



Part of Energy Queensland

Guideline for Inspection of a Private Property Pole by an Electrical Contractor

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1. PURPOSE AND SCOPE

The purpose of this guideline is to describe a process for an Electrical Contractor to inspect a private property pole that has been used to support the Electricity Entity's customer service cable, associated customer and Entity owned equipment and, in some cases, the customer mains cable.

This guideline describes the process for inspecting wood, metal and concrete poles.

2. SAFETY PRECAUTIONS

The Inspector shall implement control measures to eliminate and/or reduce risk exposure in accordance with their safe system of work.

Test for the presence of step or touch ground potential voltages before inspecting the pole.

If it is unsafe to perform the inspection for any reason, do not proceed to inspect the pole.

Report any faults and Life-Threatening situations to the Electricity Entity if required.

3. TECHNICAL SUPPORT

For technical support and further information regarding the application of this guideline, please contact:

Energex	Ergon Energy Network
<p>Requests can be made via the online form, email or by phone.</p> <p>https://www.energex.com.au/contact-us/forms/qecm-query-call-back-request-form</p> <p>1300 762 397</p> <p><i>Electrical Contractor Hotline (Licenced Electrical Workers Only)</i></p> <p>qecmmtechadvice@energex.com.au</p>	<p>Requests can be made via the online form, email or by phone.</p> <p>https://www.ergon.com.au/network/contact-us/forms/qecm-query-call-back-request-form</p> <p>1800 237 466</p> <p><i>Electrical Contractor Hotline (Licenced Electrical Workers Only)</i></p> <p>qecmtechadvice@energyq.com.au</p>

4. DEFINITIONS, ABBREVIATIONS AND ACRONYMS

Term	Definition
Life- Threatening	Where a person performing their normal daily function is exposed to the risk of serious injury or death due to a functional failure of any part of the electrical network. "Life threatening" is a situational expression and requires an assessment for each individual situation.
Urgent Defect	Serious deterioration, damage, or condition with a likelihood of creating a hazardous situation or failure in the short term (up to 6 months)
Non-Urgent Defect	Moderate deterioration, damage, or condition, with a likelihood of creating a hazardous situation or failure in the medium term (6 months to 4 years)
Unserviceable	An asset in service which, at the time of inspection and assessment, is considered incapable of maintaining a safe electricity supply.
Nail	A manufactured steel stake that is driven into the ground against a wood pole to provide an engineer approved, structurally effective, support system.
Pole Base	The area as measured from the standard excavation depth to 2 metres above ground level.
Pole Top	The area as measured from 2 metres above ground level to the top of the pole.

5. ASSESSMENT OF METAL AND CONCRETE POLES

5.1. Visually Assess Pole and Attached Components

Visually assess the pole and attached components and identify defects using the information in Annex B as a guide.

1. Inspect metal or concrete poles for defects that affect the structural integrity of the pole such as:
 - vehicle damage
 - holes, deep pitting or flaking of the metal caused by corrosion
 - loss of concrete over reinforcing
 - severe corrosion at the interface to the ground which may indicate deterioration below ground
2. Check if the pole is leaning or has not moved in the ground due to excessive load or due to weakening of the pole below ground. If leaning by $>20^\circ$, **urgent** replacement is required. If leaning between 10° and 20° , **non-urgent** replacement is required.
3. Check for unusually tight or loose conductors, including service mains. This may indicate the pole is being held up by the conductors due to failure of the pole at or below ground line.
4. Inspect pole stays for defects. (e.g. rust, pulled from ground, reduced conductor clearance and pole moved in ground)
5. Check for loose, corroded or defective electrical equipment. (e.g. service connections and clamps, bridging connections to mains)

5.2. Perform Below Ground Inspection

Below ground inspections are only to be carried out on metal poles that are directly buried in soil. Metal poles that are in concrete or similar types of sealed foundation are not required to be excavated.

Excavate to a depth of 300mm and inspect for physical damage, holes, deep pitting or flaking of the galvanising using the information in Annex B as a guide.

5.3. Perform Sounding Assessment

5.3.1 Concrete Poles

Sound test concrete poles, where there are vertical cracks or concrete missing, by dragging the head of a hammer across the surface of the pole, noting areas where the concrete sounded hollow. This is an indication that the reinforcing is corroding, and the concrete is detaching from the steel reinforcement. Listen for a significant amount of falling concrete which indicates that the pole has deteriorated and requires replacement or further technical assessment.

