMINATION AT THE CUSTOMER'S PREMISES	43
14.7	PROCEDURE 6A - WALKOUT DROPWIRE TO NEXT POLE (WOODEN POLE)	46
14.8	PROCEDURE 6B - WALKOUT DROPWIRE TO NEXT POLE (HOLLOW POLE)	47
14.9	PROCEDURE 6C - WALK OUT TO INTERMEDIATE HOLLOW POLE	47
14.10	PROCEDURE 7 - CLAMP AND TENSION AT DP (HOLLOW AND WOODEN POLES)	48
14.11	PROCEDURE 8 - RIG INTERMEDIATE POLE FOR ROAD CROSSING USING BELT POLE (WOODEN POLES ONLY)	49
14.12	POWER CROSSINGS	50
14.13	PROCEDURE 10 - PULL UP SASHLINE AT POLE	59
15	DROPWIRE RETENSIONING	60
15.1	DROPWIRE STRETCH MODES	60
15.2	RETENSIONING DROPWIRES ON WOODEN POLES AND HOLLOW POLES	60
16	DROPWIRE RENEWAL AND RECOVERY	63
16.1	CUT AND DRAW	63
16.2	RENEWAL - "CUT AND DRAW" METHOD	63
16.3	SINGLE SPAN DROPWIRE RENEWAL BETWEEN DP AND END USER'S PREMISES WITH OR WITHOUT ROAD CROSSING	64
16.4	MULTI-SPAN DROPWIRE RENEWAL BETWEEN DP AND END USER'S PREMISES WITH OR WITHOUT ROAD CROSSING	67

16.5	RECOVERY-----	71
16.6	SINGLE SPAN DROPWIRE RECOVERY -----	72
16.7	MULTI-SPAN DROPWIRE RECOVERY -----	74
17	PROACTIVE FITTING OF PROTECTOR CABLE ABRASION (PCA) -----	78
17.1	INTRODUCTION -----	78
17.2	METHOD OF INSTALLATION ON DROPWIRE-----	78
18	REACTIVE FITTING OF PROTECTOR CABLE ABRASION (PCA) -----	79
18.1	INTRODUCTION: -----	79
18.2	METHOD OF INSTALLATION -----	80
19	WORKING PRACTICE FOR PROP CABLE TELESCOPIC ON HIGH LOAD ROUTES -----	81
19.1	ADDITIONAL GUIDANCE-----	84
20	REFERENCES -----	85
21	APPENDIX 1 -----	86
21.1	EYE BOLT REPOSITIONING TO FACILITATE RENOVATION WORK -----	86

1 *Introduction*

This ISIS practice describes the equipment and practices used to erect, renew retention and recover dropwires in the overhead access network. This document must be read in conjunction with ISIS EPT/ANS/A011.

There are several types of dropwire in the Access Network. The most common ones are dropwires 10B, 11 & 12.

For current Dropwires see EPT/ANS/A011.

2 *Scope*

Drop wiring that involves all types of poles. Routes that include dropwire spans across roads, single/multi-span route(s) and routes in the vicinity or across overhead low voltage power lines.

This ISIS also contains information on end user fixings. For further information on end user fixings see EPT/OHP/B013

3 *Safety*

It is a requirement of “The Management of Health and Safety at Work Regulations” that work activities have a suitable and sufficient assessment of the risks associated with that activity. See the Health and Safety Handbook, SFY/HSB/A001.

This document contains references to risks related to specific tasks at appropriate places within the text. **Safety information on overhead work and dropwiring is also contained within the [Health and Safety Handbook SFY/HSB/A001](#) and “Safety at Street Works and Road Works – a code of practice”).** The code of practice for Safety at Street Works and Road Works is available from the D.T.L.R web site at [Please click here for the URL](#)

This site must be bookmarked and/or downloaded by all people involved with Street works and Road Works and their supervisors and managers who all have responsibilities within the Code of Practice.

Dropwiring work must only be carried out by appropriately trained staff.

If you are in any doubt about any safety issues, please contact your line manager.

See Appendix 1 at the end of this ISIS document for further information.

4 ***Working in the Vicinity of Power Lines***

When working in the vicinity of Power Lines or on joint user poles you must also follow the working practices laid down in ISIS EPT/PPS/B026, EPT/PPS/B038, EPT/PPS/B046 & SFY/HSB/D040.

5 ***Working in Low Ambient Light Conditions (WITHOD)***

See SFY/HSB/D040 for full processes and restrictions for Working in the Hours of Darkness

6 ***Erection of the Dropwire***

Safe working heights of dropwire and Sash Line must be maintained during the erection of dropwire (E.g. at road and power crossings). This is accomplished by securing the dropwire or sashline using the following pieces of equipment depending on circumstances.

(See processes in Section 13 and procedures in Section 14).

- Pulley Dropwire 5 or 6 (one way pulley),
- Belt pole 1B (by attaching sashline to one of the cleats).
- Dispenser Dropwire 2B (by use of braking and locking mechanisms).

Caution: When using the Dispenser Dropwire 2B to maintain tension in the sashline or dropwire, the dispenser must always be lashed to the pole using Straps Lashing 1. See EPT/OHP/B013 Dropwiring Components

Use of Clamp Dropwire

Clamps Dropwire must always be wrapped around the dropwire – Do not wrap the dropwire around the clamp. The dropwire must be gripped with the full length of the coated section of the clamp without missing any section of the helix along its length.

Wrap the short leg of the clamp around the long leg to form a closed eye ensuring all the coated parts of the short leg are wrapped around the long leg.

Caution: NEVER RE-USE A CLAMP DROPWIRE

Span Length - Wooden and Hollow Poles

Details of Dropwire spans are shown in ISIS EPT/ANS/A011

Note: New reels of Dropwire have a square window cut into the side of the drum to indicate the amount of dropwire left. Only 80 metres of dropwire will be left on the reel when the cable is visible in the square window.

Multi-span Installation

One person may carry out erection of more than three spans of dropwire; however no more than three spans shall be pulled up at any one time.

Dropwire Tensioning and Retensioning

Apply the final tension to the dropwire by hand **at the pole**.

Warning: NEVER TENSION DROPWIRE FROM A LADDER

Loading on the Pole

For loadings on wood and hollow poles see EPT/ANS/A011

Joints in Dropwire

Where possible the dropwire should be installed in one continuous length. For further information refer to ISIS EPT/ANS/A011.

Note: Where there is internal wiring required, Dropwire must be changed over for internal cable within two metres of entry to the building in accordance with EPT/CJT/D022.

Dropwires in Line of Route

Refer to Section 6 of ISIS EPT/ANS/A011.

Dropwire Contact with Obstructions

Running dropwire through trees should be avoided; if this is not possible, pruning of the branches should be considered.

All pruning or lopping shall be accomplished in accordance with (British Standard) BS 3998 - Recommendations for Tree Work Standards.

Before carrying out any pruning or lopping work all wayleaves or other permission must be obtained and it must be ensured that no preservation order preventing or limiting the pruning or lopping is in force.

Upon completion of the work all cuttings not required by the tree owner must be disposed of and the work site left in a tidy condition. Special care should be taken to keep all cuttings from poisonous trees and shrubs away from cattle and livestock.

The disposal of scrap materials shall be in accordance with BT's waste guide ISIS RAL/ENV/B011.

Minimum Ground Clearances

Warning: It is a mandatory requirement that the heights of all wires crossing the carriageway are checked, to ensure a minimum clearance of 5.2m. If there are any wires below 5.2m it is not permitted to climb the pole and other means of access will be required. Generally this will mean that the job is passed to another duty or work queue.

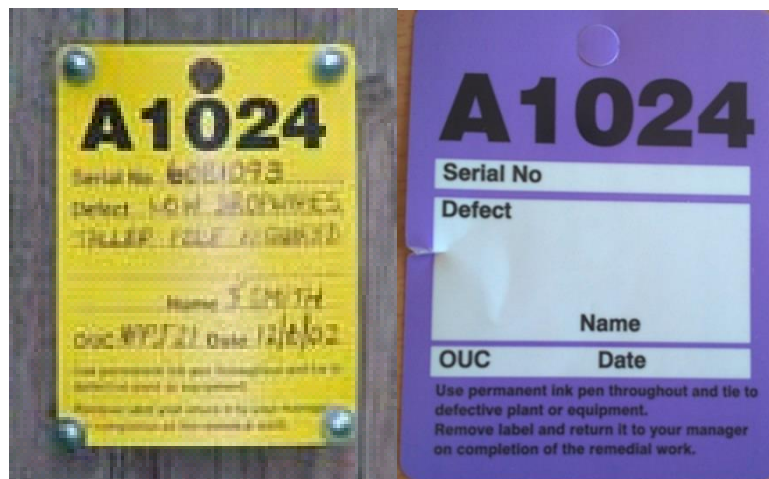
On completion of all road crossings the dropwire height must be checked. The document containing the clearances for dropwires including CAD 55M is contained in ISIS EPT/ANS/A013

An appropriate A1024 should be submitted for any plant, which does not meet the standards.

Examples of current A1024 labels are shown below:-

If a yellow or purple A1024 label is on the pole **you must read it**. Check for information on wires crossing the road and that these do not pose a risk by being low or that the pole needs staying. If you are unable to read the labels contact the A1024 Control.

The telephone number to call is:- **0808-100-1024**



A1024 labels item code 005381

For further information on A1024 procedures see NWK/NNS/V080 and NWK/NNS/V018

The dropwires shall be erected / retensioned to the wire heights as shown in EPT/ANS/A013.

7 *Jobs Requiring Assistance*

One person will normally carry out the work described in this ISIS. Erection of more than three spans of dropwire may be carried out by one person; however no more than three spans shall be pulled up at any one time.

The following are some typical examples where jobs must not be carried out single-handed:

- Across dual carriageways, busy roads, busy road junctions or where there is insufficient visibility.
- On a combined road and power crossing.
- Where a sashline hanging vertically (for example from a power line, tree, etc) causes an obstruction to the public's right of way.
- On recovery work with a road crossing on route or on a low voltage power crossing where the dropwire is suspended above the power line.
- On 'D' poles.

Jobs that are considered unsafe for one person should be reported back to your manager.

If more than one person is involved in carrying out the work, then agreement as to who takes control and responsibility for the work must be reached on site, prior to the commencement of any task. In the examples above, the second person can be utilised to advise when traffic is clear and when it is safe to pull up the sashline across a road or footpath. The second person should also ensure that pedestrians do not become entangled in our plant e.g. when the sashline is hanging from power-lines in the vicinity of a pedestrian right of way.

In exceptional circumstances special equipment may be required to complete the work, for example an elevating platform may be required for work on 'D' poles.

Caution: The final decision on whether work can safely be carried out single handed rests with the person carrying out the work. See Hazard section:- Appendix 1

8 *Preliminary Work*

The following preliminary steps may be required before erecting or recovering dropwires.

1. When surveying the work site, hazards as listed in Appendix 1 at the end of this document must be taken into account. If you consider that you cannot do the work safely on your own you must report back to your control.

2. Assess the lighting conditions and set up for working in low ambient light conditions (WITHOD), if necessary. Further information can be found in [WITHOD Toolbox talk](#)
3. Inspect and test the pole(s). If a pole is found to be suspect do not climb the pole, seek advice from your control. (Refer to ISIS EPT/OHP/C022)
4. If required, determine from the end user, the location for the Network Terminating Point.
5. For new installations, decide on the most suitable fixing point for the end user's dropwire clamp attachment, taking into account the minimum carriageway clearance.
6. Carry out road works guarding to the required standard. (Refer to [Safety at Streetworks and Roadworks, a Code of Practice](#)).
7. Using the appropriate measuring instruments or slide rules confirm that the minimum clearance can be achieved (refer to Section 10.)
8. Guard the work area to prevent interference from and danger to the public. This is particularly important at the base of the pole.

You must now determine which Installation/Recovery method should be used to carry out the work (see Sections 13 and 14).

9 ***Minimum Fixing Height for Dropwire Clamp***

When a road crossing is encountered, the minimum fixing height of the dropwire clamp attachment point to enable the carriageway clearance to be obtained should be ascertained using the procedures outlined below.

Prior to erection of overhead plant across a carriageway, an assessment must be made to ensure that the required minimum clearance can be obtained for the proposed provision. This assessment must take account of the following:

- The required minimum carriageway clearance of 5.9 m for newly installed dropwires unless the pole is labelled with an alternative requirement. **See ISIS EPT/ANS/A013**
- The height above ground level at which the wires leave the pole using the 3 m pole marking as a reference (see Section 10)
- The position of the carriageway in relation to the poles and/or fixing points.
- The level of ground between the proposed fixing points in relation to the carriageway level.
- The end user end fixing height that can be achieved.
- The standard safety clearance for Power Crossings and Joint User Construction that must be achieved.

Height Dropwires Leave Pole above 3 m Mark

Wood Pole - Ring Head Distribution

Pole Size	Estimated Height Dropwires Leave Pole Above 3 m Mark
8 m	4.8 m
9 m	5.8 m
10 m	6.8 m
11 m	7.8 m

Hollow Poles

The 3 metre mark on a hollow pole is the top edge of the door aperture.

Pole Size	Estimated Height Dropwires Leave Pole Above 3 m Mark
8.5 m	5.5 m
9.5 m	6.5 m
10 m	7 m

End User End Fixing Height

The clearance of existing plant crossing the carriageway from the feeding pole or fixing can be measured to assist in the estimation of required height for proposed fixings.

The tools used for measuring the minimum clearance standards are contained in section 10.

10 *Checking Dropwire Clearance*

Table 3 Height Measuring Tools

Height Measuring Tool	Item Code
Rods Clearance Telescopic 7 m	008874
Wheel Measuring	117652
Height Measuring Instrument Ultrasonic	127585

Instructions on use are supplied with all of the above measuring/checking tools except the Rods Clearance Telescopic, which are given below.

Method of Checking Dropwire Clearances using the Rods Clearance Telescopic 7 m

The following describes the method of checking dropwire clearances using the Rods Clearance Telescopic 7 m (item code 008874) only:

Caution: Wear gloves and eyeshields when using the rods.

1. Pull out rubber bung from top end of rod.
2. Extend rod as follows:
 - ◆ Pull out innermost section of rod (white painted tip) until marker ring of section is just visible above the next section.
 - ◆ Continue to extend further sections of the rod (ensuring all marker rings are visible) until the desired height marking (5.9 m or 6.5 m) is obtained. Hold the rod in this position with one hand.
3. Stand directly under the dropwire at the lowest point of the span, place butt of rod on the road surface and move rod from side to side at right angles to the dropwire.
 - ◆ **Beware of traffic.**
4. Providing the tip of rod does not touch dropwire, it can be assumed that the required clearance has been met.

Further information regarding the use of Rods Clearance Telescopic 7m can be found in [EPT/OHP/C032](#) Section 5.

Note: The Line Manager should ensure the rods are validated in accordance with ISIS CWC/NAT/D011

Note: If the relevant clearance cannot be obtained then it should be reported via the A1024 system. **See section 6.**

11 ***Entering Property other than the End User's***

If the job involves entering onto property other than the end user's, permission must first be obtained see EPT/OAM/F027

12 ***Attaching the Dropwire to Pole Top Fittings***

12.1 **Wooden Pole Top**

Attaching a Dropwire to Wooden Pole Top fittings

The fittings that are currently available for wooden poles are the Ring Pole Head Dropwire and Bracket 22, the positioning of which must comply with the provisions laid out in EPT/OHP/B058. Additionally Ring Pole Stand-off 1A is available for Joint use poles see EPT/PPS/B036 for positioning and loading restrictions.

Prior to the introduction of the Ring Pole Head Dropwire in 1957 there were other types of ring used at the top of the pole which are still present in the

network. The most common of these is the Pole Head Ring Type Split 15 Way, which was used with insulators for open wires. These are made from a cast alloy ring or galvanised channel, formed into a ring and have 15 sets of holes around the circumference. Current dropwires are attached using a Bolt 25.

Pole Head Ring Type Split 15 Way

Figure 1A shows an example of Pole Head Ring Type Split 15 Way with 2 Hook Clamp Dropwires attached. The bolt shown is a new version of Bolt 25 with washers and Nyloc nut attached. The new bolt is 100mm long compared to 75mm for the old version. It also shows that up to 2 Hook Clamp Dropwires can now be fitted to the ring.

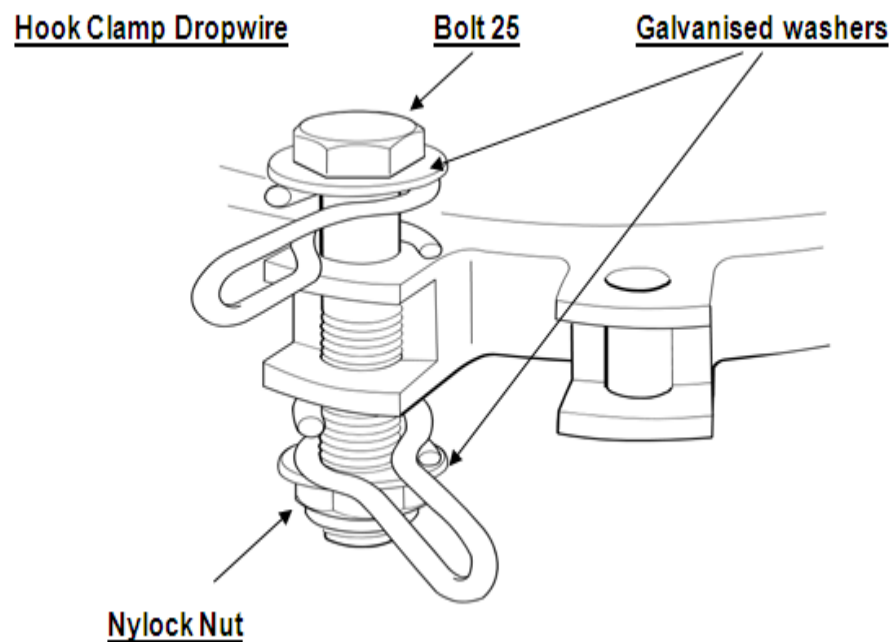


Figure 1A

Installation of Bolt 25

Note: The installation of the Bolt 25 can be carried out from the pole or from the Platform of a Platform Elevating Vehicle.

When working from the pole it is a requirement that any spanners used to undo the J bolt or when fitting the Bolt 25, that a sashline is attached to the spanners and the pole ring just in case the spanner/s are dropped whilst carrying out the installation of the Bolt 25 or removing the J bolt. Make sure that the work can be carried out in a safe working position, without undue stretching. It is also advisable to secure the spanner when working from a platform bucket. The use of a lubricant such as Spray Lubricant 1A may help

in the removal of the J bolt. Make sure you use the required safety protection equipment when using the spray lubricant. Also make sure the area below the pole or the platform is guarded before work commences.

Before making any new attachments to the Pole Head Ring Type Split 15 Way, a full inspection of it's condition MUST be made. If it is in good condition i.e no corrosion, cracks in the casting or distortion of the casting, the Bolt 25 and up to two Hook Clamp Dropwires can be used to install new dropwires.

Where insulators and spindles are still present they should be removed by undoing the nut on top of the spindle using a Spanner Adjustable 300mm (Item code 126980). Ensure that the spindles and insulators do not fall to the ground. This can be accomplished by attaching a sashline between the bracket and the pole ring. The tool bass can be used to provide a container for recovering the insulators and spindles, before lowering to the ground.

A galvanised washer (supplied with the Bolt 25) should be placed between the bolt head and the Hook Clamp Dropwire. The bolt should be placed through the hole in the ring. A second Hook Clamp Dropwire can then be placed under the ring. The second washer should then be placed between the second hook and the Nyloc nut.

Ensure that the Nyloc nut engages fully on the thread of the bolt.

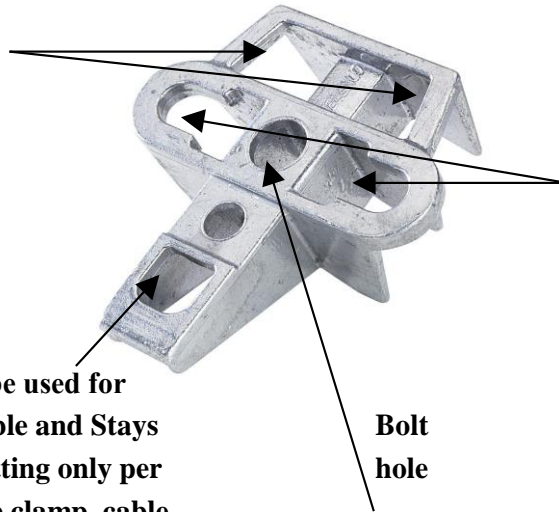
Both the nut and bolt are 24mm across flats and can be tightened using Spanner Combination 24mm AF (Item code 126991) which is available through eASC.

Once the Bolt 25 is fitted, the Clamp Dropwire 10A can be installed.

Warning: The Bolt 25 is not to be used for customer fixings at the house end. It is only to be used on Pole Ring Head 15 Way.

Also available is the Telenco Universal Pole Bracket which is secured to the pole with one Bolt Hex 16mm by 300mm or Bolt Hex 350mm or steel banding. Dropwires are secured to the UPB using Clamp Dropwire 10A. For further information see EPT/ANS/A012.

Holes 'A' for Dropwires
(ONLY 3) per side)



Holes 'B' are for
Dropwire and Aerial
Cable only. NOT FOR
STAYS. One type of
fitting only per hole,
dropwire clamp and
cable clamp cannot be
in the same hole.

Hole 'C' can be used for
dropwires, cable and Stays
One type of fitting only per
hole, dropwire clamp, cable
clamp and Stay Clamp
cannot be in the same hole.

Bolt
hole

A Clamp Dropwire 10A must first be attached to the fitting by passing one leg of the opened eye of the clamp around the ring, through the centre of the eye of the bracket or the appropriate hole in the UPB. Wrap the short leg of the clamp around the long leg to form a closed eye ensuring all the coated parts of the short leg are wrapped around the long one.

12.2 Hollow Poles

Hollow poles are fitted with a permanent internal ring accessible through the door. Clamp Dropwire 6A i/c 016309 are used to secure the dropwire to this ring. Hook the eye of the clamp onto the ring and tension the cable through the door way. Wrap the clamp around the dropwire using all the coated section of the clamp.

12.3 Fixing dropwires to poles with no ringhead or to other positions on the pole

Occasionally, there will be the need to be able to fit dropwires on poles, not using the standard method of attaching to a ringhead. This may be because the pole does not have a ringhead fitted, or where because of other reasons, the dropwire needs to be attached lower down the pole. This is likely to be due to an obstruction in the line of the span, or very occasionally, where there is also an electric cable in the way of the route, and it is not possible to fly over the EL cable. In this circumstance, to go below the EL cable and achieve

the requisite clearance, it might be necessary to attach the cable lower down the pole.

This section deals with two specific scenarios:-

1. where there is currently not a ringhead fitted to the pole
2. where the point of attachment needs to be lower down on the pole.