5.3.2 Metal Poles

Lightly strike the pole with the flat face of a hammer so as not to damage any protective galvanised coating. The purpose of striking metal poles is to dislodge both internal and external rust and expose any perforations in the metal pole. Listen for a significant amount of falling rust which indicates that the pole has deteriorated internally and requires replacement or further technical assessment.

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6. ASSESSMENT OF WOOD POLES

6.1. Visually Assess Pole and Attached Components

Visually assess the pole and attached components and identify defects using the information in Annex B as a guide.

1. Inspect wood poles for defects that affect the structural integrity of the pole such as:
 - vehicle damage
 - excessive splits
 - excessive knots or grub holes
 - rot/decay
 - termite activity
2. Check if the pole is leaning or has not moved in the ground due to excessive load or due to weakening of the pole below ground. If leaning by $>20^\circ$, **urgent** replacement is required. If leaning between 10° and 20° , **non-urgent** replacement is required.
3. Check for unusually tight or loose conductors, including service mains. This may indicate the pole is being held up by the conductors due to failure of the pole at or below ground line.
4. Where the pole has been nailed check that:
 - the nail is not twisted or bent.
 - the nail adequately supports the pole by checking the bolts and/or straps are secure.
5. Inspect pole stays for defects (e.g. rust, pulled from ground, reduced conductor clearance and pole moved in ground.)
6. Check for loose, corroded or defective electrical equipment. (e.g. service connections and clamps, bridging connections to mains)

6.2. Perform Below Ground Inspection

Below ground inspections shall be carried out on all wood poles:

- that are ≥ 15 years old; or
 - where the age cannot be determined; or
 - where loss of cross-sectional area is suspected based on the visual assessment and using the information in Annex B as a guide
1. Excavate to a depth of 300mm
 - a. Inspect for termites, rot or damage. Sound wood for possible defects by striking the pole with a hammer around full circumference as low as possible into the excavation. Check pole nails for rust and damage.
 - b. Visually inspect the excavated portion of the Pole Base for signs of rot/decay, termite infestation or degradation affecting the strength of the pole. Indicators of deterioration will be:
 - i. Discolouration
 - ii. Fungal fruiting bodies
 - iii. Splits and cracks
 - iv. Mud trails (termites)
 - v. Surface irregularity
 - c. The following areas require close inspection for degradation:
 - i. Splits, cracks or checks
 - ii. Voids

- iii. Borer holes
 - iv. Cable or earth attachment points
 2. Measure the circumference/perimeter of the pole at groundline and compare to the circumference/perimeter of the pole at the narrowest part of the pole in the excavation.
 - a. The pole is unserviceable and **urgent** replacement is required if the circumference/perimeter has reduced by >40%, or a large internal void is visible.
 - b. The pole is unserviceable and **non-urgent** replacement is required if the circumference/perimeter has reduced by between 25% and 40%.

7. BACKFILLING THE EXCAVATION

Backfill the excavation to the original state if required by the customer.

At a minimum, backfill all excavated soil and provide additional backfill for the excavation where required:

- Reinststate soil compacting at 100mm vertical intervals with a suitable compaction tool around the full circumference of the pole.
- Reinststate the compacted backfill to a level approximately 100mm higher than ground level around the full circumference of the pole, ensuring that there are no depressions that will allow moisture to lay against the pole.
- Leave the site in a clean and tidy condition.
- Replace turf and restore gardens where practical in urban areas.

8. DEFECT MANAGEMENT

If an unserviceable/defective pole is found it should be replaced with a suitable pole in accordance with the Queensland Electricity Connection Manual (QECM).

When a licenced electrical contractor is engaged by a customer who has received a **60 day** notification from the Electricity Entity, the following applies:

- All urgent defects identified through the Electricity Entity's inspection and communicated to the customer are to be rectified.
- The assessment of the pole is to be completed.
- An additional 60 days will be granted for the rectification of all defects identified by the Electrical Contractor. The Electrical Contractor must provide the Electricity Entity with evidence in writing to confirm the assessment has been completed. The Electricity Entity will notify the customer of the 60 day extension.

When a licenced electrical contractor is engaged by a customer who has received a **180 day** notification from the Electricity Entity, the following applies:

- All non-urgent defects identified through the Electricity Entity's inspection and communicated to the customer are to be rectified.
- The assessment of the pole is to be completed.
- All defects identified by the Electrical Contractor are to be rectified.

Once the defect/s have been completed, evidence that the customer pole has been inspected and has been left in a is serviceable condition is to be provided to the electricity entity.