12.3.1 Where no ringhead is fitted.

The preferred solution here is to fit a ringhead. Virtually all poles will have the correct hole drilled through at 200mm down from the tip. It is highly unlikely (but not impossible) that the pole will not have the correct pre-drilled hole.

If there isn't a hole, then the options are, in preference order:-

1. Drill the pole, using an auger bit, to fit a ringhead
2. If only a single dropwire is to be fitted, a Bracket 22 can be fitted to the pole, but as per existing quality standards, multiple Bracket 22s are NOT permitted on the same pole side.
3. If more than a single dropwire is to be fitted to the same pole side, then a Telenco UPB can be fitted, either bolted to the pole or by using stainless steel banding – see EPT/OHP/B012 section 10.6.

See below for a list of items

12.3.2 Where the point of attachment is lower down.

Where it is necessary to attach dropwires lower down the pole, below the level of the working steps, it is permitted to change an existing step to a Steps Stand –off. This is likely to be a very rare occurrence, but may be required for example when our cable has to pass under a LV power line and is required to achieve the relevant clearance, and because the poles are similar height, it is not possible to 'fly over' the EL line. Guidance for replacing steps is in ISIS EPT/OHP/B036 - section 3.1.7. If the pole is a "Z" pole, then the steps can only be replaced by using a MEWP.

Dropwires can be affixed to the step stand-off, and then routed up or down the pole as required, using Straps Cable Fixing 12A pinned to the pole at a maximum of 450mm intervals. Ensure the cable is run up the pole following the same line as any existing UG cable, or the line such a cable would take. Fix the dropwire to the lower leg of the step using straps cable fixing. Wires must not extend closer to the climbing area than the 180° arc shown below in Fig 2.



Fig 1, showing an example of cable having to pass under a similar height EL line

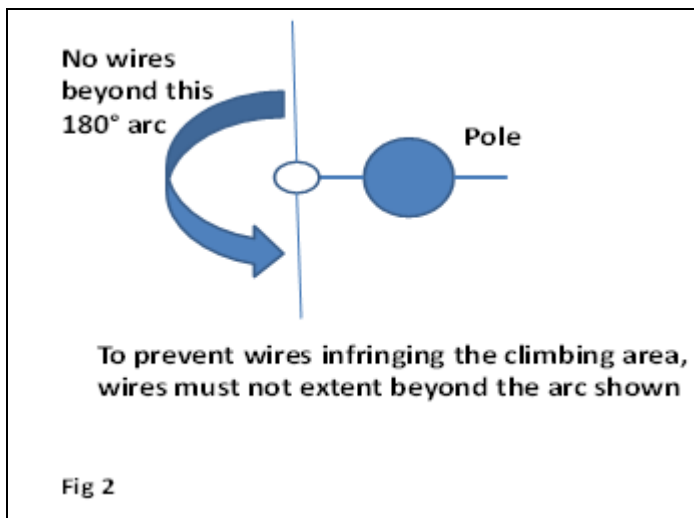


Fig 2, showing the 180° arc

Note: any wires installed in this way must still meet the relevant ground carriageway clearance, as stipulated in EPT/ANS/A013

12.3.3 Items required

Item Code	Description
026658	Auger 16mm x 330 (SDS end)
021240	Ring Pole Head

016286	Steps Stand off
016266	Plugs creosote
014700	Screw Coach (for fitting steps)
016988	Telenco UPB

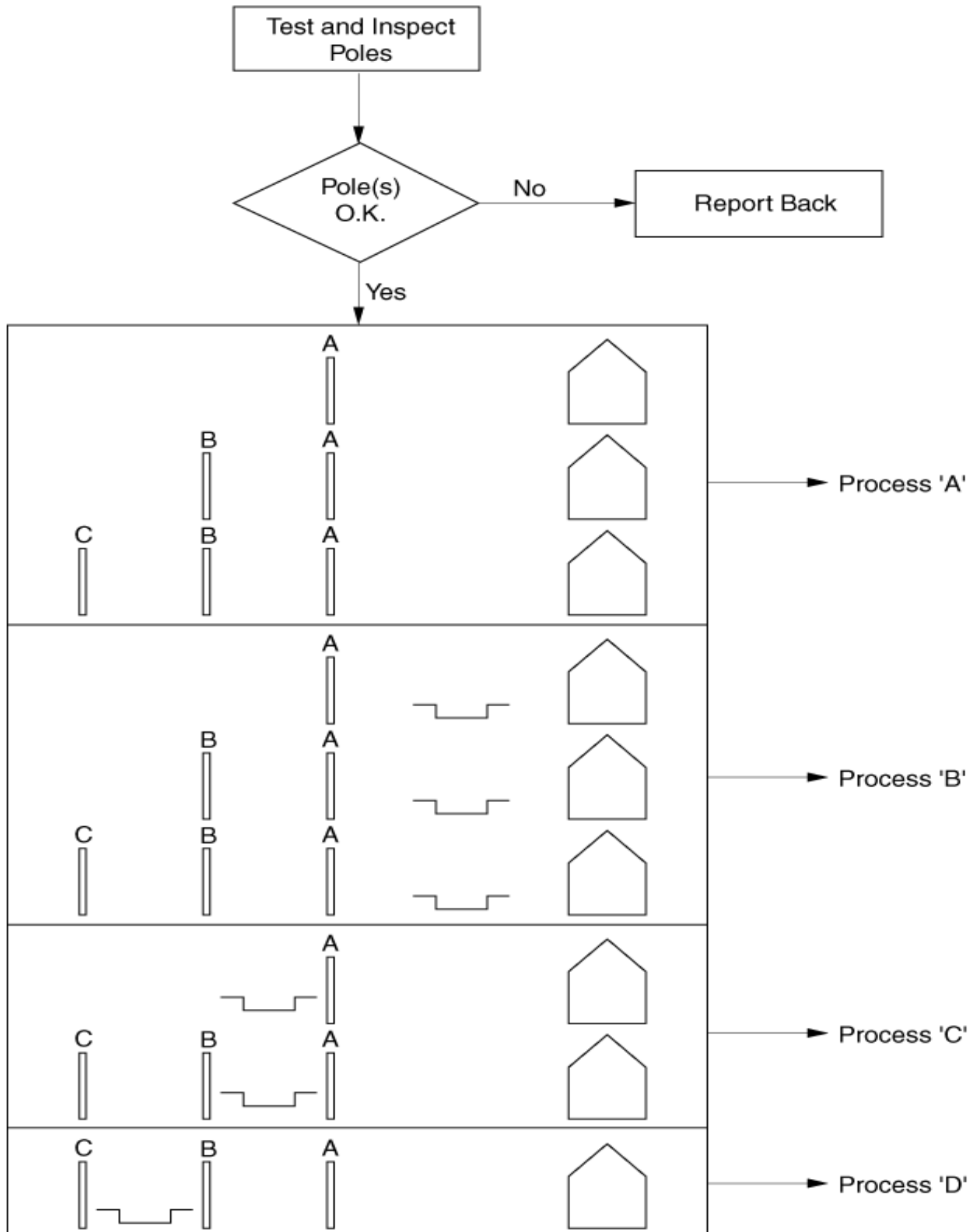
Note: Ensure all relevant guidance regarding changing steps is followed, and that you have all of the necessary equipment. If unsure of the task, refer back to your Control or Manager for assistance.

12.3.4 Climbing the pole

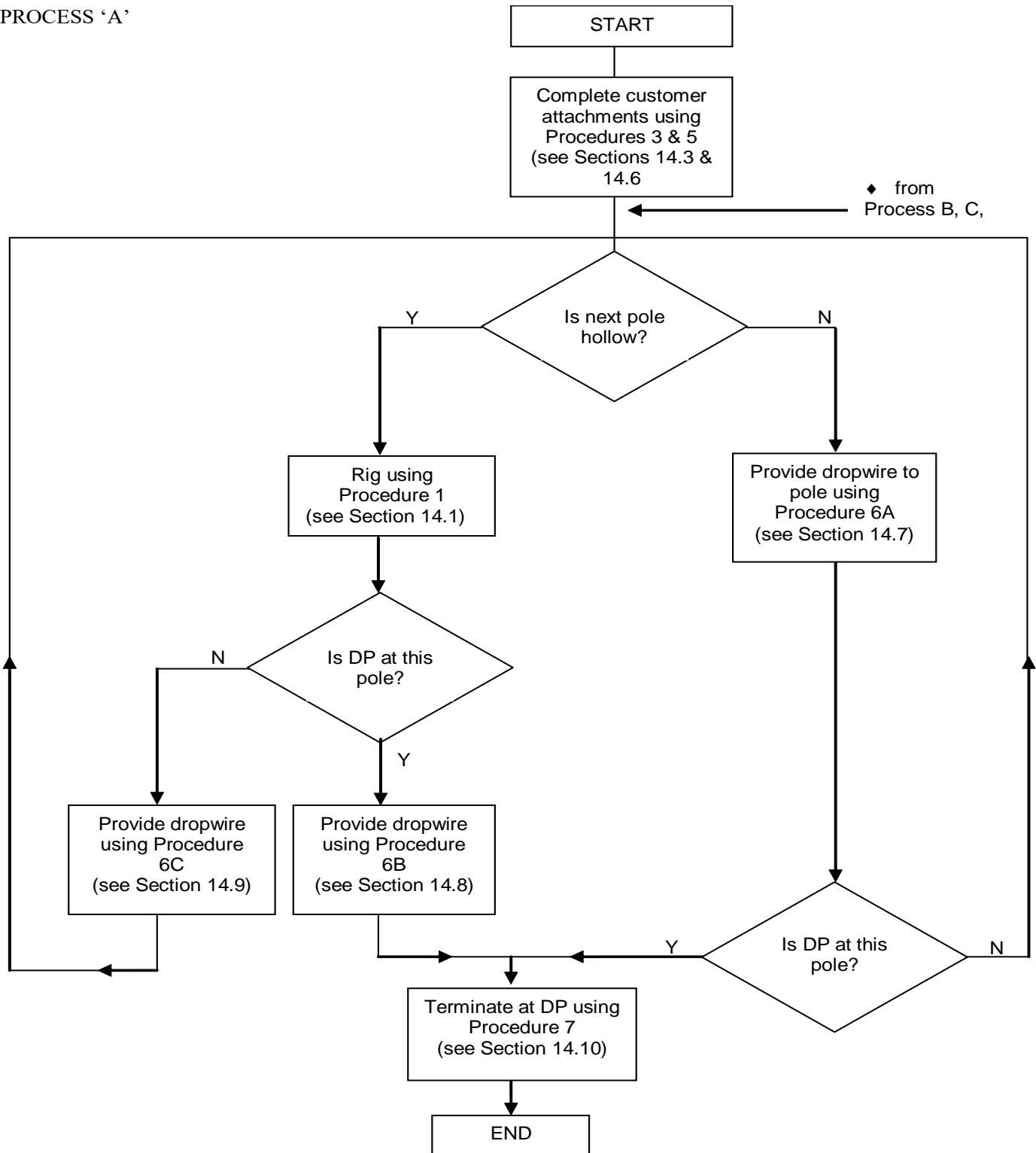
Cables using this fixing method will be very rare, but if encountered, standard climbing practices to deal with an obstruction should be used to pass the cable. This entails use of the Work Positioning Belt temporarily to re-affix the Fall Arrest Lanyard above the obstruction. This is included in the relevant Climbing courses, and detailed in Health & Safety Handbook, SFY/HSB/D042.

13 *Processes for the Provision of Dropwire to End user's Premises*

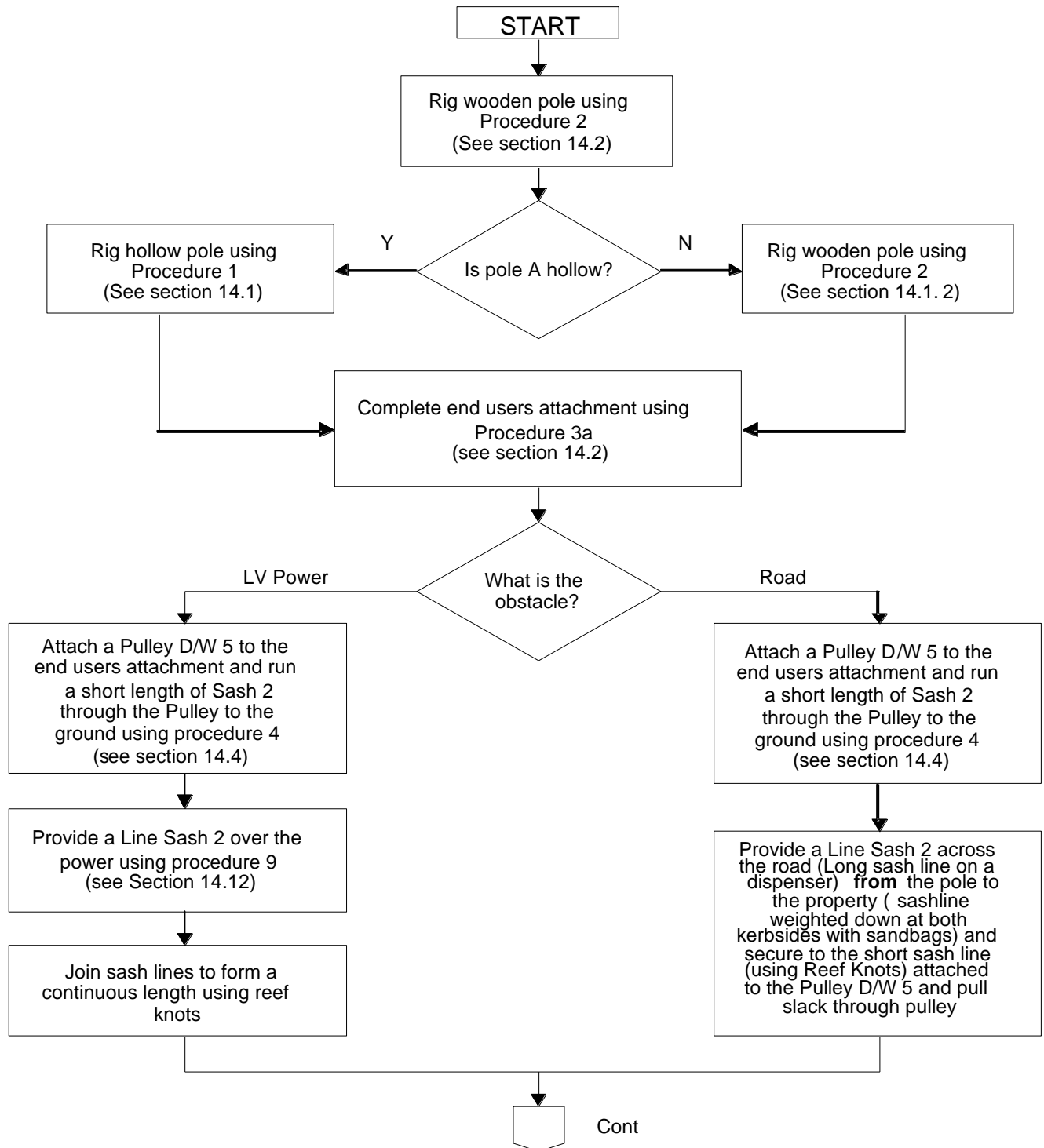
The following flowcharts show the methods of providing dropwire from wooden or hollow poles to customer's premises. The procedures referred to in the Process Flowcharts can be found in Section 14.



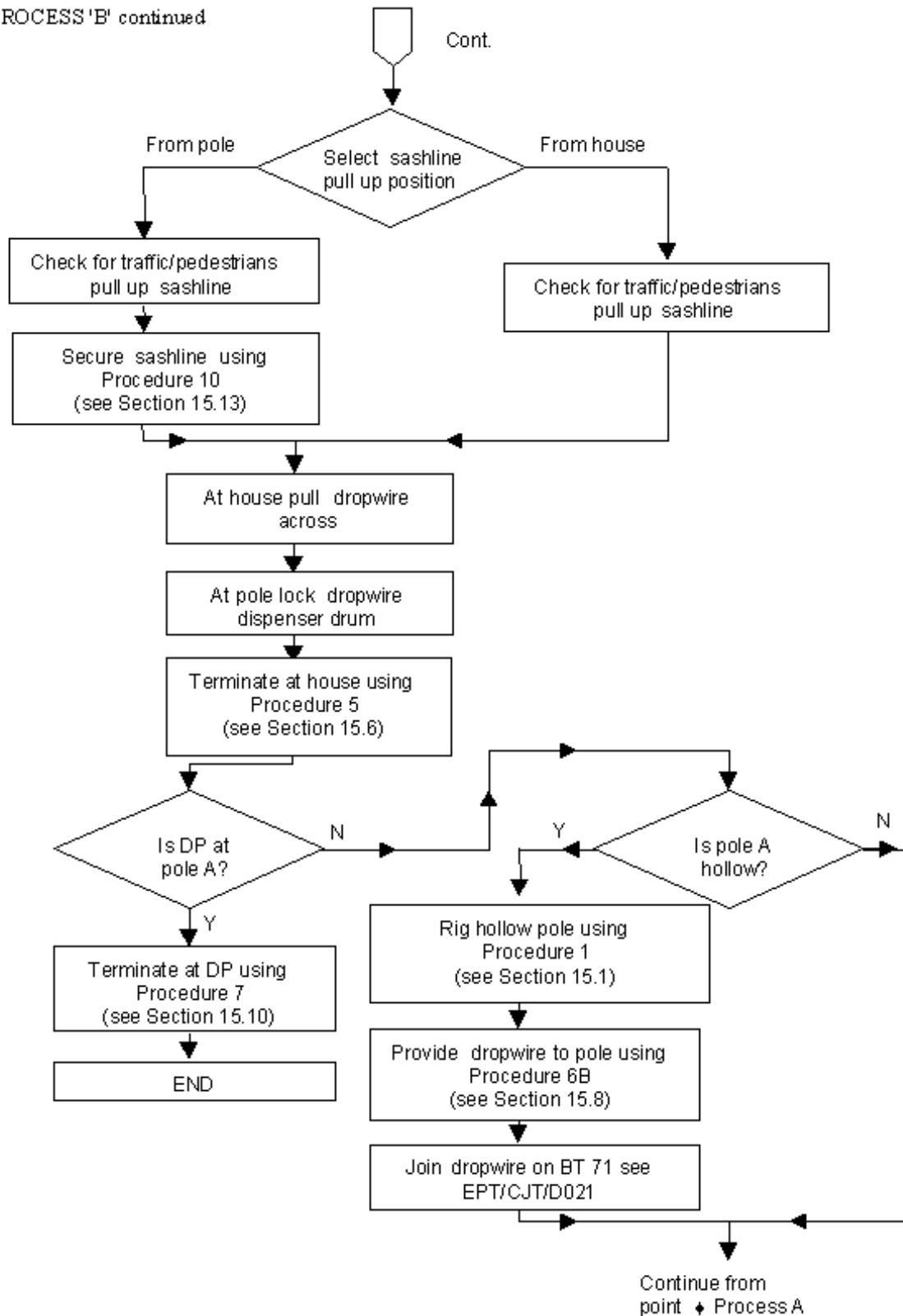
PROCESS 'A'



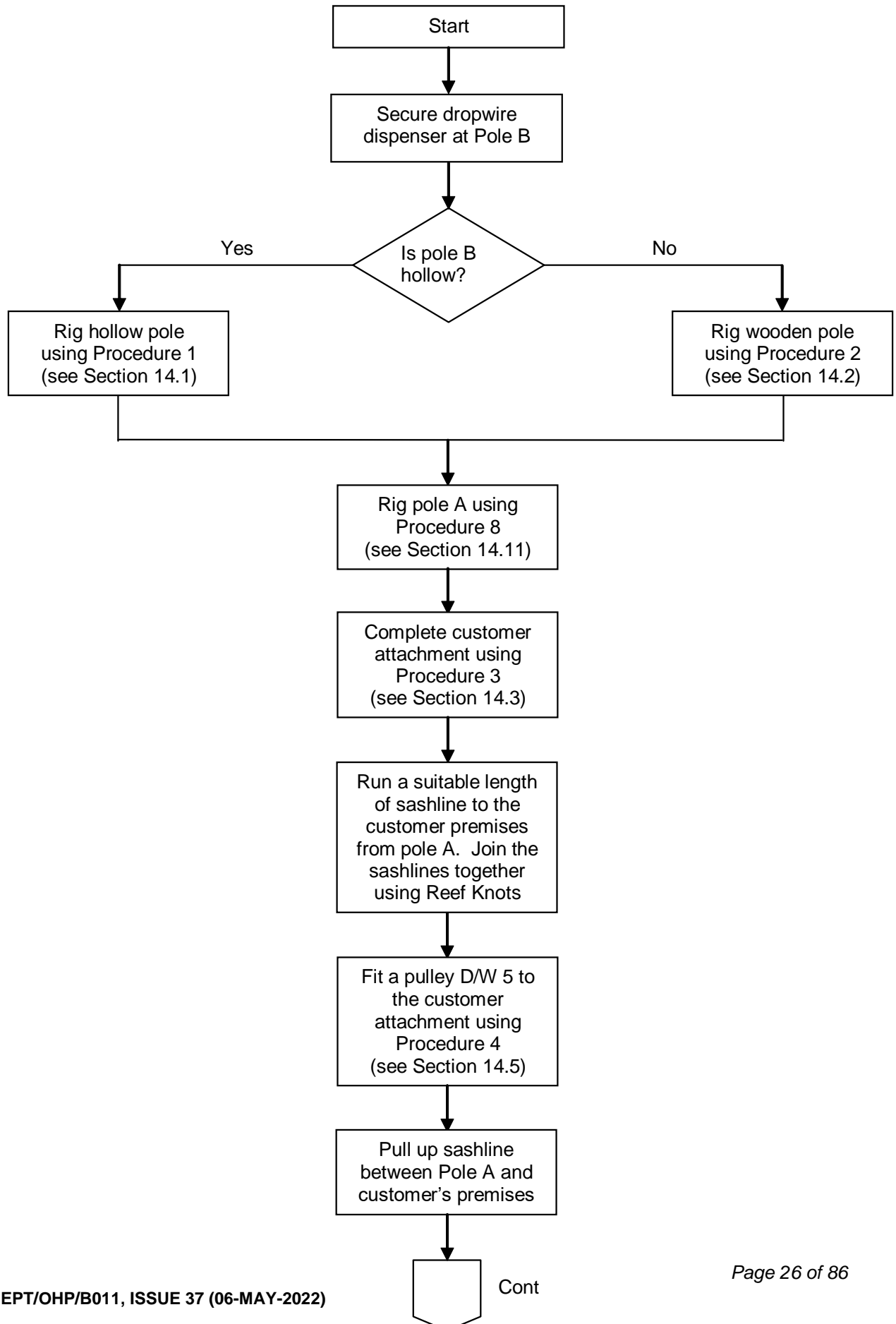
PROCESS 'B'



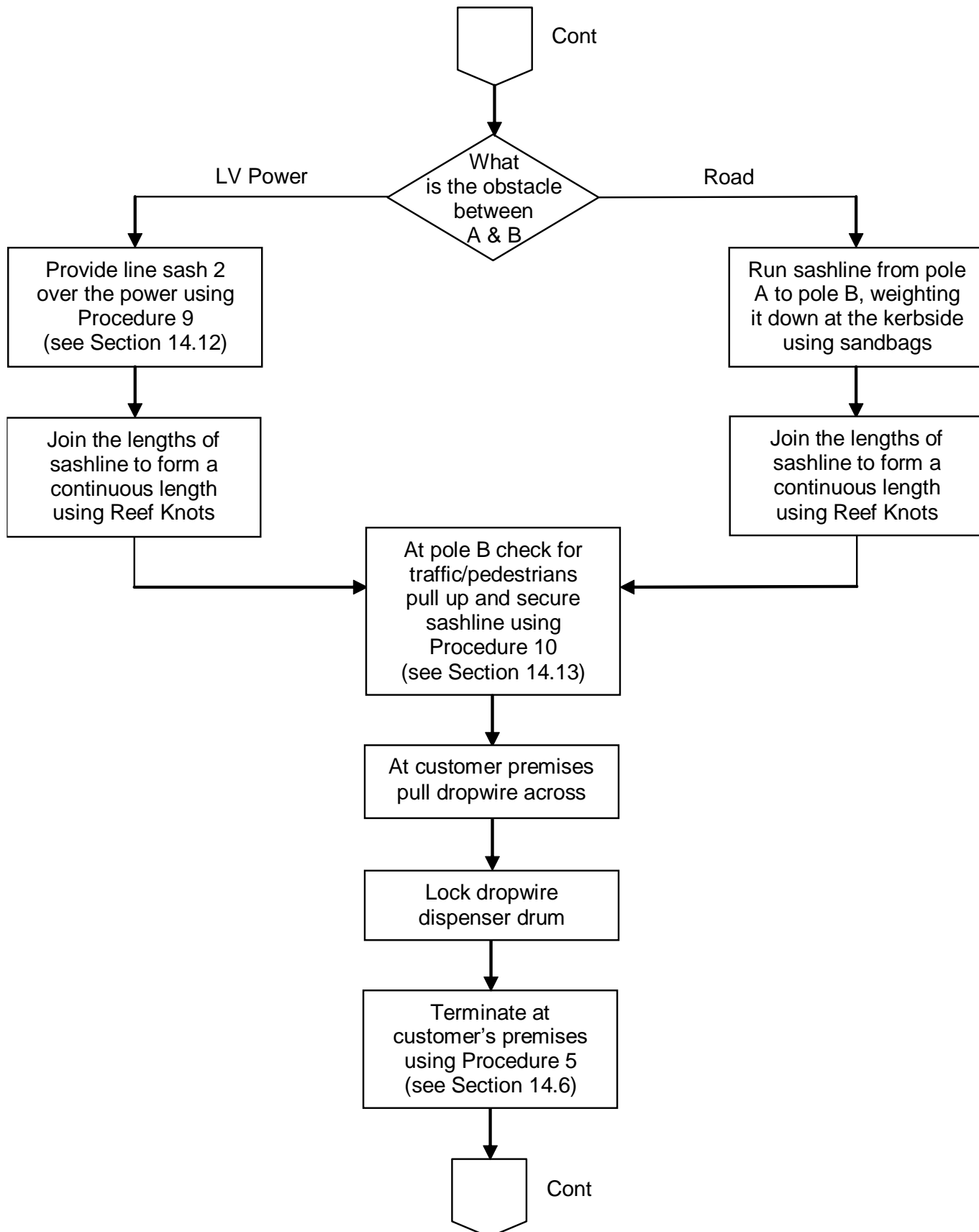
PROCESS 'B' continued



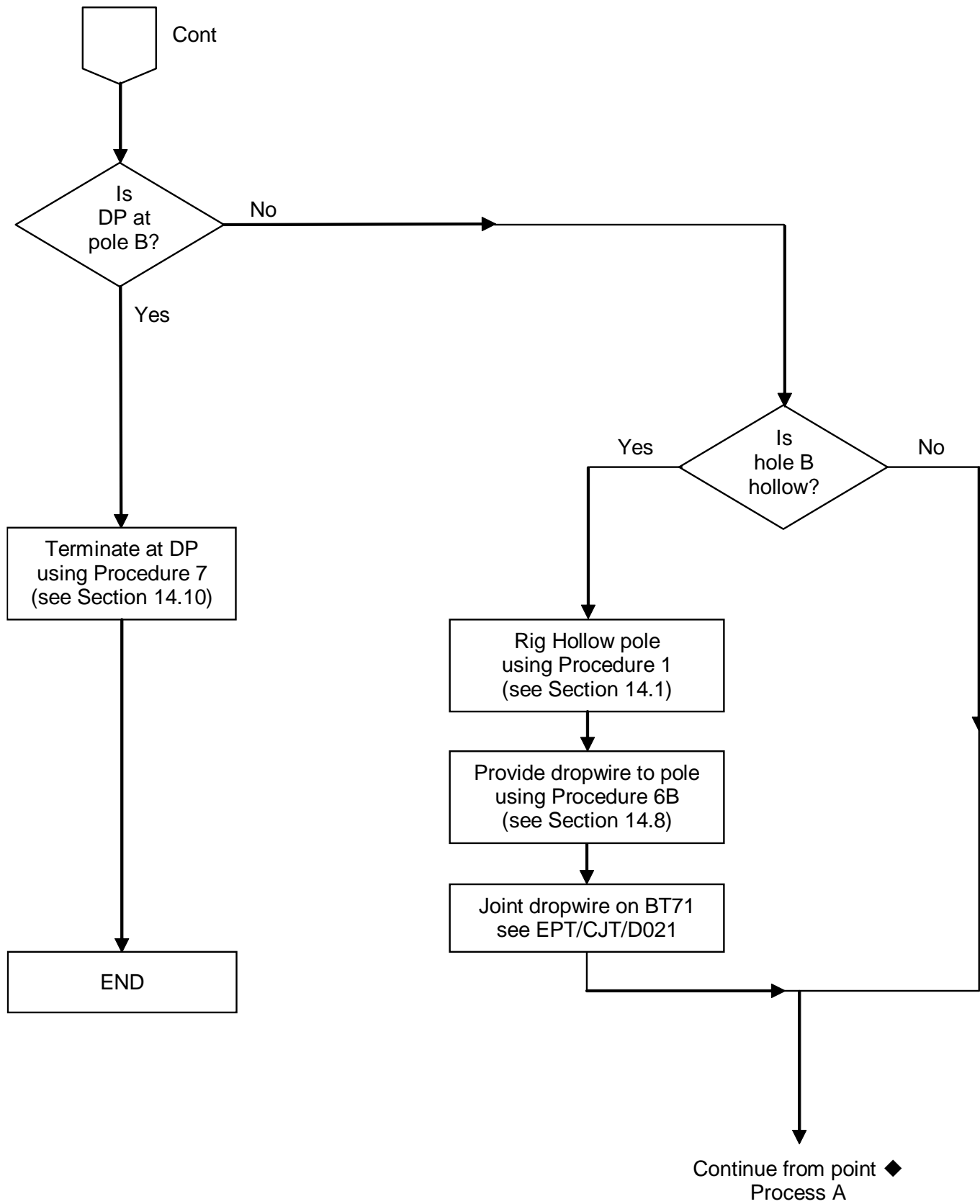
PROCESS 'C'



PROCESS 'C' continued

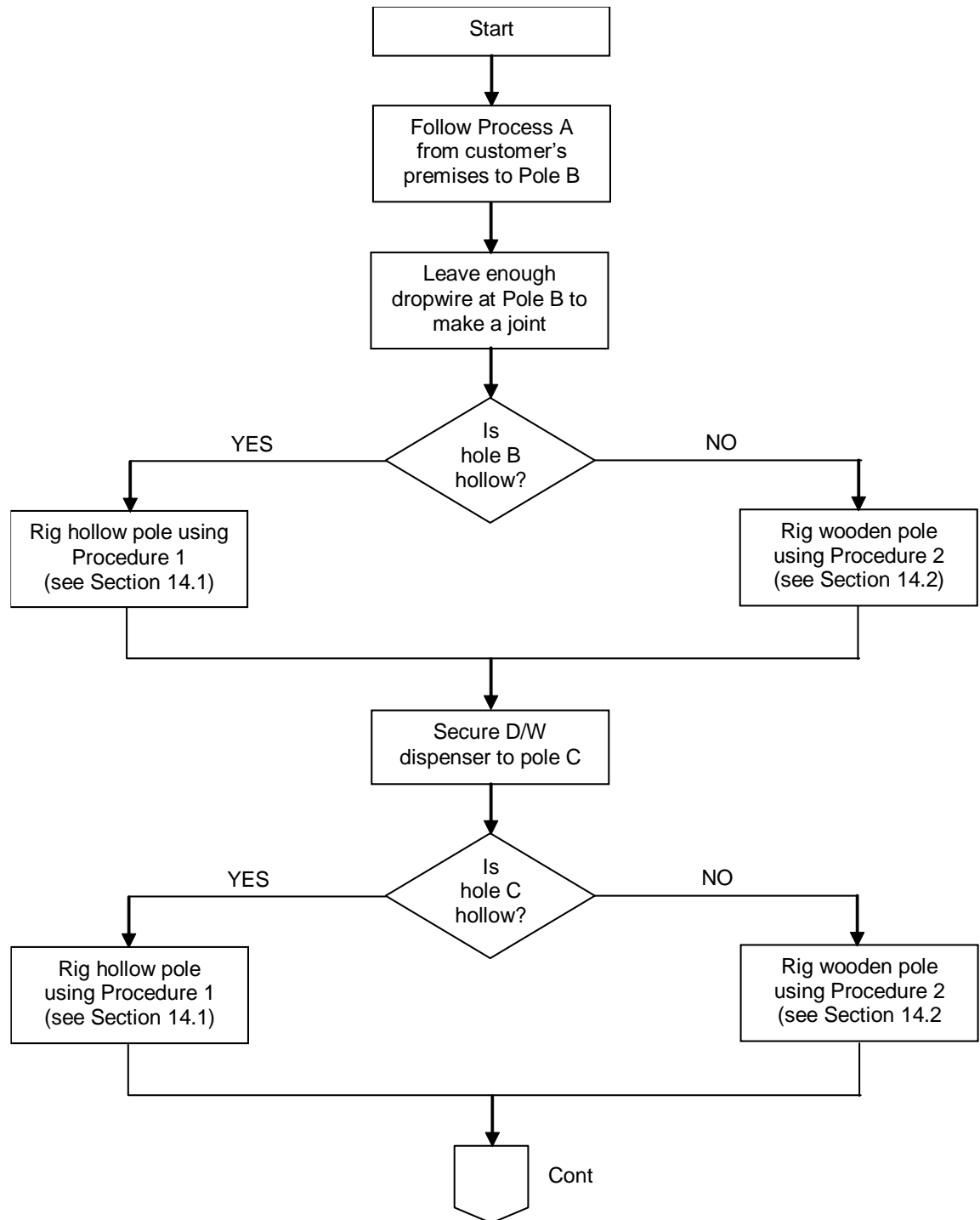


PROCESS 'C' continued

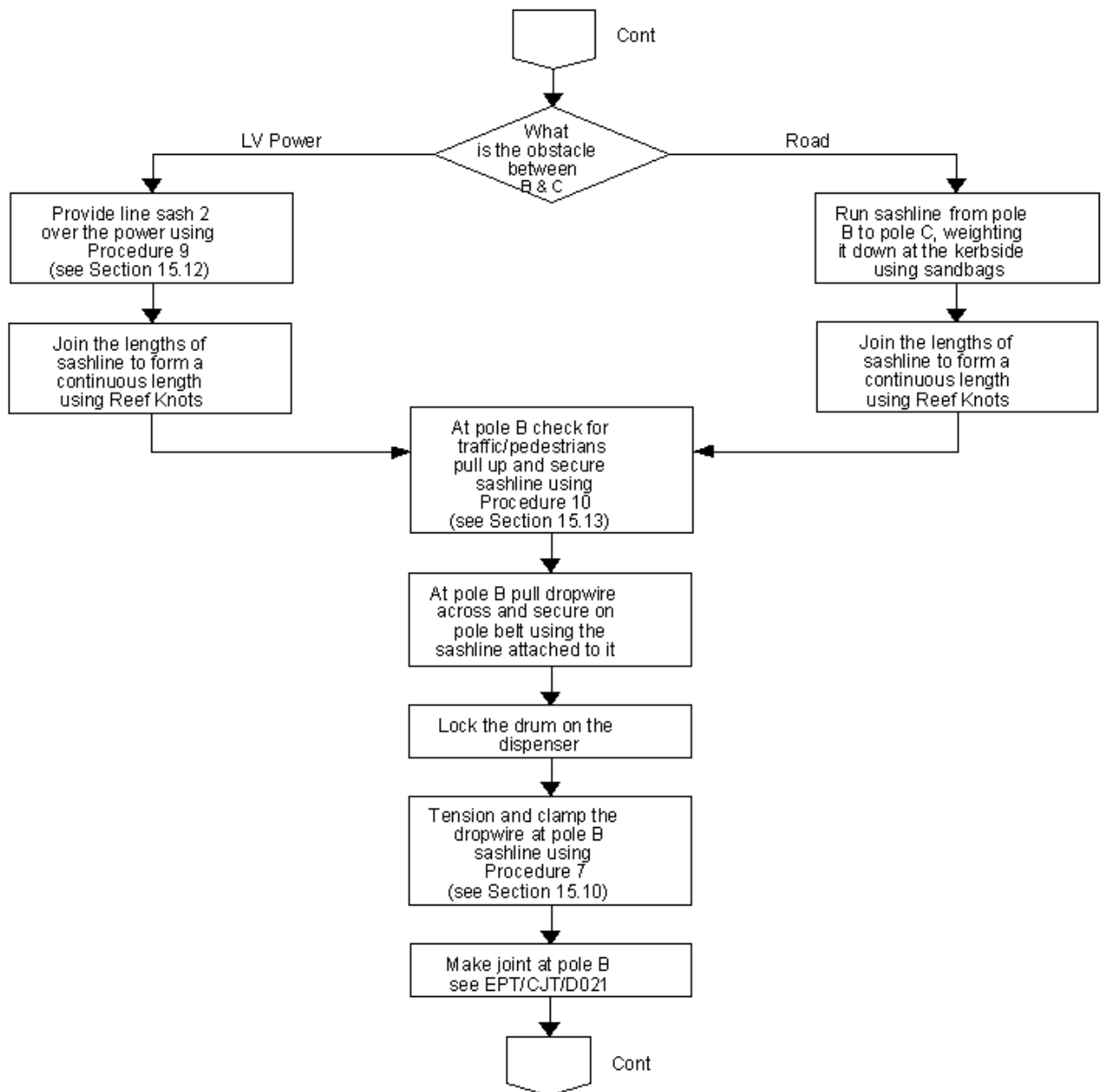


Check dropwire minimum clearance where applicable.

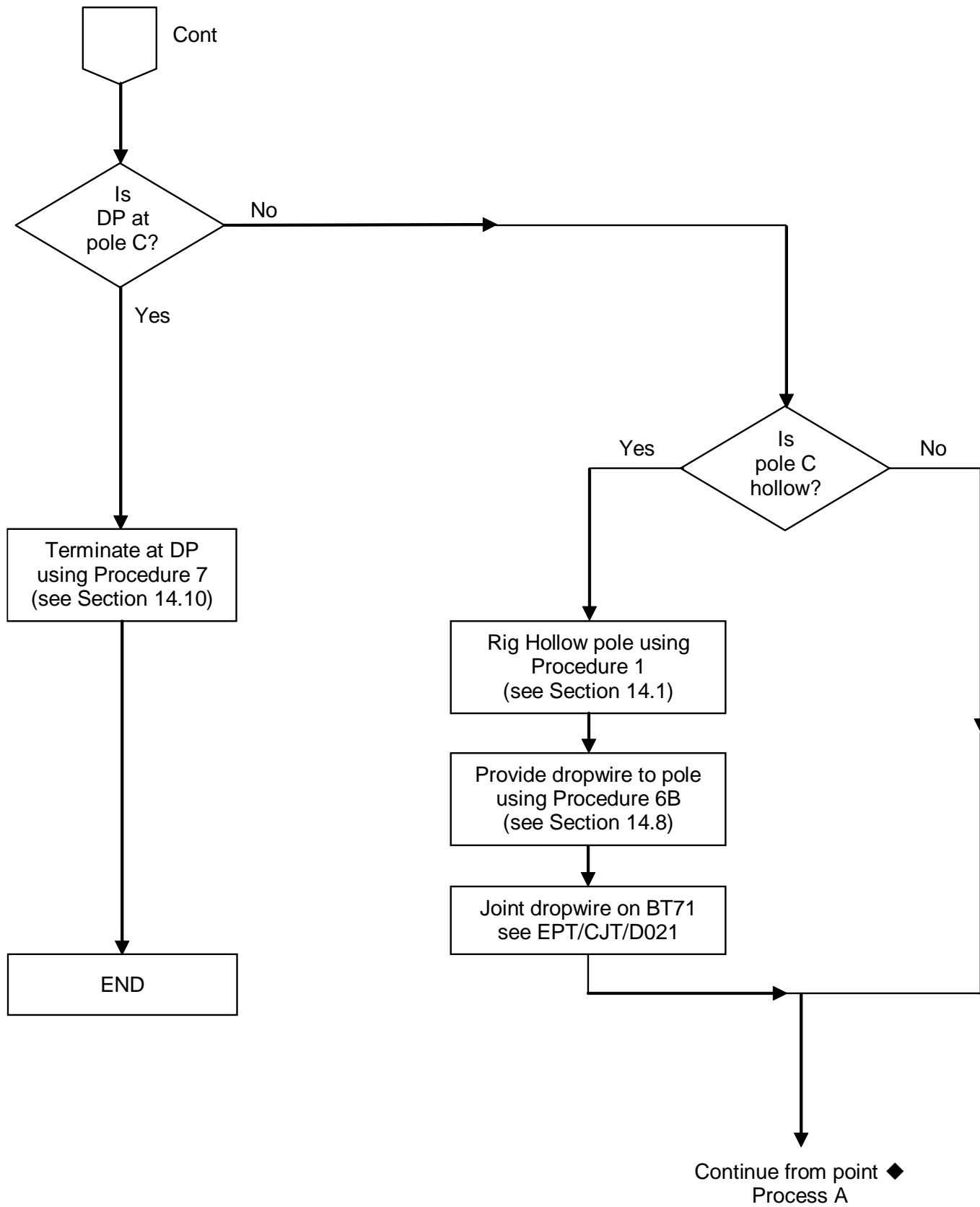
PROCESS 'D'



PROCESS 'D' continued



PROCESS 'D' continued



Note: Check dropwire minimum clearances where applicable.

1. Link to ISIS [EPT/CJT/D021](#)

14 *Procedures for the Provision of Dropwire to End user's Premises*

See Health and Safety Handbook SFY/HSB/A001 section D020 "Working at End users sites"

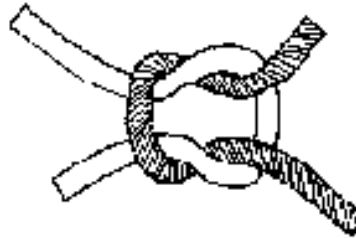
Warning: Dropwire fixings must never be attached to non-approved structures e.g. trees, shrubs, lamp posts, scaffolding components. Existing spans on such structures that need renewal must be re-routed off the structure.

Procedure No	Section No	Description
1	14.1	Rig Hollow Pole
2	14.2	Rig Wooden Pole
3a	14.3	Attachment at End user's Premises
3b	14.4	Attachment at End user's Premises where a Low Voltage Overhead Power Feed Exists
4	14.5	Sashline and Pulley Dropwire 5/6 at End users Premises
5	14.6	Dropwire Termination at the End user's Premises
6 A	14.7	Walkout Dropwire to Next Pole (Wooden Pole)
6B	14.8	Walkout Dropwire to Next Pole (Hollow Pole)
6C	14.9	Walk out to intermediate hollow pole.
7	14.10	Clamp and Tension at DP (Hollow and Wooden Poles)
8	14.11	Rig Intermediate Pole for Road Crossing (using Belt Pole)
9	14.12	Provision & Recovery over LV power lines
10	14.13	Pull up Sashline at Pole

EXAMPLES OF KNOTS ARE SHOWN BELOW:-



Bowline Knot



Reef Knot



Double Sheet Bend Knot

14.1 Procedure 1 - Rig Hollow Pole

When the hollow pole is to house a joint e.g. at a road crossing or DP:

1. Secure a Belt Pole 1B (Arrow pointing up and cleats in line with the route towards the end user's premises) to the pole below the pole door aperture.
2. Secure dispenser to pole using Straps Lashing 1
3. Rig pole as per diagrams 15.2(a) – 15.2(f) below.

Warning: Wear gloves and eyeshields when using rods.

Note: Where the pole is an intermediate pole without a joint See Procedure 6C.

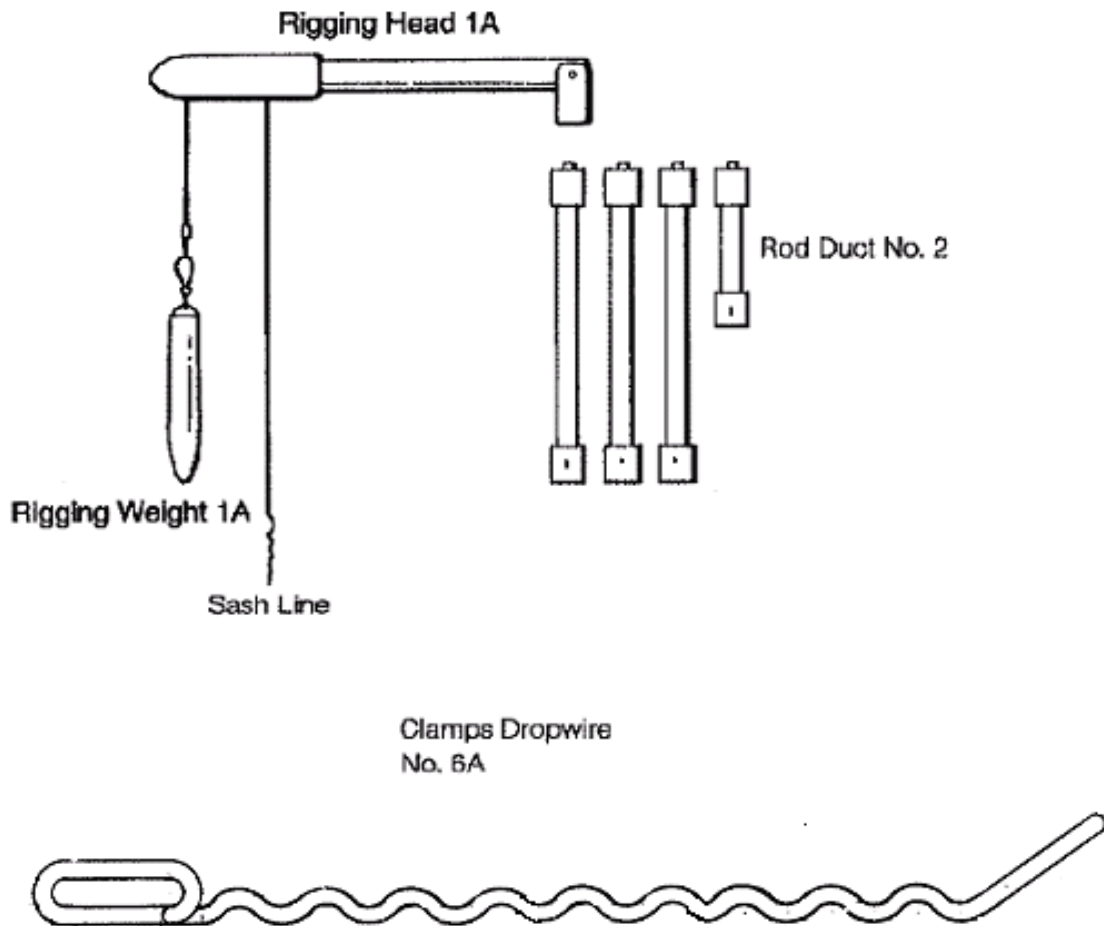


Figure 15.1 Hollow Pole Rigging Kit

14.1.1 Work on Hollow Poles

Warning: You must NOT climb hollow poles or use a ladder against them.