Where a pole replacement has been done as part of the rectification work, evidence will include:

- The Electrical Contractor will submit a Connect Application and Electrical Works Request (EWR), stating in the "Additional Information About Request" field:
 - That the defects identified through the Electricity Entity's inspection are rectified

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Where a pole replacement has not been done as part of the rectification work, evidence will include:

- The Electrical Contractor will provide a signed Certificate of Testing & Compliance (CoTC) or Invoice stating:
 - They are certified and an appropriately qualified electrical contractor.
 - They have access to this guideline.
 - That the pole was inspected and is serviceable and electrically and structurally sound.
 - That the defects identified through the Electricity Entity's inspection are rectified

Refer to Annex A for an example of evidence to be provided to the electricity entity.

Failure to provide this evidence by the due date will result in the customer's supply being disconnected to manage the safety risk.

Alterations that change the original installation and which impact the structural integrity of the pole (for example welded plates, filler, struts, pole nails) **will require** an RPEQ Structural Engineer approval. Please provide the structural certification for review as required in the QECM.

Repairs that restore the pole to its original condition such as removing rust and regalvanising a steel pole **do not require** RPEQ Structural Engineer approval.

Termite treatment and corrosion treatment that prevents further deterioration are considered preventative measures and **do not require** RPEQ Structural Engineer approval.

Wood poles are unable to be repaired – they must be replaced. Please refer to Appendix J of the QECM for classification of alterations occurring on site.

Defects found on components other than the pole should be repaired or replaced by an Electrical Contractor as required and in accordance with the appropriate standards and the QECM.

8.1. Marking Unserviceable Poles

Where it is determined that the pole condition is Unserviceable, place a cross on the pole in accordance with Figure 1 to alert any person working on or near the pole of its condition. Apply the mark using yellow, fluorescent paint on the most visible side of the pole at a height of approximately 1.5m. The length of the mark shall be approximately 300mm.

Where a Pole Top Defect causes the pole to be classified as Unserviceable, then a small dot shall be painted above the cross.

Where a Pole Base Defect causes the pole to be classified as Unserviceable, a small dot shall be painted below the cross.

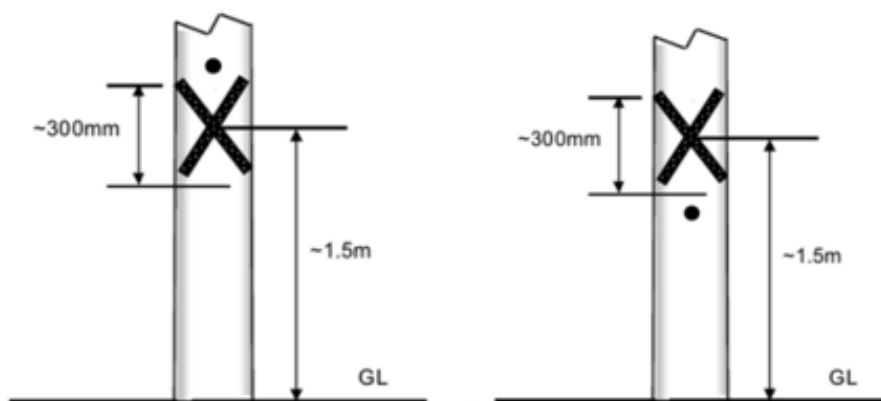


Figure 1 - Unserviceable Pole Markings

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ANNEX A – EXAMPLE OF EVIDENCE TO BE PROVIDED TO THE ELECTRICITY ENTITY

This is an example only of a Certificate of Testing and Compliance and the suggested wording below that can be used to provide evidence of the inspection outcome to the Electricity Entity.

CERTIFICATE OF:
(Please mark relevant check-box)

TESTING AND COMPLIANCE (**Electrical installations**)
Issued in accordance with s227 of the Electrical Safety Regulation 2013

TESTING AND SAFETY (**Electrical equipment**)
Issued in accordance with s26 of the Electrical Safety Regulation 2013

* Work performed for:

* Name

Title _____ Given name/s _____ Surname _____

* Address

Street _____

Suburb/town _____ Postcode _____

* Electrical installation / equipment tested (please include site address for electrical installation work if different from above):

Using the Guideline, the property pole at the above address has been inspected, is serviceable and electrically and structurally sound.

Broken crossarm has been replaced. This is acknowledgement that the defect/s identified by the Electricity Entity's inspection have been rectified

* Date of test ____ / ____ / ____ * Electrical contractor licence number _____

Name on contractor licence _____

Electrical contractor phone number _____

For **electrical installations**, this certifies that the electrical installation, to be by the electrical work, has been tested to ensure that it is electrically safe with the requirements of the wiring rules and any other standard apply Safety Regulation 2013 to the electrical installation.