Open the door using an Allen key (6 mm) or a Keys Pillar. Rod the pole as illustrated.

Screw rigging head to standard length of Rods Duct No. 2. Pass the end of a line sash through the rope guide at the end of the rigging head. Ensure the line runs freely.

Figure 15.2 (a)

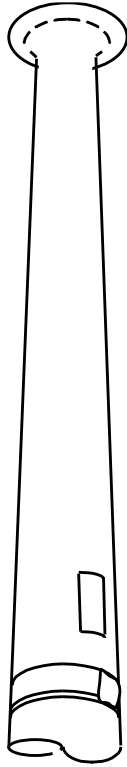
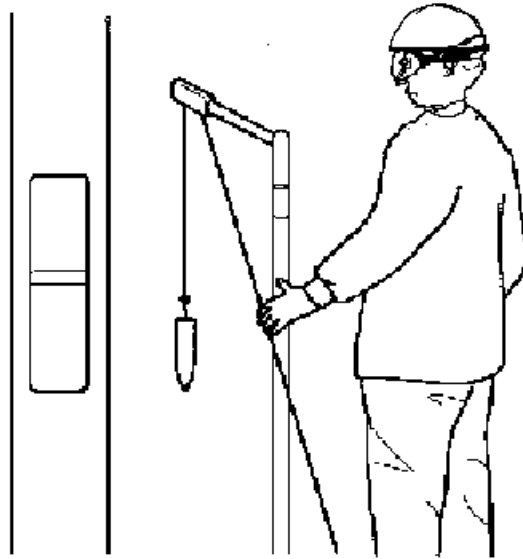


Figure 15.2 (b)



Attach the rigging-weight using its snap-hook, if present, to a bowline made off at the end of the sashline.

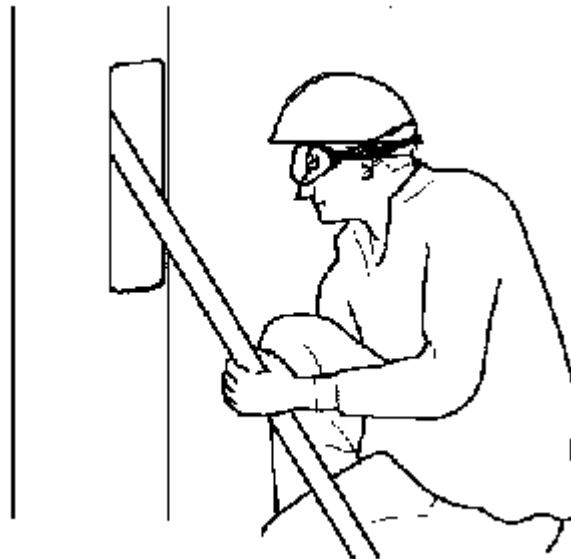
Figure 15.2 (c)



Insert rigging-head and first section of rod through door in pole. Connect further sections of Rods. Duct No. 2 as required.

Ensure tension on rigging-line during rodding.

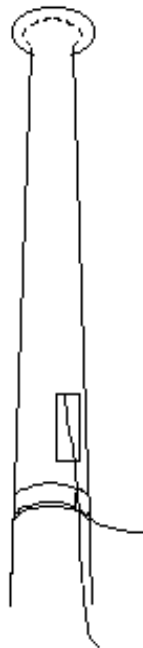
Figure 15.2 (d)



When the rigging-head is clear of the pole-cap, gently rotate rods until correct radial position, then lower weight to ground.

Figure 15.2 (e)

Remove Rods Duct No. 2 and secure internal and external lines to a Belt Pole 1B secured to the pole below the door threshold. The arrow of the Belt Pole 1B must point upwards and the cleats must be pointing along the line of the route towards the customer's premises.

Figure 15.2 (f)

14.2 Procedure 2 - Rig Wooden Pole

1. Secure dropwire dispenser at base of pole using the Straps Lashing.
2. Fit the Belt Pole 1B to pole above the dropwire dispenser.
 - ◆ Note: The arrow of the Belt Pole 1B must point upwards and the cleats must be pointing along the line of the route towards the end user's premises.
3. Attach a Pulley Dropwire 4 directly to the Ring Pole Head Dropwire using its safety hook.
4. Pass a length of sashline around the pulley wheel, ensuring sufficient sashline to reach the ground.
5. At base of pole connect sashline to the dropwire using a double sheet bend knot.
6. Secure the sashline in the Belt Pole.

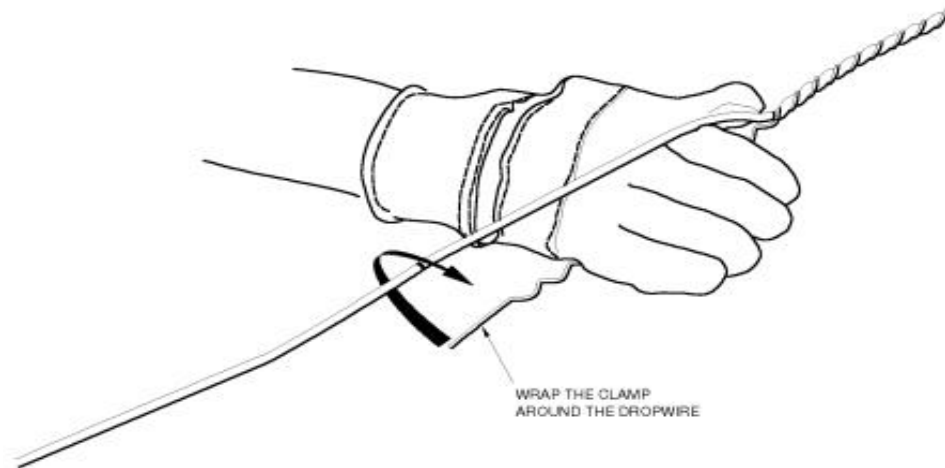
Caution: In windy weather conditions the sash line could be blown into the road creating a safety hazard. To avoid this happening the Rigging Weight 1A (Item Code 126676) should be tied to the sashline using a Bowline knot, the sashline and weight can then be lowered to the ground inside the guarded area.

14.3 Procedure 3(a) Attachment at End User's Premises

Note: All Dropwire fixings are restricted to support only 1 dropwire fitting (clamp).

This is because the system is designed so that the dropwire will act as a mechanical fuse. The attachment of more than one dropwire to the fixing will erode the safety margins. Having more than one dropwire attached to the same fixing is also likely to lead to abrasion damage to the dropwire or entanglement both of which will increase fault liability and will reduce the life of the dropwire.

1. Fit the appropriate attachment as shown below.
2. Attach the clamp to the attachment by making a closed eye in the dropwire clamp around the fixing. The eye is complete when all of the short helix is used.
 - ◆ Note: Wrap the clamp around the dropwire. Not the dropwire round the clamp.
3. Attach clamp to dropwire using the whole of the helix. Leave enough excess to complete the customer feed.

Figure 15.3 wrapping the clamp onto the dropwire

14.3.1 Fitting Brackets and eye bolts to Timber, Brick & Rendered and metal clad buildings

See Isis EPT/OHP/B013 Dropwiring Components

14.4 Procedure 3(b) - Attachment at End user's Premises where a Low Voltage Overhead Power Feed Exists

The methods are the same as described in Procedure 3(a) however for precautions and separation distances between BT/Openreach plant and low voltage power attached to buildings refer to EPT/PPS/B026.

14.5 Procedure 4 - Sashline and Pulley Dropwire 5/6 at End user's Premises

Attach Pulley Dropwire 5/6 to end user fixing. Pass a short length of sashline through the pulley and then the jaws of one-way mechanism with sufficient sashline to reach the ground.

The pulley should be free to turn on its hook such that when the sashline is pulled the pulley jaws face the end user's premises.

Note: If the jaws of the Pulley Dropwire 5/6 jam open with the dropwire and sash line at mid span allowing the span to droop towards the ground, the sash line should be tied off to the nearest available securing point so that the pulley can be investigated.

In an ideal situation, pull in line with the dropwire being erected. If this is not possible the maximum angle between the line of the dropwire and the pull line position should not exceed 90° (see figure 15.5).

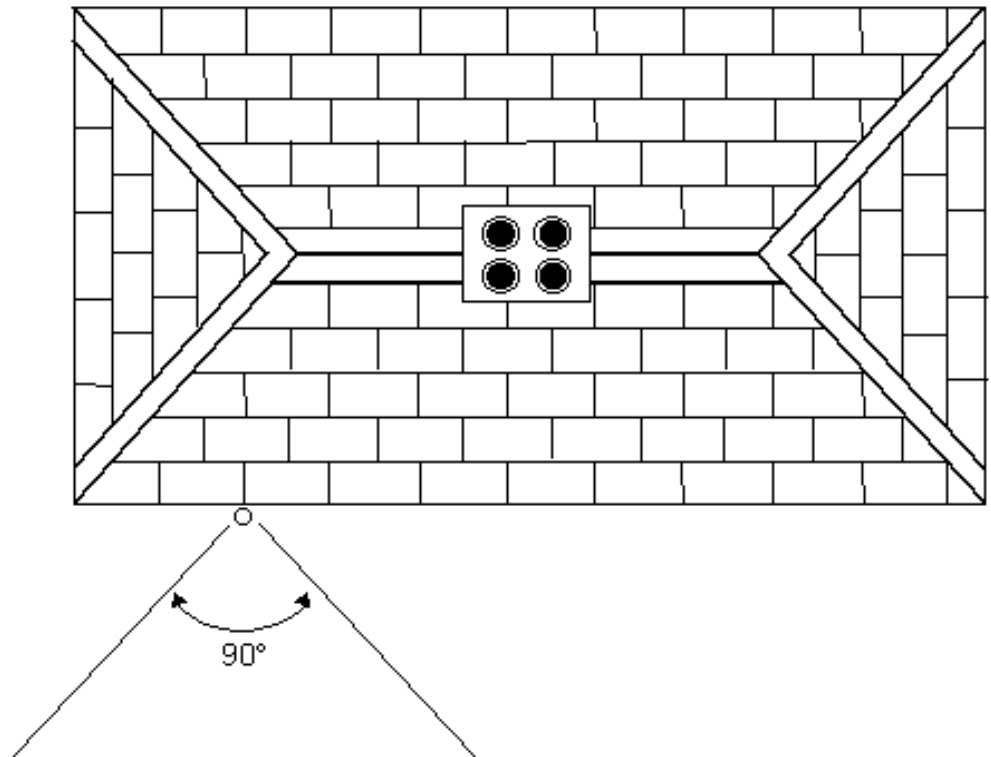


Figure 15.5 Plan view of building

14.6 Procedure 5 - Dropwire Termination at the Customer's Premises

CONTINUOUS DROPWIRE

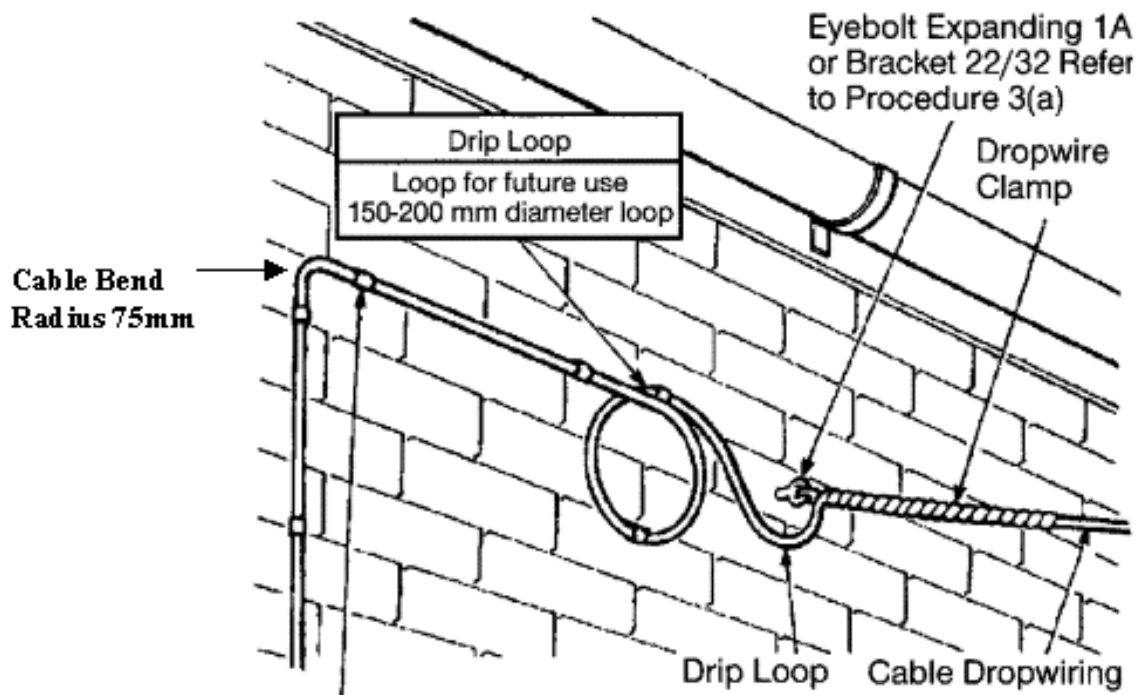


Figure 15.6 Attaching the Dropwire to single property fixings now including Brackets 44 & 51.

Cleating Distances	Cable Type	Cleating Type
Horizontal Spacing 300mm	Cable Dropwire	Cleating Wiring 11B Black
Vertical Spacing 450mm	Cable Downlead 1	Cleating Wiring 11B (Colour to suit Cable Type)
Cable bend Radius 75mm		

For joints in dropwires see ISIS [EPT/ANS/A011](#) section 5

Warning: Safety hazard - do not attempt to fit dropwire connector housings to asbestos cement.

Note: When using Cleat Wiring 11B in masonry, drill a 5 mm hole in the required position and insert a Pin Plug 1A. Clip the cleat onto the Dropwire and hammer the cleat home into the pin plug.

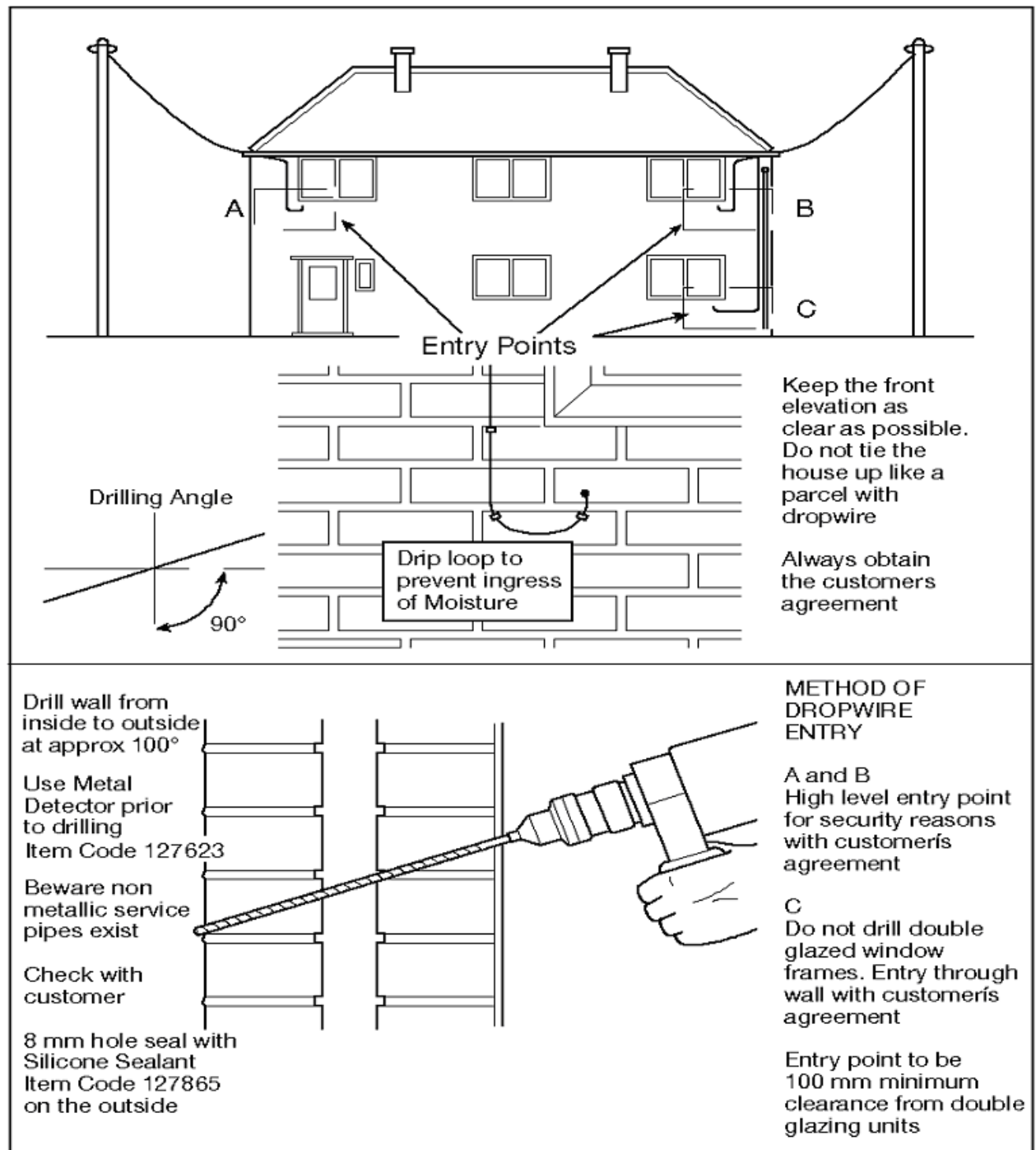


Figure 15.7 Method of Dropwire Entry

Caution: Metal detector has been replaced with i/c 078044 [Toolbox talk](#)

Note: When drilling through a wall, do not exert excessive force on a rotary hammer drill because it can damage the outside brick face when breaking through.
Also see Drilling Guide ISIS TMA/MAG/J011

Note: Where double glazing units have cable access tubes then the dropwire may be installed with an external drip loop and sealed with an approved sealant.

Fit and terminate NTE in desired position in accordance with ISIS
[EPT/CJT/D022](#) Internal Wiring.

Note: Where BT lines and power cables run parallel on and are cleated to walls, there shall be a minimum separation of 50 mm between the two sets of plant. Where it is necessary for the lines to cross, a bridging piece of durable non-conducting material should be used to ensure separation of 25 mm between them. (NOTE - Power Cables are regarded as insulated and protected and therefore safe to touch.).

A simple means of constructing a bridge is to use a short length of Protector Cable Abrasion ('Tree-Guard') wrapped onto the Openreach cable such that when cleated at each end of the PCA, it forms a bridge with the necessary 25mm clearance. Choose the size of PCA to match the cable diameter being installed.

Note: In most instances, a piece of PCA 170mm long should form a bridge with cleats 140mm apart and give the 25mm clearance. See image below.



Use of PCA to form a bridge

14.7 Procedure 6A - Walkout Dropwire to Next Pole (wooden pole)

1. Feed out dropwire by pulling dispenser from house/pole to pole. Keep dropwire as flat as possible.
 - ◆ *Note:* Should obstacles be encountered, e.g. fences etc, care should be taken not to damage property or create a safety hazard.
2. At the pole use a length of line sash as a hand line and make a bowline around the dropwire.
3. At pole top, when clear, pull up, tension and clamp customer's span.

Note: Attach another clamp to pole ring or Bracket 22 and secure it to the dropwire leaving a small loop between the clamps.

14.8 Procedure 6B - Walkout Dropwire to Next Pole (hollow pole)

1. Feed out dropwire by pulling dispenser from house/pole to pole. Keep dropwire as flat as possible.
Note: Should obstacles be encountered e.g. fences etc, care should be taken not to damage property or create a safety hazard.
2. Estimate the correct length of cable to pass down the centre of the hollow pole to the terminating position and cut the dropwire.
3. Attach the sashline on the outside of the rigged pole to the dropwire using a double sheet bend.
4. Check that the dropwire is clear and pull up on the sashline from the bottom of the pole when it is safe to do so. Secure the sashline onto the Belt Pole to hold the dropwire aloft.
5. Tension and clamp the dropwire to the pole ring on the inside of the pole wrapping the clamp around the dropwire.
6. Trim the dropwire to length allowing at least 0.5 m to enable termination on a BT 71 and future recovery.

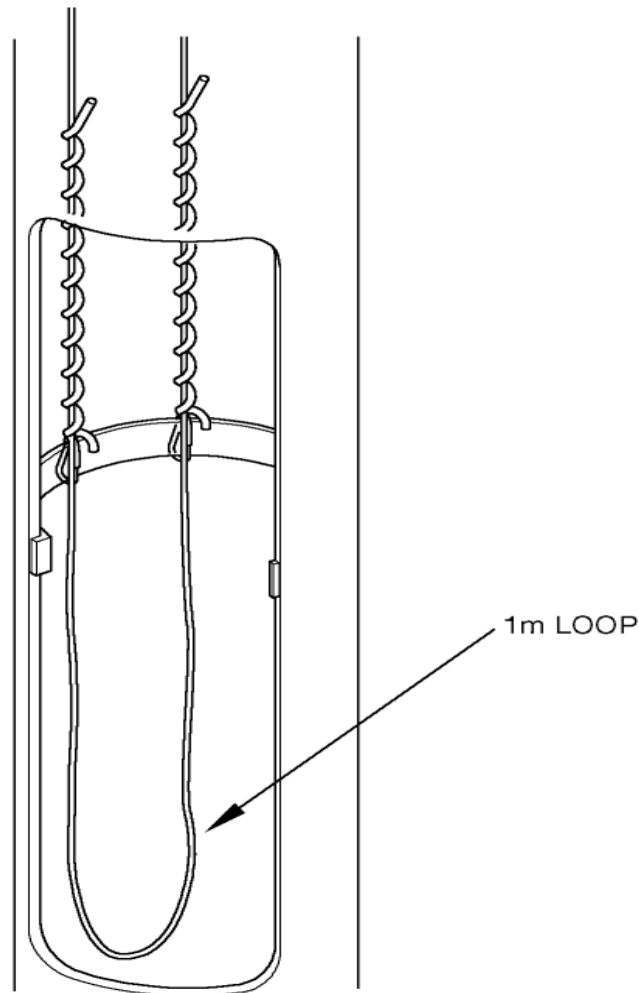
14.9 Procedure 6C - Walk out to intermediate hollow pole

Note: Perform procedure 1 at the hollow pole, feed out dropwire by pulling the dispenser from the house/pole to pole. Keep dropwire as flat as possible to avoid creating a safety hazard. Should obstacles be encountered, i.e. fences etc, care should be taken not to damage property or create a safety hazard.

At the pole, and using the end of the sashline hanging on the outside of the pole tie a bowline to form an eye around the cable.

1. Pull the cable up on the sashline.
2. Pull the loop of dropwire down the centre of the pole.
3. Tension and clamp the dropwire coming from the customer/last pole clamp the dropwire going onto the next pole leaving a loop of approximately 1m between the two clamps. The clamps should be attached to the ring inside the hollow pole as shown in figure 15.8.

Figure 15.8 Intermediate loop of dropwire secured to the ring in the hollow pole



14.10 Procedure 7 - Clamp and Tension at DP (Hollow and Wooden Poles)

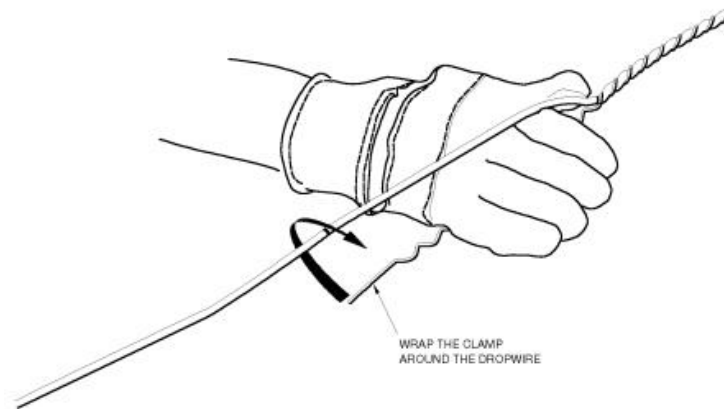
Wooden Pole: At pole top attach the dropwire clamp to the pole top fixing by making a closed eye in the dropwire clamp around the fixing. The eye is complete when all of the short helix is used. Tension and secure dropwire in clamp using the whole of the helix.

Note: The provision of all new dropwires terminating into a BT 71 or 41A requires an excess length of dropwire to be provided between the span and the termination. This will prevent the replacement of all dropwires when, at a later date, changing to a BC 18A or 19A.

The following procedure should therefore be carried out:

1. At the pole top measure from the ring immediately above the BT along the dropwire for a distance of 1100 +/- 25 mm; then cut and terminate the dropwire.
2. The excess length of dropwire should be neatly cleated to form a loop on the pole ready for future use.

Figure 15.9 wrapping the dropwire onto the clamp



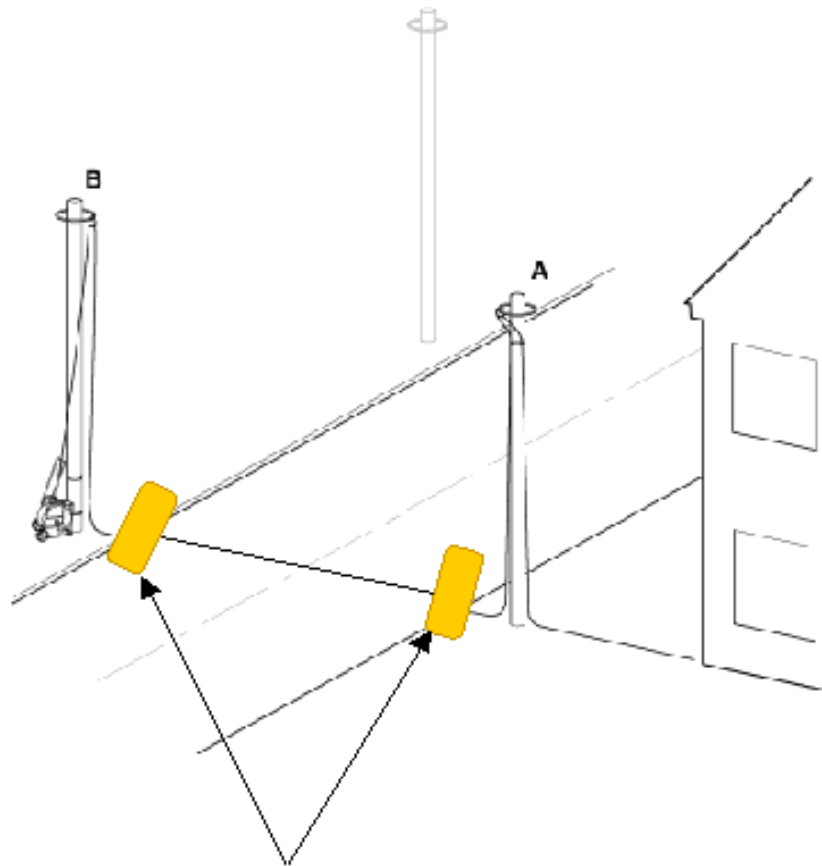
Hollow Pole: If the pole is hollow, tension and secure dropwire to the pole ring through the door in pole.

Check dropwire clearance at lowest point of span.

14.11 Procedure 8 - Rig Intermediate Pole for Road Crossing using Belt Pole (wooden poles only)

1. At top of Pole 'A' fit pole belt (face clam cleat towards Pole 'B').
2. Attach Pulley Dropwire 4 to pole ring. Pass a Line Sash through pulley allowing sufficient line to reach the ground and secure the line in the cleat of pole belt.

A second pole belt should be used at the bottom of the pole and in the same orientation as the top pole belt to secure the Line Sash in windy conditions.

Figure 15.10 Intermediate wooden pole rigged

The weights shown in the picture are Weight Sandbag, Item code 068971

Caution: Make sure the work area is suitably guarded. Weight the sashline down both sides of the road.

14.12 Power Crossings

This practice should be restricted to a number of nominated platform teams/operators within each patch. Demonstrations and briefings have been held for nominated individuals within each GM patch, please verify with your Line Manager / FMA who are the nominated teams.

Line Managers and/or FMAs of those teams / operators must ensure that they go through the content of this instruction with their nominated teams/operator, to ensure full understanding before any work is carried out.

As of July 2020, the documented L.V. power crossing processes (14.12.5 & 14.12.6) are now formally covered in the L&D IPAF operator training courses (ORMWP005 & 004) and the IPAF operator renewal courses (ORMWP003 & 006). A standalone ILT course is also available for Openreach qualified MEWP operators covering the L.V. power crossing processes (ORMWP015).

It is essential that only familiarised and competent persons undertake these L.V. power crossing activities.

The following sections detail two methods to provide / recover a sashline over low voltage power conductors without any contact by the sashline. The first, where it is possible to have two Platform Elevating vehicles on site, and the second where it is only possible to use one Platform Elevating vehicle.

14.12.1 Description of components required

Note: It is **MANDATORY** to wear Gloves IR (BS EN) or Gauntlets as shown below when providing the sashline over the power conductors

Gloves IR (BS-EN) (for use with voltages up to 500 volts)	<u>Small</u> Item code: 005678	<u>Medium</u> Item code:005679	<u>Large</u> Item code:005680
Gauntlet (for use with voltages up to 7500 volts)	<u>Small</u> Item code: 008519 IR-HV9 EN	<u>Medium</u> Item code: 129403 IR-HV10 EN	<u>Large</u> Item code: 008517 IR-HV 11 EN

Stay Guard High Visibility item code:013612	Line Sash 2 item code: 127429
Dispenser Dropwire 2B item code: 127548	Pulley Dropwire 4 item code: 127580
Pulley Dropwire 5 item code: 127581	Belt Pole 1B item code: 126966
Straps Lashing item code:127545	A suitable weight such as three rolls of insulation tape e.g.: Tape Plastic Adhesive item code: 075995.

Platform Elevating vehicle(s) are required to perform this operation.

14.12.2 Definition of LV Power & Clearances

Low voltage lines are those not exceeding 1000V ac. In virtually all cases the low voltage power lines normally encountered are single phase lines, 230V ac to a neutral (referred to as Phase Voltage), and three phase lines, 400V ac between phases (referred to as Line Voltage). These are supplies to residential properties and generally smaller commercial properties.

A **conductor** is a conductor of electricity, including earth and neutral wires

High voltage (HV) power lines are those carrying a voltage in excess of low voltage.

When working with Platforms to provide or recover dropwire crossing over low voltage power there are two new terms introduced to identify safe working distances. It needs to be remembered that as well as small boom movement the power cables themselves can also move with the weather elements.

These zones are only applicable for platform work mid-span and not for work directly on Joint User poles.

The **Live Zone** is the distance around live conductors or electrical apparatus where there is danger of burn or electric shock if breached by any part of the person's body, tools or equipment.

The **Vicinity Zone** is the distance around live conductors or electrical apparatus (including un-insulated steelwork and stays) that if maintained will ensure no breach of the Live Zone takes place. Live and Vicinity Zones for Low Voltage are shown in table 1 as follows

Table 1: Live and Vicinity Zones

System Voltage	Live Zone	Vicinity Zone
Up to and including 1,000 Volts	0.8m	1m

Power lines other than those described above should be treated as high voltage.

The clearance that must be kept between Openreach (BT) plant and Low Voltage (LV) lines is dependent upon the type of DNO cable, and whether the BT cable is above or below the DNO line, according to the table below:-

Table 2: LV Clearances

Cable Type	Clearance from BT cables When BT cables are below	Clearance from BT cables When BT cables are above
Concentric Neutral service cable	200mm	200mm
ABC	600mm	400mm
Single wires	900mm	900mm

(SEE ISIS EPT/PPS/B026, EPT/PPS/B038, EPT/PPS/B046 and SFY/HSB/D043 for further information)

14.12.3 General Principles

This allows work to proceed with the following provisions

- Method 2 below. This work should only be carried out by an individual who has had the method demonstrated to them by a suitably qualified experienced person.
- The insulated plastic tube shall be a Stay Guard High Visibility item code: 013612

Note: Before use, the Stay Guard High Visibility must be clean, dry and undamaged.

- The insulated sashline quoted in the text shall be Line Sash 2 item code: 127429.
- Insulated tools and equipment as described shall be visually inspected before and after use.
- Work shall be organised in such a way that the Vicinity Zone can not be breached by any tools or any part of the body.
- Insulated tools shall not be allowed to touch any power conductors or steelwork.
- Insulated gloves shall be worn at all times by all operatives when using this procedure.
- Insulated gloves shall be stored, inspected and replaced in accordance with Openreach test policy ie, eYP testing.
- Members of the working party shall not stand under or near the power conductors.
- A Ground Support person shall be observing operations at all times and is in a position to stop the work if necessary.
- Only MEWPS (Mobile Elevating Work Platforms) with fibreglass buckets and insulated handrails are to be used.
- The MEWP must be positioned such that in the event of any operator error or machine malfunction the Vicinity Zone must not be breached. Generally the bucket should be positioned adjacent to lines and never directly above conductors.
- All parts of the MEWP, personnel and tools shall be kept out of the Vicinity Zone at all times.

14.12.4 Method statement

METHOD 1:-

Where two Platform Elevating vehicles available:-

If two platforms are available, then position the vehicles so that the LV lines are between the two platform buckets. The platforms shall be positioned at least **1metre** higher than the uppermost LV line and **1 metre** each side of the cable between the two platform buckets. Temporarily tape Sashline 2 to a Stay Guard High Visibility and pass the guard between the platforms. The sashline can then be lowered on either side, and engineers on the ground can take the sashline to the respective fixing points /pulleys as described in standard dropwiring procedures. Once the sashline is fully in place the operatives in the buckets can release the sashline and withdraw from position. The dropwire can then be pulled in using standard practices.

METHOD 2:-

Only one Platform Elevating vehicle available, or site conditions only allow one Platform Elevating to be in position on one side of the LV power lines:-

Warning: Only Line Sash 2 is suitable for this operation because Line Sash 15 is considered to be too heavy.

Warning: Make sure the sashline/s is kept under control in windy conditions.

14.12.5 Installation Procedure

1. Secure the dropwire dispenser to the pole using Straps Lashing and wind a sufficient length of sashline onto the dropwire dispenser to go up and down the pole and across the span length to the second pole or building. Adjust the dropwire dispenser tensioning mechanism as normal, to stop it rotating without putting tension on the sashline. Use a 'Double Sheet Bend' knot to attach the sashline No2 to the dropwire on the drum. Take a length of sashline (2 x pole height) and climb the pole. Fit a Pulley No 4 to the pole ring and open the side of the pulley and insert the sashline into the pulley and attach via the figure of 8 to the Belt Pole 1B.
2. At the other end (pole or building) fit a Pulley No 5/6. Install a length of sashline through the Pulley No 5/6 so that sufficient sash line can go up the pole or building and down to the ground again.
3. Secure a length of sashline long enough to go from the pole to the building /second pole plus 5 metres, to the sashline coming down the pole/building. Using traffic control, pay the sashline out towards the pole/building. Pass the sashline to the platform operator. The sashline then needs to be pushed through a length of Stay Guard. Tie a suitable weight (non power conducting) such as 3xTape Plastic Adhesive or Insulator Stay 2 to the sashline and lock off the sash line by drawing it into the split in the stay guard. (Picture Ref 1).
4. Position the platform bucket maintaining the clearances detailed in Section 3. **Making sure that you are wearing Gloves IR**, position the Stay Guard containing the sashline, over the power cable making sure it does not come into contact with the power cables. **Carefully** unlock the sash line from the split and hold the weighted line. (Picture Ref 2).
5. Feed the sashline through the Stay guard until the weight touches the ground. (Picture Ref 3).
6. The third person (not the GSP) wearing gloves IR, can then take hold of the sashline at ground level and carefully pull the sashline through the stay guard. Continue to lay the sashline out until it can be attached using a reef knot to the sashline installed through the Pulley No 5/6 at the building/second pole.
7. When safe to do so, pull the sashline up at the building/second pole until the sashline is taught, between pole 1 and the building/second pole.

8. Using a Reef Knot – Tie the sashline No2 previously wound onto the dropwire dispenser to the end of the length going up the pole. Remove the sashline from the pole belt, maintaining drum tension with the adjustment previously set on the dispenser. Adjust tension if necessary.
9. Continue pulling the sashline until the dropwire is pulled across and is secured in the Pulley No 5/6.
10. Return to Dropwire Dispenser and lock off drum.
11. When the dropwire is tensioned and dropwire clamps fitted the platform operator can open the split in the stay guard and carefully slide it off the dropwire. An example is shown in Picture Ref 4. When completely removed, continue the installation practice as detailed in the ISIS.



12. A useful illustrative guide to this process can be downloaded

Picture Ref 1:



Picture Ref 2:



Picture Ref 3:



Picture Ref 4



14.12.6 Dropwire Recovery Procedure

A similar process can be used to recover dropwires over low voltage power cables. Use the procedure as detailed in section 14.

DO NOT throw or lower the sashline or dropwire over the power cables.

14.12.7 To recover the Dropwire

1. Secure the dropwire dispenser to the pole using Straps Lashing and wind a sufficient length of sashline onto the end of the dropwire on the drum, enough to go up and down the pole and across the span length to the second pole or building. Adjust the dropwire dispenser tensioning mechanism as normal, to stop it rotating without putting tension on the sashline. Use a 'Double Sheet Bend' knot to attach the sashline No2 to the dropwire on the drum.
2. Take a length of sashline (1 x pole height) and a dropwire clamp 10A and climb the pole. Use a bow line to attach the closed eye of the clamp 10A to the sashline. Fit the clamp 10A to the dropwire to be recovered and pointing towards the 2nd pole / building, in a position beyond the existing clamp, into the span length. Attach a Pulley No4 to the pole ring and open the side of the pulley to insert the sashline into the pulley.
3. Using a Reef knot, attach the sashline going up the pole, to the sashline length previously wound onto the dropwire dispenser. Wind the sashline back on to the dispenser as required and check the tension is set on the drum.
4. With the tension set on the dispenser, ascend the pole and cut the existing dropwire between the two clamps, leaving the newly provided sashline to maintain the dropwire's height.
5. Take a length of sashline (1 x pole / building height) and a dropwire clamp 10A and climb the pole / building. Use a bow line to attach the closed eye of the clamp 10A to the sashline. With the clamp 10A fitted to the dropwire and pointing towards the 1st pole, attach a Pulley No 6 to the pole / building fixing and open the side of the pulley. Insert the sashline into the pulley and from either ground level or at height, pull the sash line through the No6 pulley jaws so that the new clamp & sashline take the tension of the dropwire.
6. With the tension set on the dispenser and the pulley No6 maintaining the dropwire height, ascend the 2nd pole / building and cut the dropwire between the two clamps. Recover the old dropwire lead-in & clamp, lowering it to the ground under control with a sashline.
7. From ground level & using gloves IR, pull the sashline and old dropwire span through the pulley No6 until the new sashline length is pulled completely across with no knots in span and is secured in the Pulley No 6. Return to Dropwire Dispenser and lock off drum.
8. The remainder of the sashline may be removed from the dropwire drum on the dispenser. To do this attach the sash line to the figure of 8 on the Pole Belt 1B first before removing the sashline from dispenser. The drum may need to be unlocked to do this.

9. Using traffic control, position the MEWP bucket so as to be able to reach the sashline spanning over the L.V. route.
10. Wearing Gloves IR, the platform operator must fit the Stay Guard to the sashline by opening the slit and sliding the Stay Guard onto the sashline. This must be initially fitted to the sashline over the bucket and only then when fitted, can the Stay Guard be slid as required above the power line(s).
11. The sashline can then be removed from the Belt Pole 1B and lowered to the ground.
12. If required, extra sashline length can be attached to the end held in the Pole Belt, using a reef knot. Do not allow the sashline to pull through the pulley No4 to the ground.
13. The sashline can then be removed from the 2nd pole / building. And again lowered to the ground (under control, with the aid of a length of sashline and a bowline knot).
14. Using a bowline knot, tie a suitable weight (non power conducting) such as 3 x Tape Plastic Adhesive or an Insulator Stay No2 to the end of the sashline.
15. From ground level, the third person can now pull the sashline through the Stay Guard raising the weighted end of the sash line. Once the end of the sashline is close to / up against the end of the Stay Guard, carefully recover the Stay Guard and sashline into the MEWP's bucket paying particular attention to preventing the weighted end of the sashline paying back out towards ground level. Place the weighted sashline end of the Stay Guard to the floor of the MEWP bucket, making sure that the remaining sashline remains clear of the power lines.
16. Recover the MEWP bucket paying attention to sashline below and any hazards.
17. Recover the sashline, pulley No4 and the Pole belt.
18. A useful illustrative guide to this process can be downloaded.



HERE

14.12.8 On site risk assessment

14.12.8.1 Justification

Before any work starts with the electricity network live, a thorough justification process must take place.

Consideration must be given as to whether the works can be carried out safely in accordance with this document. It must be still be reasonable to continue with the work taking in to account the following factors:

- proximity of other people / traffic etc;
- complexity of the task;
- likely duration of the works;
- weather conditions;
- terrain (area of land with respect to it's physical features);
- Condition of the electricity and Openreach networks (see 14.12.8.2 below).

If suitable control measures cannot be put in place to ensure that there is no possibility of the people or equipment infringing the **Power Vicinity Zone**, the work must not proceed.

14.12.8.2 Condition of the Network

A visual inspection shall cover at least a span length either side of the site.

If there is any doubt as to the condition of the network then advice and authorisation must be sought from the electricity company.

If works continue when there is a doubt over the condition of the network then the findings of this inspection must be noted in a written [Risk Assessment](#).

14.12.9 Emergency procedures

In the event of an incident then the emergency procedures detailed below shall be followed.

- Stop all work and make site safe
- Keep everyone away of live conductors, fences or equipment
- Call emergency services if necessary, give exact location and access details
- Carry out First Aid if necessary or 999/A&E if required
- Contact the electricity company
- Do nothing else until instructed by an investigator

14.13 Procedure 10 - Pull up Sashline at Pole

1. Ensure road and pavement are clear of traffic and pedestrians.
2. Pull up sashline and secure in cleat of belt pole.
3. Take up slack sashline on dropwire dispenser and apply the drum brake (see section 6.2).
4. Remove sashline from cleat. Take up any further slack on the dropwire dispenser. Ensure that the braking mechanism is set to provide sufficient back

tension to maintain the height of the sashline/dropwire during the subsequent cabling operation.

15 *Dropwire Retensioning*

15.1 Dropwire Stretch Modes

The construction of Cable Dropwire 6 and 8 made them prone to stretching in adverse weather. Retensioning may be required on several occasions. If these type of dropwires are located in exposed situations they may have already been retensioned on several occasions. Therefore, when dropwire 6 & 8 are encountered, the dropwire must be renewed or recovered and replaced in accordance with instructions in this ISIS.

Dropwire 10 and 12 are less prone to stretching than Dropwire 6 or 8. If this type of dropwire has dropped more than 600 mm with no sign of slip in the clamp then it must be renewed. Dropwire types 1 to 9 are not allowed to be re-tensioned.

Cable Dropwire types 10 /10B & 12 are allowed to be re-tensioned.

CAD55M is also allowed to be re-tensioned.

Caution: See section 16.1 Cut and Draw for dropwires that can and can not be replaced using the “Cut and Draw” method.

15.2 Retensioning Dropwires on Wooden Poles and Hollow Poles

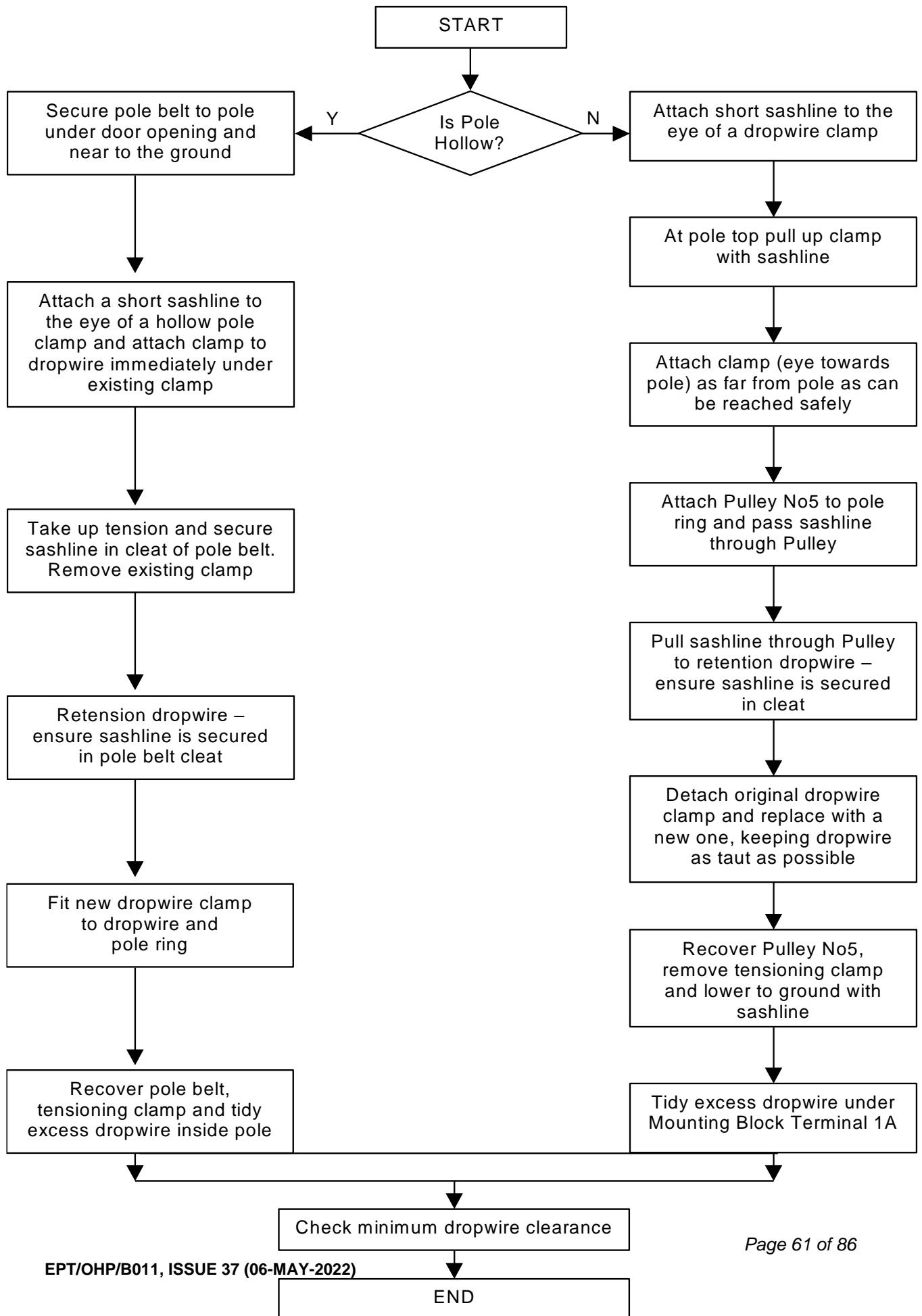
15.2.1 Preliminary Work

Using appropriate measuring instruments including the [Height Calculators](#), assess whether the minimum clearances can be achieved.

15.2.2 Dropwires attached to chimneys

Existing dropwires fixed to a chimney stack shall not be re-tensioned or otherwise left in place, including after a pole change, out but should be renewed and re-attached to an approved fixing point using an eyebolt or bracket 22, 32, 44 or 51”

Warning: NEVER RETENTION A DROPWIRE FROM A LADDER.



Note: References to pulley N° 5 refers to pulley 5 or pulley 6

Figure 16.1 Retensioning Dropwires on Wooden Poles

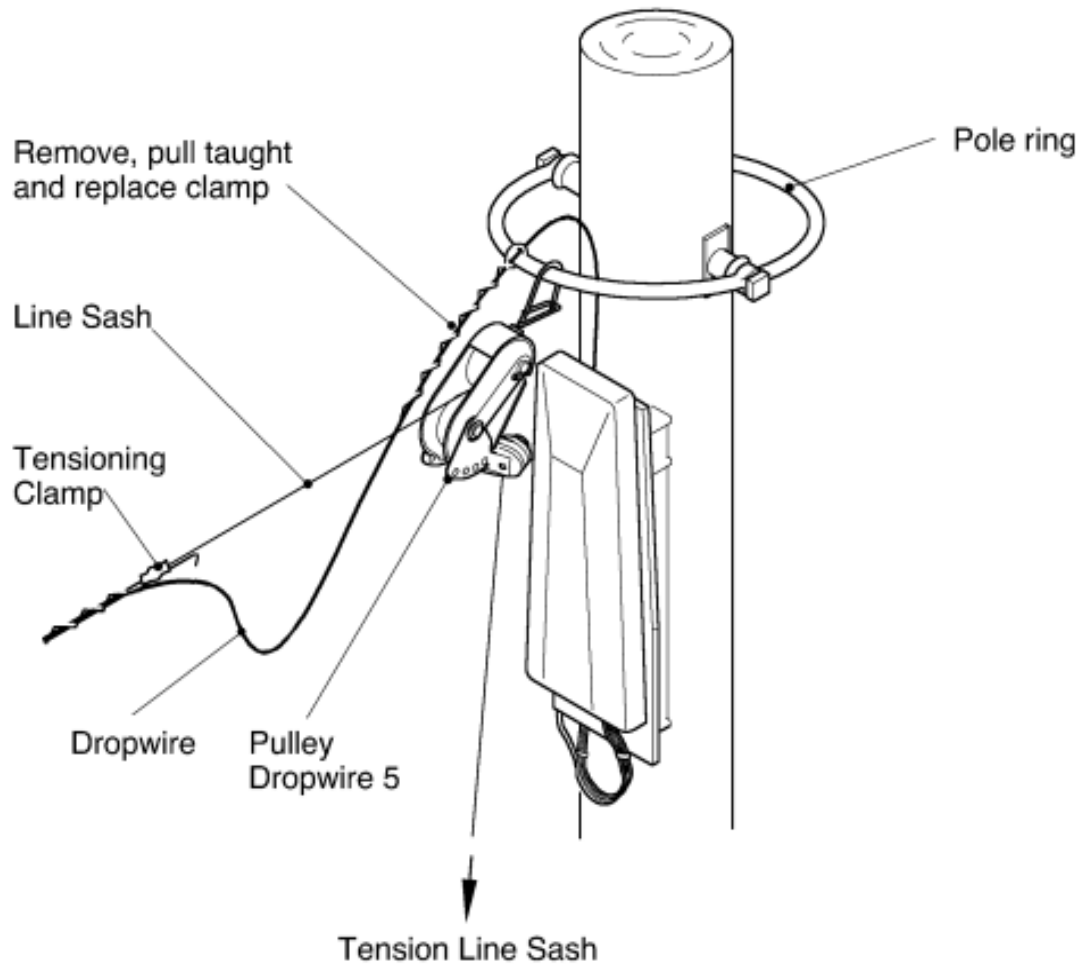
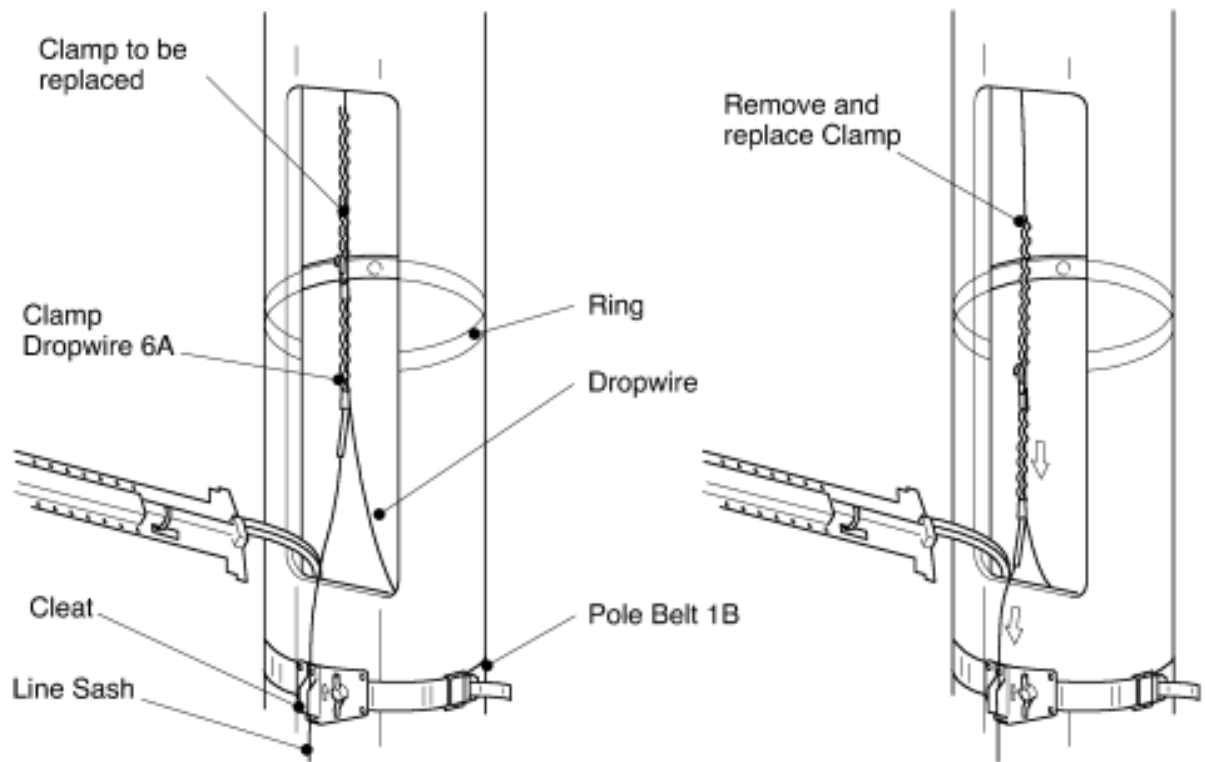


Figure 16.2 Retensioning Dropwires on Hollow Poles

16 *Dropwire Renewal and Recovery*

16.1 Cut and Draw

Note: Cut and draw techniques using the "Pulley N° 4" and "Pulley N° 5/6" to renew Cable Drop-Wire should not be used if you suspect any type of CDW that may have been subjected to excessive mechanical strain or damage (ie, rubbing in trees or against another structure). To replace any of the above types of cable the existing CDW must be recovered first and a new cable provided. See section 16.5.

16.2 Renewal - "Cut and Draw" Method

Detailed below are the procedures for renewing an existing dropwire with a new dropwire using the existing dropwire to pull the new one into place.

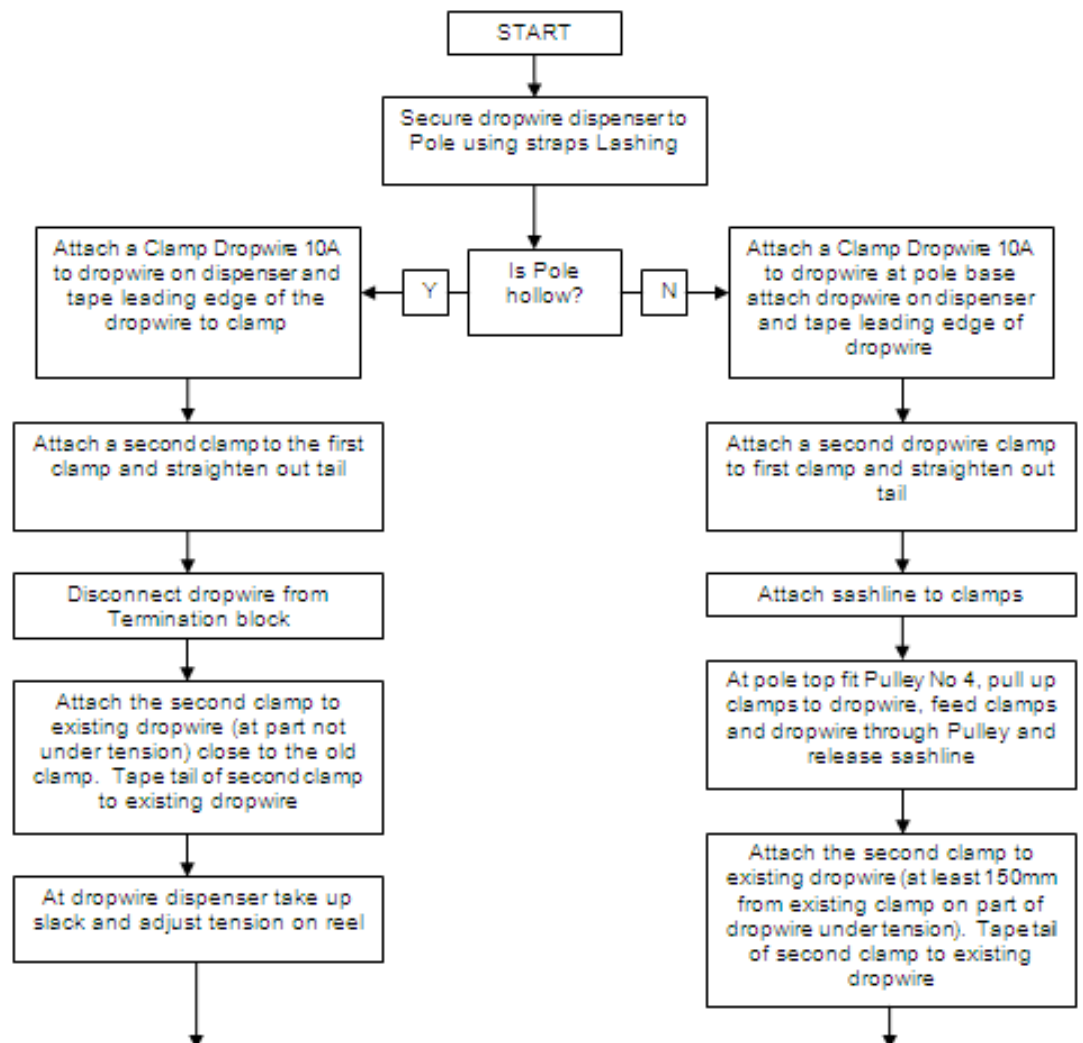
Note: If access cannot be obtained at the end user's premises, a new dropwire span may be erected and jointed to the existing lead in, only if it is in good condition and at close proximity to the end user's fixing. The joint should be made using an approved connector in accordance with ISIS EPT/ANS/A006: and housed in an Above Ground Closure. See ISIS EPT/ANS/A011 section 5 for information on the Above Ground Closure.

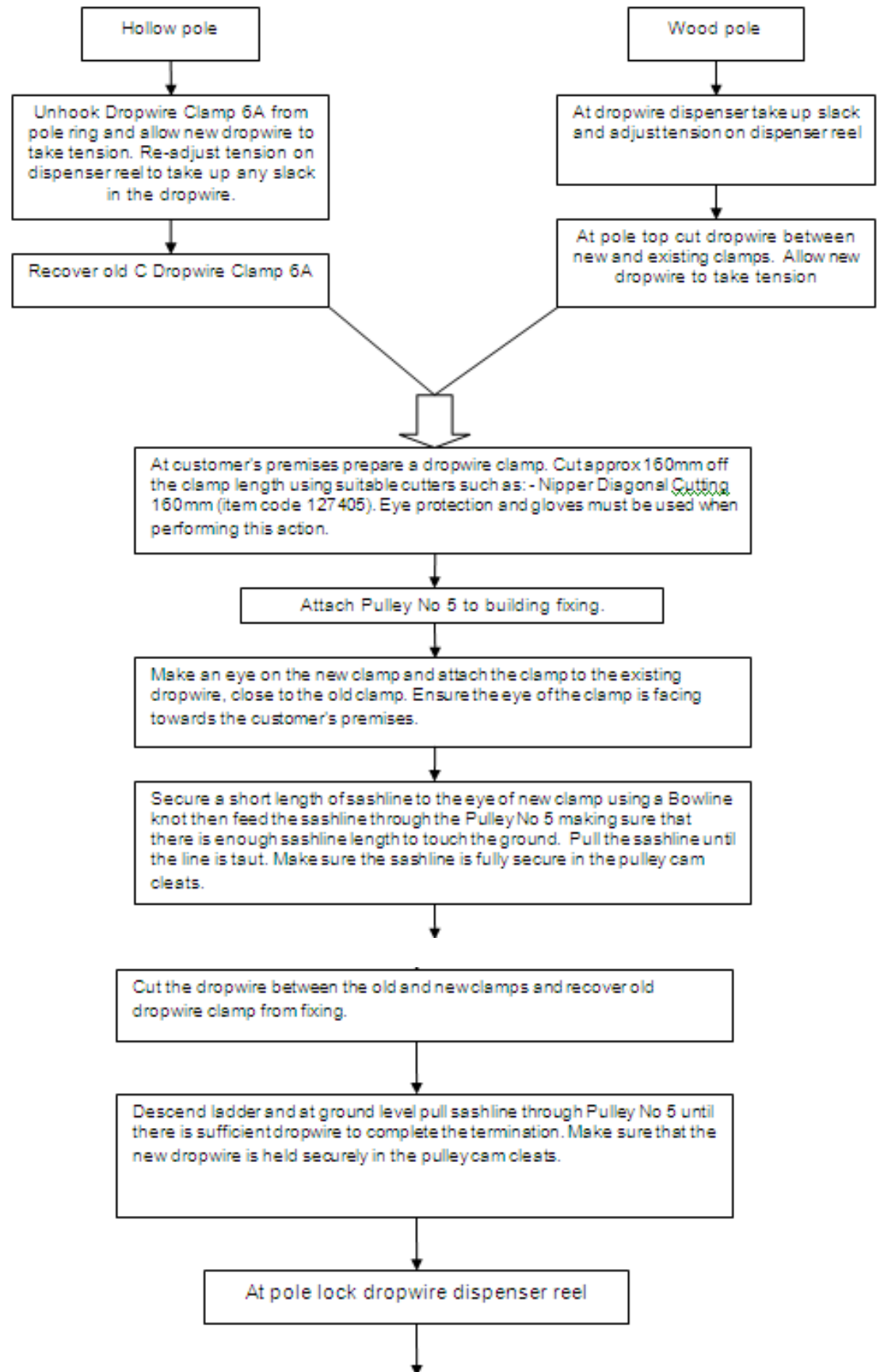
Note: The provision or renewal of all new dropwires terminating into a BT71 or 41 requires an excess length of dropwire to be provided at the pole. This will prevent the replacement of all dropwires when, at a later date, changing to a Box Connection 18A or 19A.

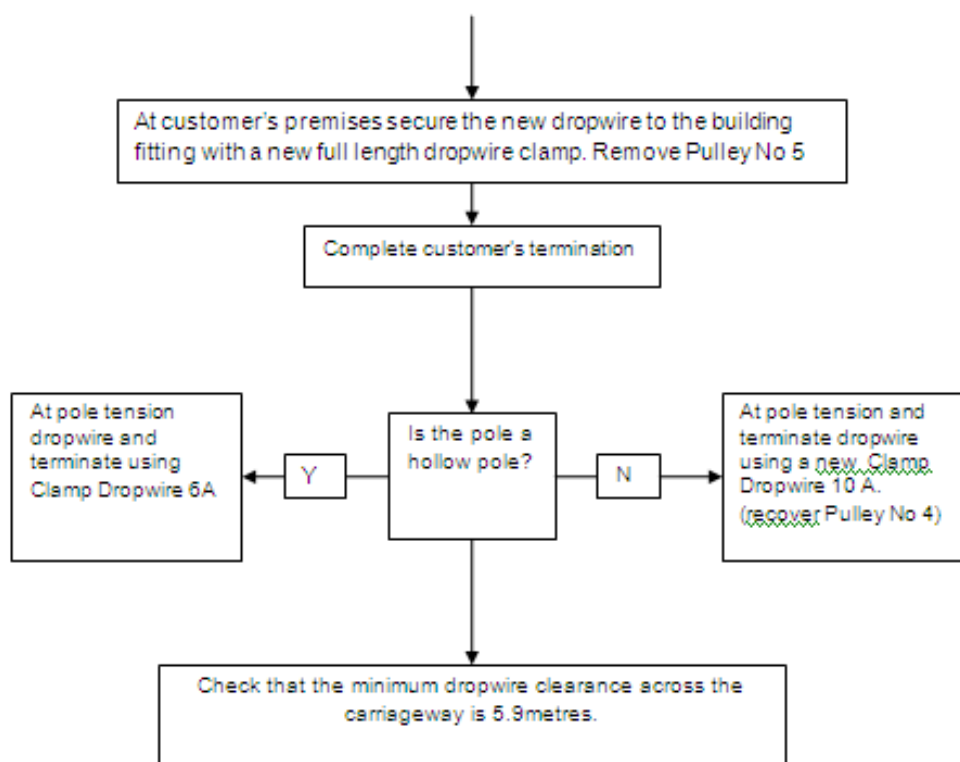
At the pole top measure from the ring immediately above the BT along the dropwire for a distance of 1100 +/- 25 mm; then cut and terminate the dropwire.

The excess length of Dropwire should be neatly cleated to form a loop on the pole ready for future use.

16.3 Single Span Dropwire Renewal between DP and End user's Premises with or without Road Crossing

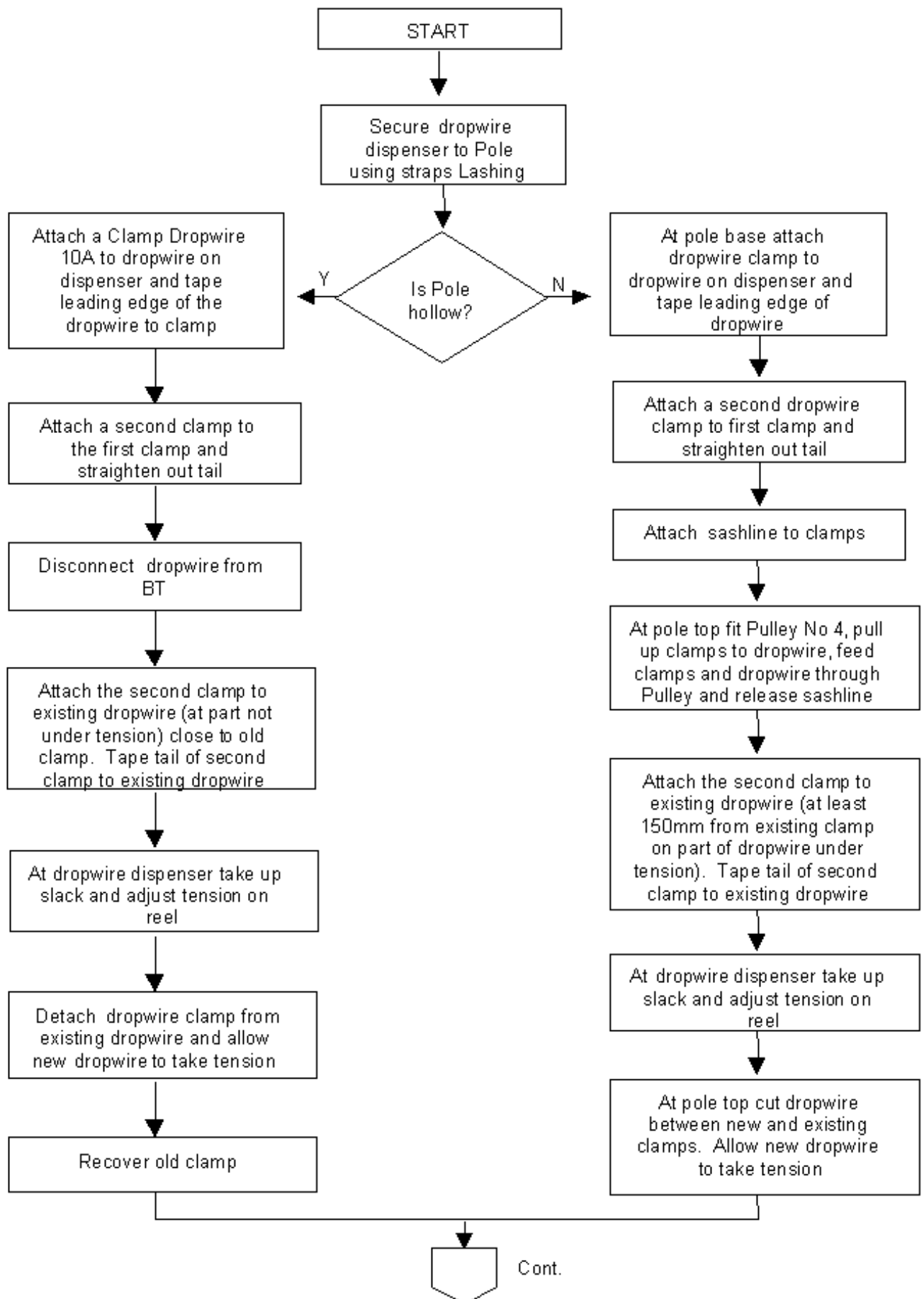


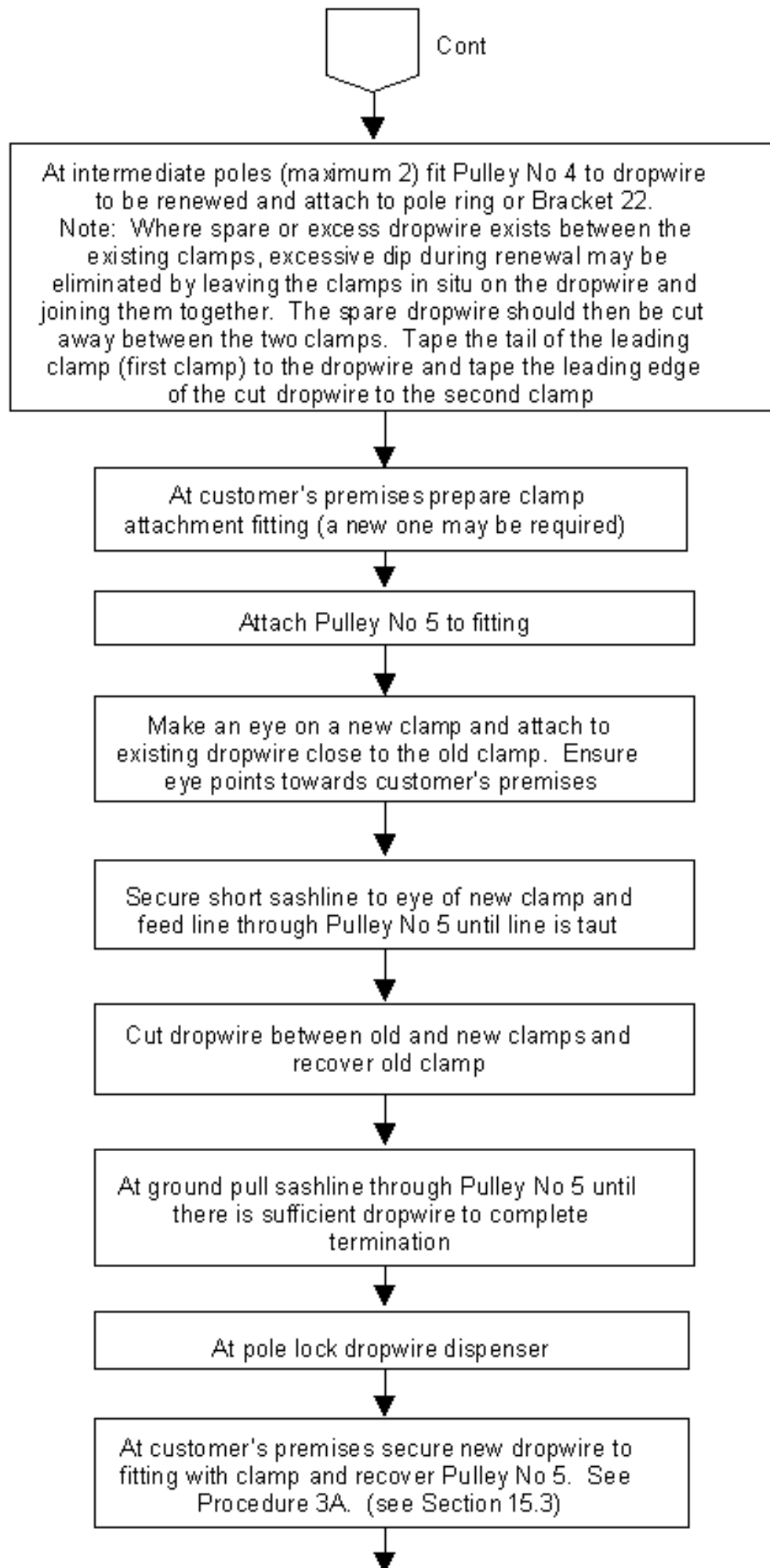


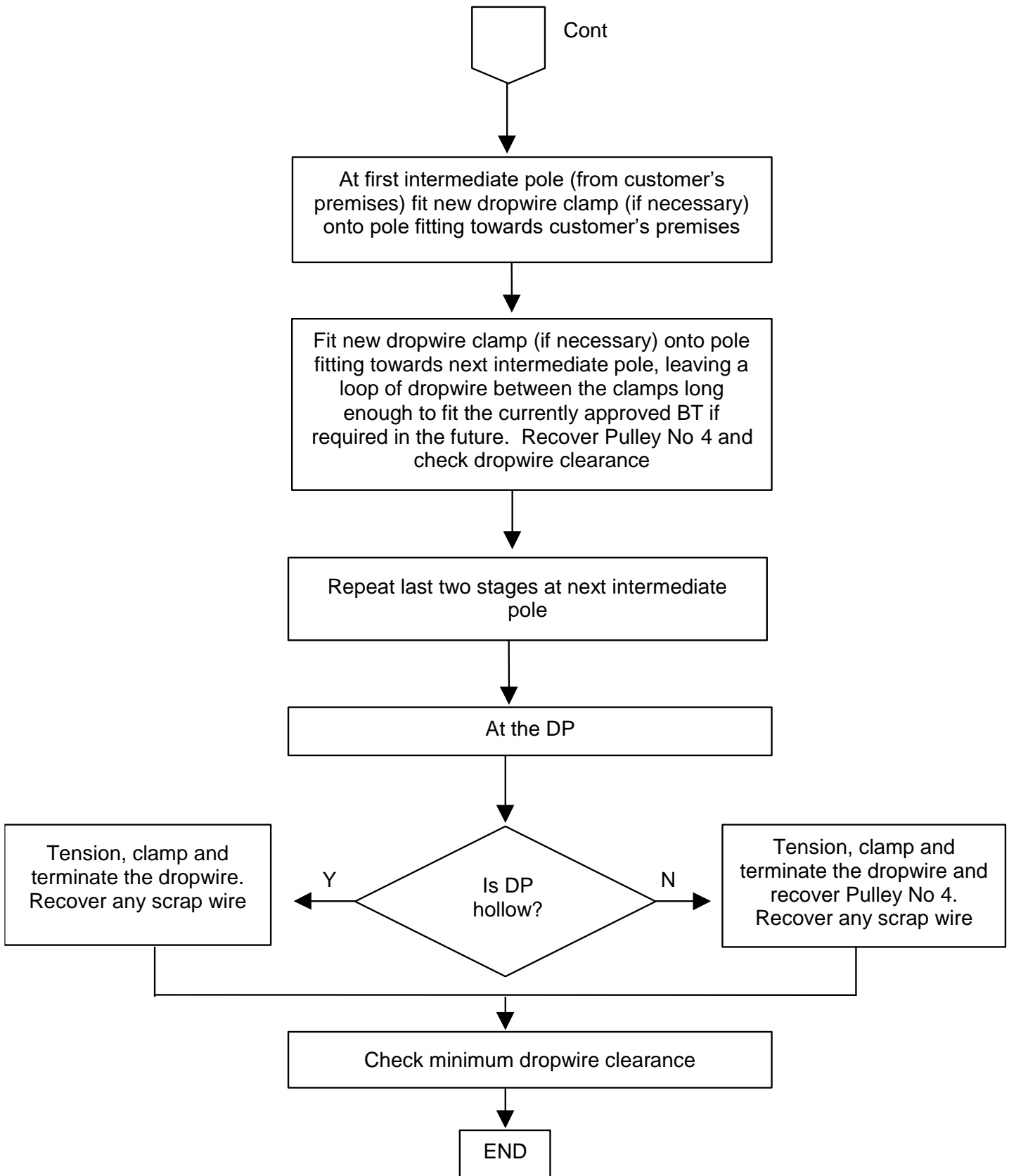


Note: References to pulley N°5 refers to pulley 5 or pulley 6

16.4 Multi-Span Dropwire Renewal between DP and End user's Premises with or without Road Crossing







Note: References to pulley N° 5 refers to pulley 5 or pulley 6

16.5 Recovery

Detailed below are the procedures for recovering an existing Dropwire.

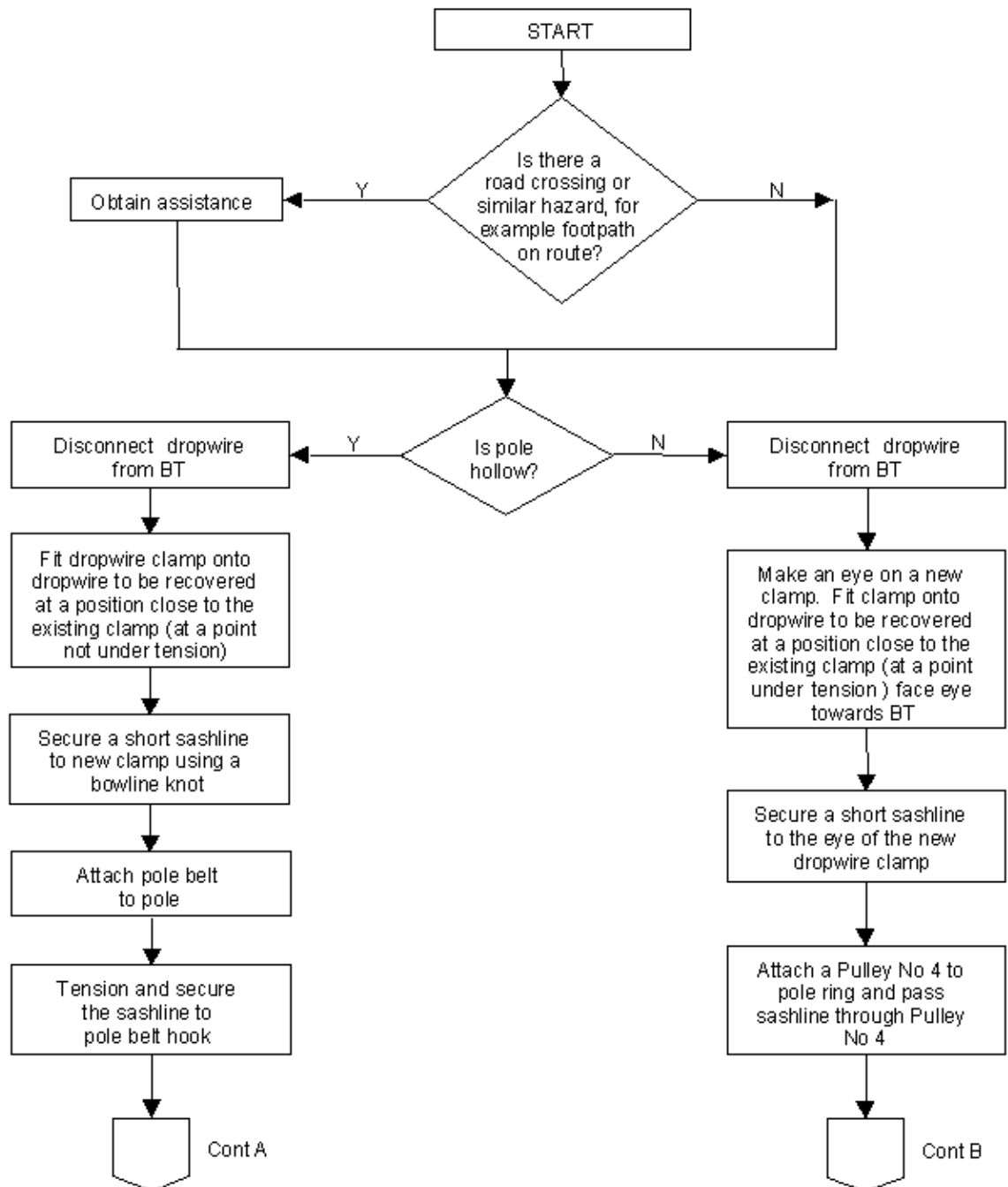
At the end user end, cut off the Dropwire at the highest safely accessible point on the wall of the premises DO NOT cut the span at this stage.

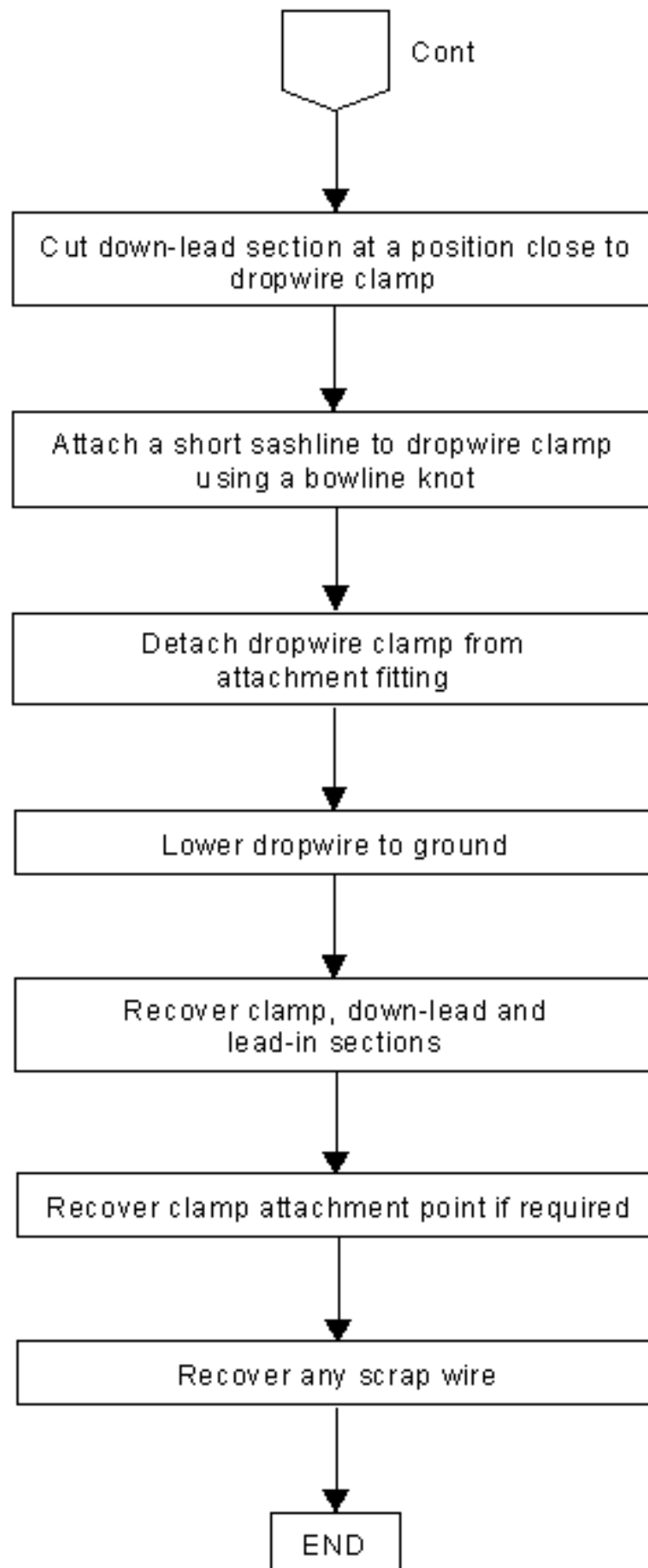
The cable on the wall can now be recovered if necessary.

To recover the cable see flowchart below

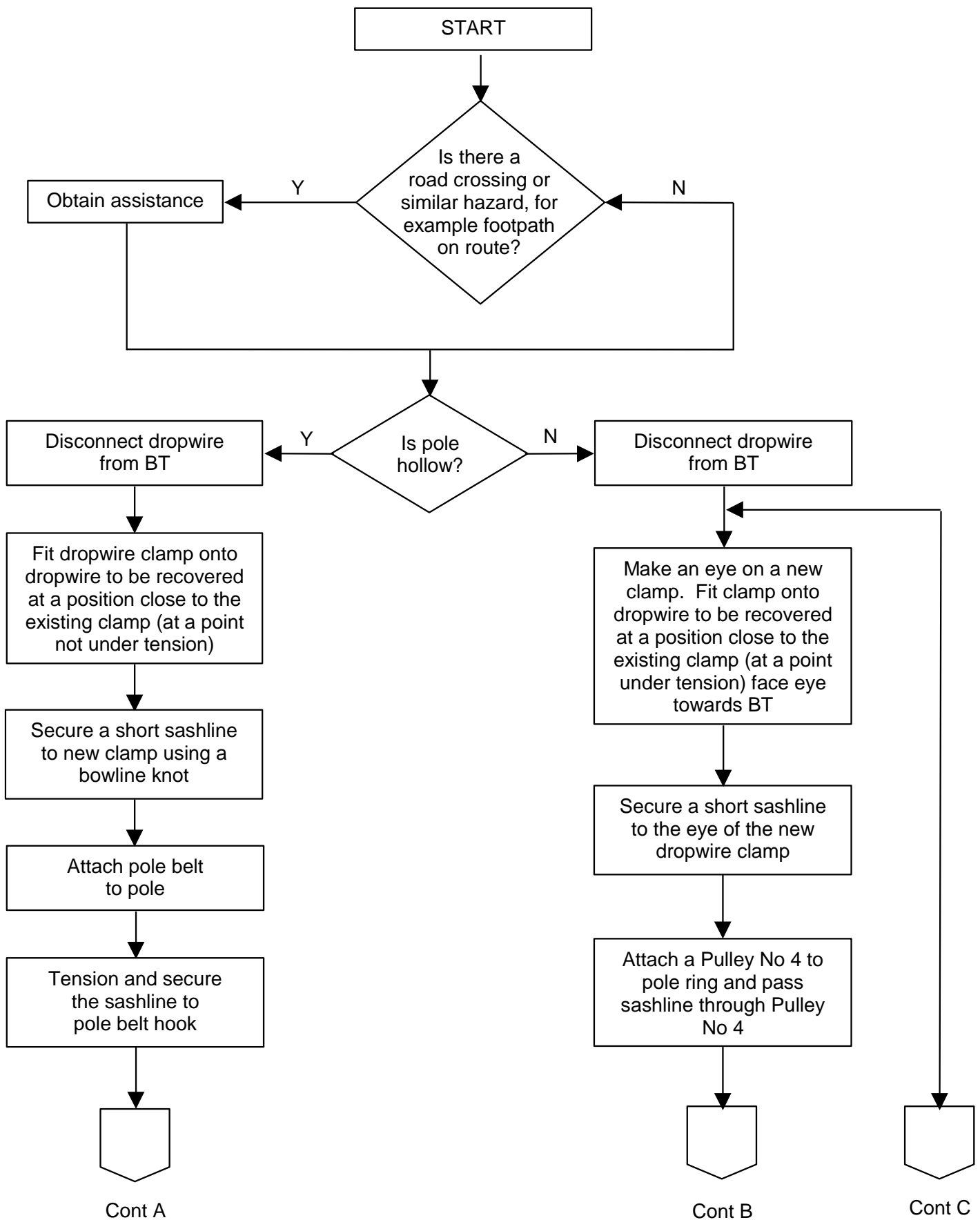
If the recovered span is to be replaced and access cannot be obtained at the end user's premises, the existing lead in may be reused only if it is in good condition and at close proximity to the end user's fixing. The joint should be made using an approved connector in accordance with ISIS EPT/CJT/D021 "Jointing in the Metallic Pair & Quad Cable Network" and housed in an Above Ground Closure. See [EPT/ANS/A006](#)

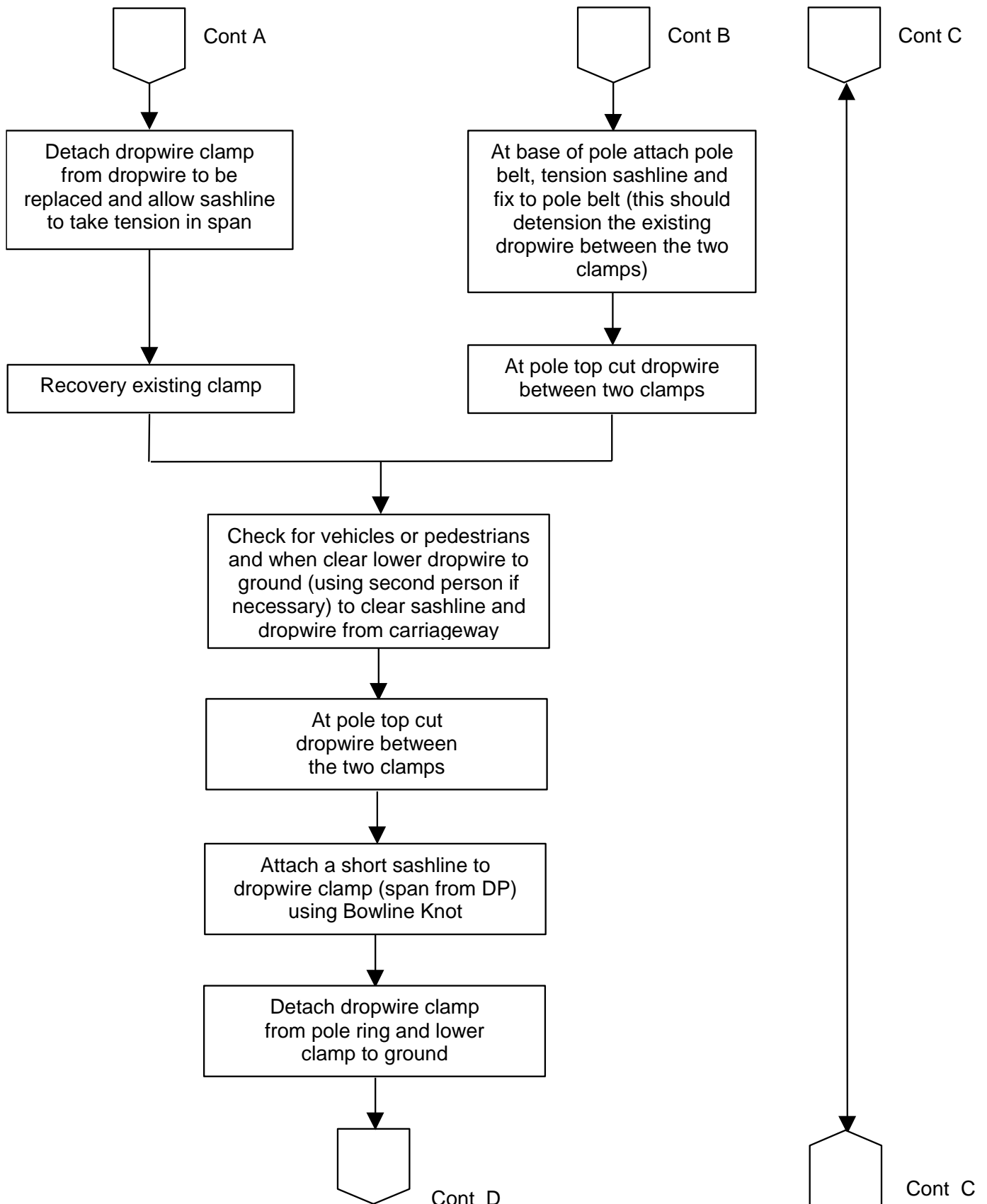
16.6 Single Span Dropwire Recovery

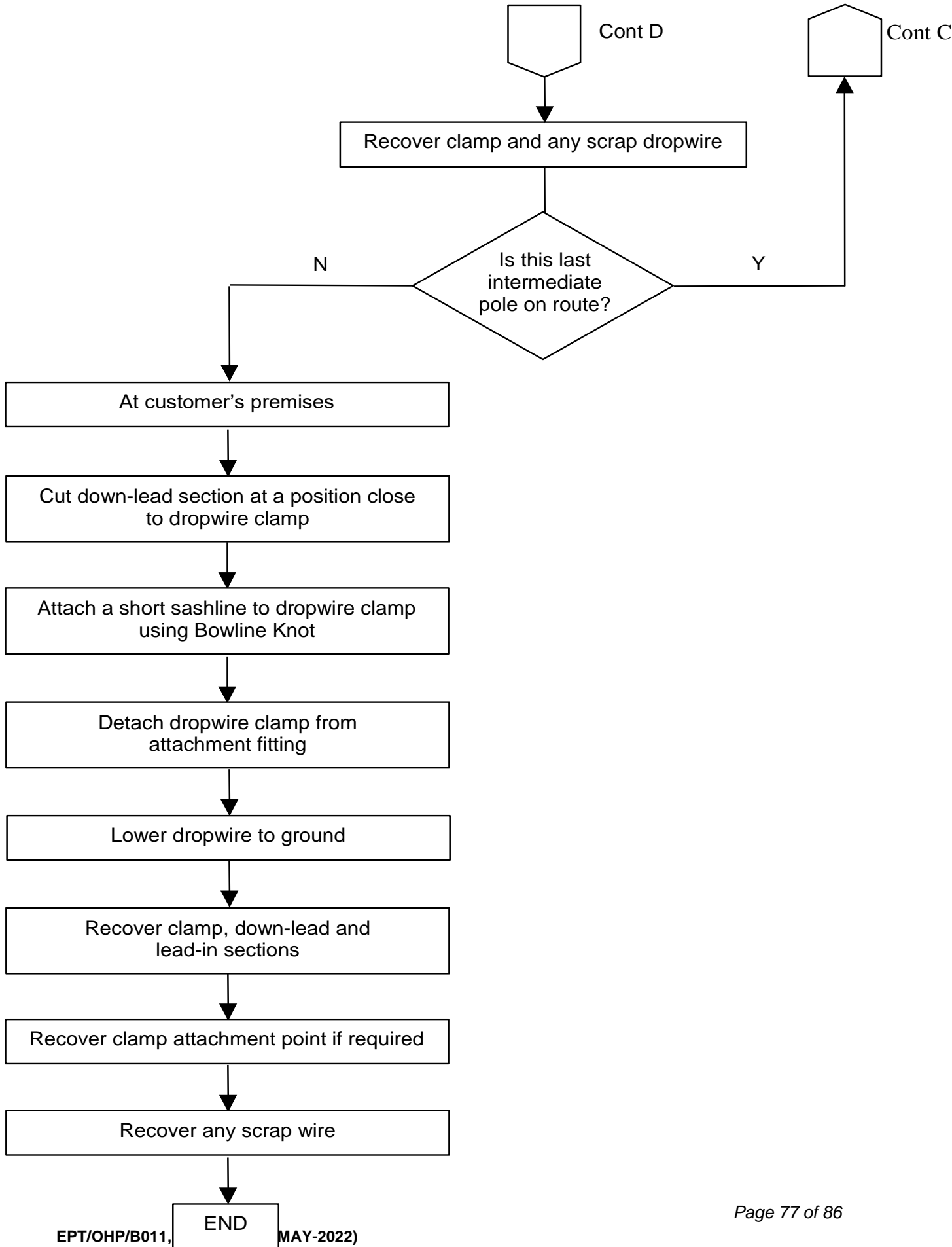




16.7 Multi-span Dropwire Recovery







17 *Proactive Fitting of Protector Cable Abrasion (PCA)*

17.1 Introduction

This guidance details the requirement to install *Protector Cable Abrasion (PCA)* to protect newly provided dropwires from tree abrasion. Formally known as Tree Guard, this product was first launched for reactive work.

This solution is a method of proactively preventing faults by fitting PCA to dropwires that need to be erected through trees where a potential tree rub has been identified.

Please note that full personal protection equipment should be used when installing dropwire through trees.

17.2 Method of Installation on Dropwire

For installations where a dropwire is to be installed through trees, it is recommended to measure the distance the dropwire will pass through the tree and pay out the dropwire from the dispenser. Place pieces of tape to mark start and finish points on the dropwire lengths as in Figure 1. Fit the PCA to the dropwire (Figure 2) and tape the ends to stop the PCA getting stuck in a Pulley Dropwire 5 during installation. Rewind the dropwire on to the dropwire dispenser (Figure 3).

Note: A **maximum** of 15 lengths of PCA shall be fitted to a dropwire that crosses carriageways. Spans that do not cross carriageways or vehicular accesses may have their full length protected if necessary.



Figure 1: (Above) Preparation**Figure 2:** (Above) Fitting the PCA**Figure 3:** (Above) rewinding the dropwire

18 ***Reactive fitting of Protector Cable Abrasion (PCA)***

18.1 **Introduction:**

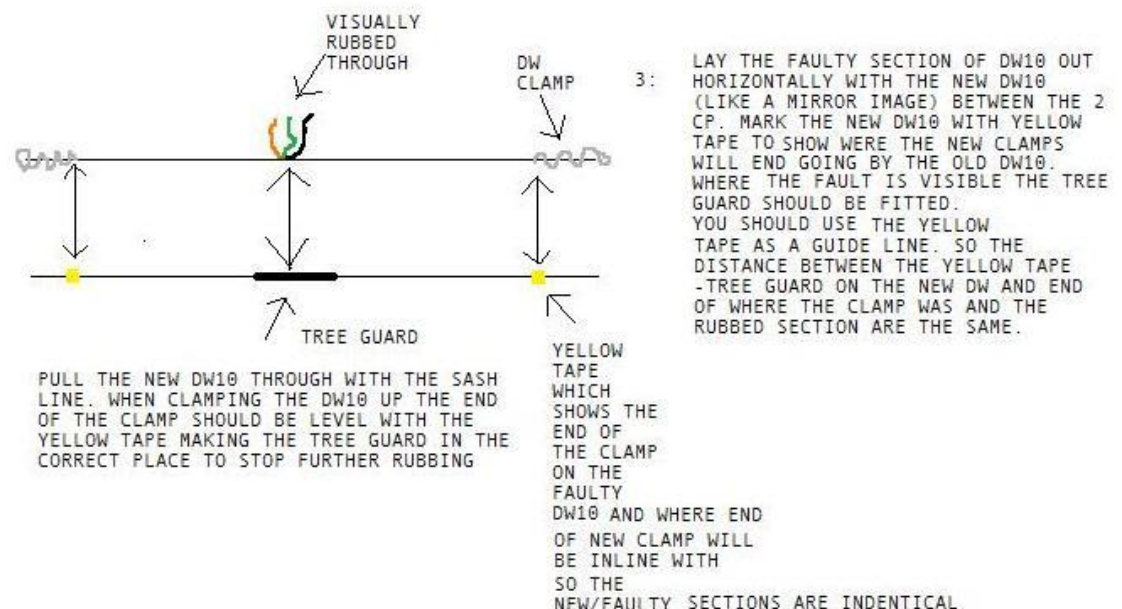
This guidance details the requirement to install the Protector Cable Abrasion (PCA) to protect replaced dropwires from tree abrasion. This device was formally known as the Tree Guard.

This **suggested** solution is a method of retrospectively fitting PCA to dropwires that need to be erected through trees where a potential tree rub has been identified.

Please note that full personal protection equipment should be used when installing dropwire through trees.

18.2 Method of Installation

- Locate the faulty span of dropwire.
- Pull through a sash line using the cut and draw method detailed in EPT/OHP/B011 section 16.2 and secure in place
- Where possible, lay out the faulty span of dropwire on the ground and lay next to it a span of new dropwire from the dispenser.
- Mark the new dropwire with yellow tape where the ends of the clamps will go using the faulty dropwire as a guide
- Fit PCA on the new dropwire adjacent to the damage on the faulty dropwire



- Roll the new dropwire including PCA and tape marks back onto the dispenser and replace the sash line using the cut and draw method detailed in EPT/OHP/B011 section 16.2

Note: Where it is not possible to lay out the dropwire on the ground, the cable could be coiled through the hands so you would still be able to locate the rubbed through areas and still be able to see where the position for the PCA should be fitted, this is obviously not as efficient as laying the cable down over a large area but it would still give the same results

19 *Working Practice for Prop Cable Telescopic on High Load Routes*

Introduction

When police escorted abnormal high loads are using the highway there is a need to quickly, clear the route of obstructions. This Work Practice describes how to use the Prop Cable Telescopic to assist in those situations.

Description of Prop Cable Telescopic (Item code 129519)

The item is a five section telescopic rod with application head for capturing the overhead cables. The rod can be extended to any height from 1.75m to 7.5m. The attributes of the item are detailed in **Table 1**.

Weight		≈ 5 kg
Length	Compact	1.75meters (excluding head)
	Extended	7.5meters (excluding head)
	Head	190mm
Radius	Bottom Section Outer radius	60mm
	Top Section Outer radius	30mm

Table 1

Each section of the rod is secured using an over centre locking mechanism. See Figure 1.

Procedure

Note: Wear the appropriate protective and high visibility clothing for roadside working.

- Eyeshield Sun Glare Protection may be required on bright days as the procedure involves looking skyward.
- See Appendix 1 for Clothing Item codes.
- Check rods for any visible damage. Do not use damaged or splintered rods.

Note: Gloves and goggles should be worn to protect against any potential splinters on rod.

- Check that the over centre locks provide sufficient grip to hold each rod section tightly when extended.

Note: Over centre locks are factory set to provide correct grip between sections. Firm resistance to the locking action should be felt when operating the lock.

- If joint is loose the grip can be adjusted by tightening the nut adjacent to the locking device body with a 14mm spanner.

Note: This nut is on a reverse thread

- Stand directly below the cable to be raised and extend telescopic rod, locking the joints securely (see **Figure 1**), using the over centre locking mechanism, until the head is level with the cable.

Note: Use 2nd person to warn operator of obstacles and members of the public if necessary.

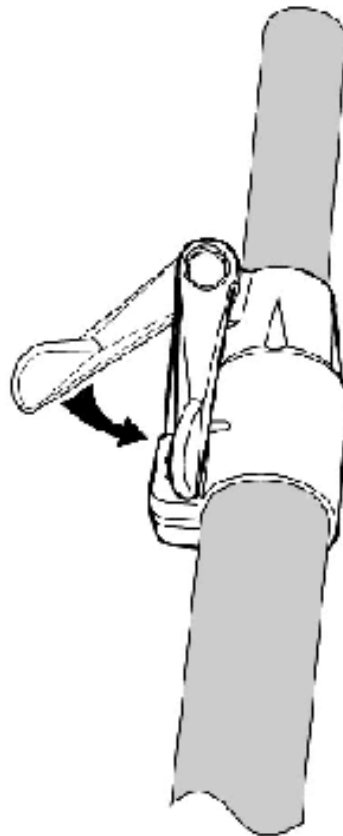


Figure 1 – Over Centre Locking Mechanism

- Position the two hooks on the head both side of the cable and turn the rod 90° clockwise to capture the cable as shown in **Figure 2**. This will retain the head on the cable.

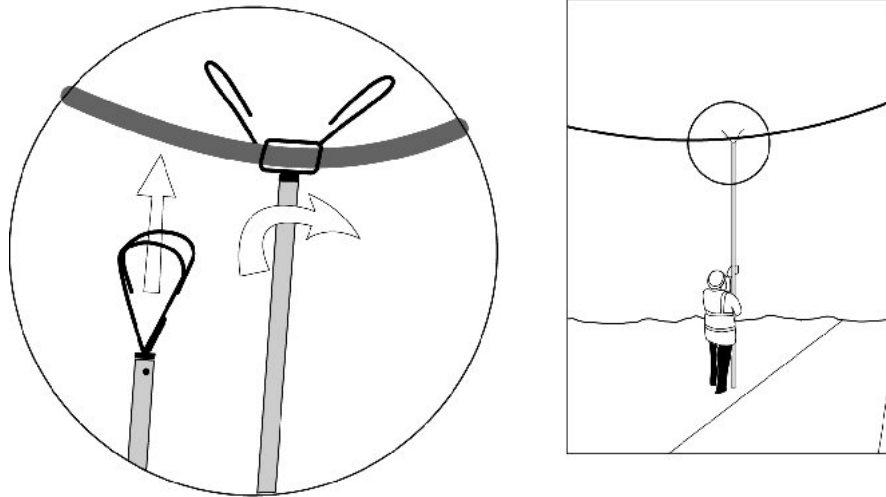


Figure 2 – Application Head

- Rest the rod on the cable using the attachment head and extend the rod to required length. See **Figure 3** position A

Note: Ensure that Latches are completely closed. See **Figure 1**.

- Holding the rod at a comfortable position walk towards the cable until rod is vertical, ensuring that the cable is caught in the 'V' groove of the attachment head and checking ground conditions underfoot. See **Figure 3** position B
- Place the butt of the rod on the ground directly below cable.

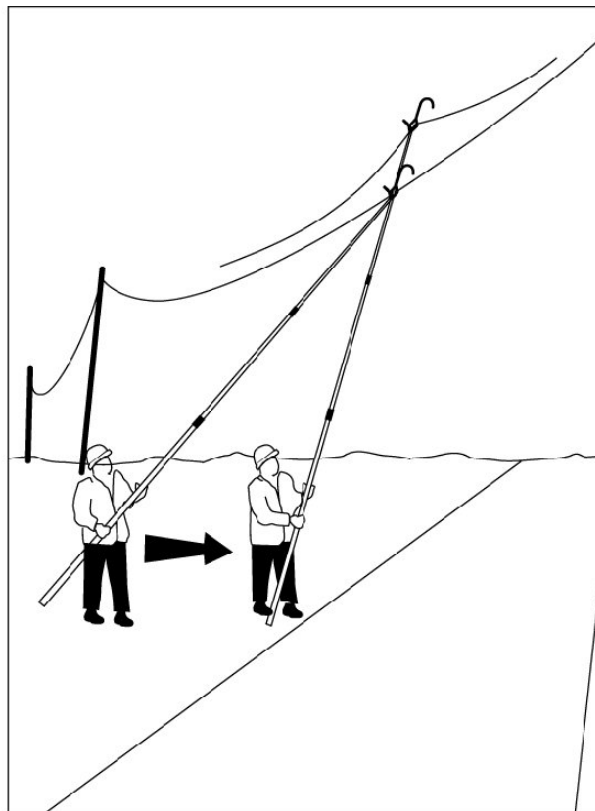


Figure 3 – Raising cable

- Remain in attendance at the rod to ensure that there is no slippage along the cable whilst the high load passes under. See **Figure 4**.

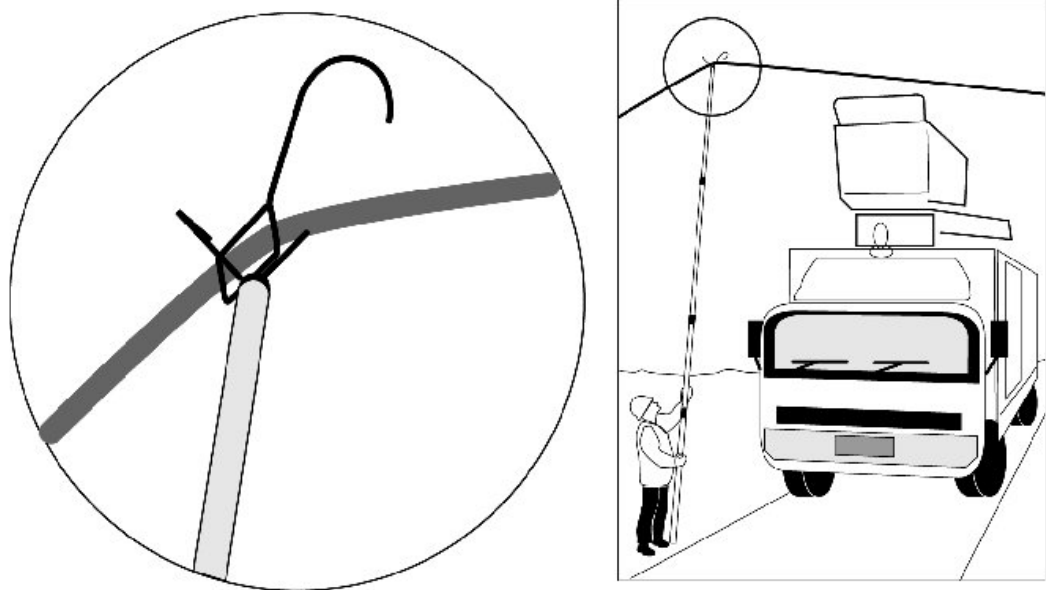


Figure 4 – High Load passing under cable

- Remove the rod when the High Load has passed through. Removal is a reverse action of raising the rod.

19.1 Additional Guidance

- Check height of cable before High Load passes through
- The operator should use the rod as close as is safely possible to the High Load.
- In most cases only one rod will be required, but for wider loads it may be necessary to use one either side.
- Operators will not walk with rods extended unless raising the aerial cable List of Stores Items

ITEM DESCRIPTION	CODE
Allen key (6 mm) Local purchase only	No code
Belt Pole 1B	126966
Bolt Expanding 2A	021689
Bolt 25	010511
Bracket 22	011114
Bracket 32	016264
Bracket 44	009561
Bracket 51	060795
Cable Aerial Dropwiring 55M	002719
Cleat Wiring 11B (Black)	072725

Cleat Wiring 11B (Brown)	073085
Cleat Wiring 11B (Cream)	073086
Cleat Wiring 11B (Grey)	073087
Cleat Wiring 11B (White)	072914
Clamp Dropwire 6A	016309
Clamp Dropwire 10A	016308
Clamp Dropwire 10A (Pack of 50)	016443
Dispenser Dropwire 2B	127548
Dropwire Dispenser2B Modification Kit 1A	129350
Dispenser Sashline 1	126356
Dropwire 10B	055201
Dropwire 12	055704
Eyebolt Expanding 1A	016326
Eyebolt Expanding 2A	016442
Eyebolt Expanding 2B	023041
Gloves IR	773719
Gun Applicator	127952
Height Measuring Instrument Ultrasonic	127585
Hook Clamp Dropwire	012221
KeyPillar	114996
Line Sash 2 (4 hank)	127429
Pin Plug 1A	545509
Pulley Dropwire 4	127580
Pulley Dropwire 5	127581
Rigging Head 1A	126687
Rigging Weight 1A	126676
Ring Pole Head Dropwire	021240
Rod Duct 2	126277
Screws Wood Steel Zinc Plated Countersunk Pozidrive 1 x 12	211458
Spanner Adjustable 300mm	126980
Spanner Combination 24mm AF	126991
Spray Lubricant 1A	211530
Straps Lashing 1	127545
Stud Expanding 1A	016303
Silicone Sealant	127865
Spanner 17 mm Cranked	129393
Rods Clearance Complete	116121
Rods Clearance Telescopic 7 m	008874
Wheel Measuring	117652
Tape Measuring 20 m	116981
Washers Galvanised 4	016152

20 *References*

NAME OF DOCUMENT	ISIS NUMBER
Verification of Height Measuring Equipment	CWC/NAT/D011
Jointing in the Copper Access Networks	EPT/CJT/D021
Specification for Jointing in the Copper Access Networks	EPT/ANS/A006
Clearances & Definitions for Overhead Plant	EPT/ANS/A013
Specification for Dropwire Work	EPT/ANS/A011
Poles - General Information and Layout Policy	EPT/OHP/B058
Poles General Test and Examination	EPT/OHP/C022
Code of Practice – Protection of Telecommunication Lines From Power Lines	EPT/PPS/B026
Joint Use of Poles	EPT/PPS/B037
Joint Use of Poles	EPT/PPS/B038
Work on Overhead BT Lines in the Vicinity of Power Lines (precautions against electrical accidents)	EPT/PPS/B046
Building the Copper Access Infrastructure	NWK/LNK/C319

NAME OF WEB SITE	URL OF WEB SITE
Safety at Streetworks and Roadworks a Code of Practice	Please click here for the URL

21 *Appendix 1*

21.1 Eye Bolt repositioning to facilitate renovation work

Prior to work commencing on properties to renovate roofs, soffits, guttering etc. where scaffolding is required, it may be necessary to lower the dropwire to a level below the scaffolding boards, thus avoiding a trip hazard.

Two Safe Systems of Work have been developed and risk assessed by Accenture to facilitate this work one for road crossing spans and one non-road crossing.



Road Crossing



Non Road Crossing

Click Here for the assessments

and

END OF DOCUMENT