For **electrical equipment**, this certifies that the electrical equipment, to be by the electrical work, is electrically safe.

Date notice given ____ / ____ / ____

* Indicates a mandatory field

VE.11-2023

These details confirm that you are an appropriately qualified electrical contractor

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ANNEX B – PHOTOGRAPHIC EXAMPLES OF DEFECTS

The following photographic examples are provided to assist the Electrical Contractor in identifying defects resulting from the visual assessment of the pole, attached components and the below ground inspection.



Deterioration of Wood Poles

The poles are deteriorated due to internal or external rot / decay



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Deterioration of Wood Poles (continued)

<p>Deterioration on wood poles may be caused by:</p> <ul style="list-style-type: none">• Rot• Fungal fruiting body• Termites• Splitting or cracking	
<p>This pole has active termites present. Termite treatment may be required by the customer.</p>	

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Deterioration of Metal Poles

The metal structure is deteriorated. Corrosion or other damage has resulted in a weak point, with evidence of one or more of the following:

- Flaking and deep pitting of the metal for greater than 75% of the circumference with a loss of cross-sectional area
- One or more holes in the metal greater than 20mm diameter
- Severe structural cracking
- Multiple weld cracks



The metal structure is deteriorated with one or more of the following:

- Flaking and moderate pitting to greater than 50% of the circumference
- One or more holes less than 20mm in diameter
- Moderate structural cracking
- Up to two weld cracks



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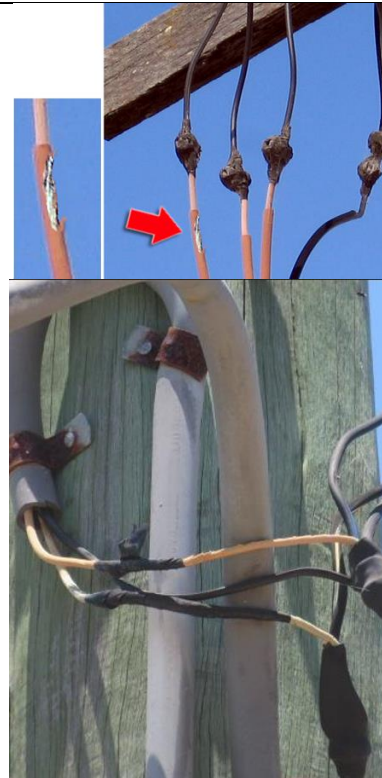
Pole Leaning

The pole has a foundation failure causing a moderate or excessive lean.



Conductor Damage

Consumer's mains with heavily deteriorated insulation with bare strands visible at wood pole top only.



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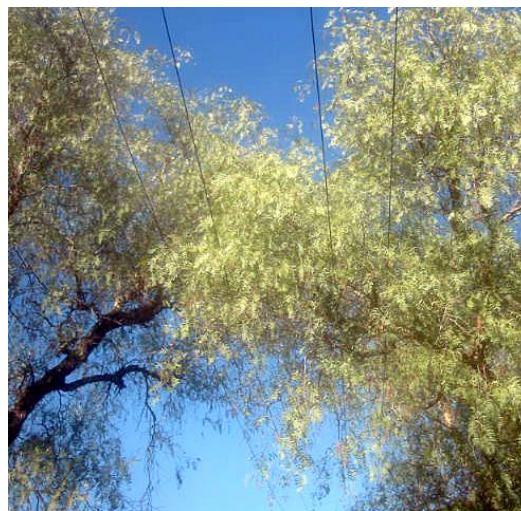


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Vegetation Touching

Vegetation is contacting the private overhead electric line.
There is a risk of damage to the conductors or contact by a person climbing the tree in the short term.

This applies to bare conductors.



Vegetation is contacting the private overhead electric line.

The customer's insulated service is not yet deteriorated due to abrasion from vegetation.

There is a risk of damage to the conductors.












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Underground Equipment

<p>The Customer's Earth is not connected to the earth stake</p> <p>Or</p> <p>The Customer's Earth Stake is broken</p>	  
<p>The conduit and cables are damaged.</p> <p>If live cables or terminals can be contacted, treat as life threatening.</p>	  
<p>The conduit is broken or saddles are missing and there is no damage to the cable insulation.</p>	  

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Stay Rod, Cable or Attachments

The stay rod, cable, or attachments are broken, damaged or severely deteriorated.

There is a risk of the stay failing.



The stay rod, cable, or attachments are damaged or moderately deteriorated.

There is a risk of the stay failing.



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Cross Arms

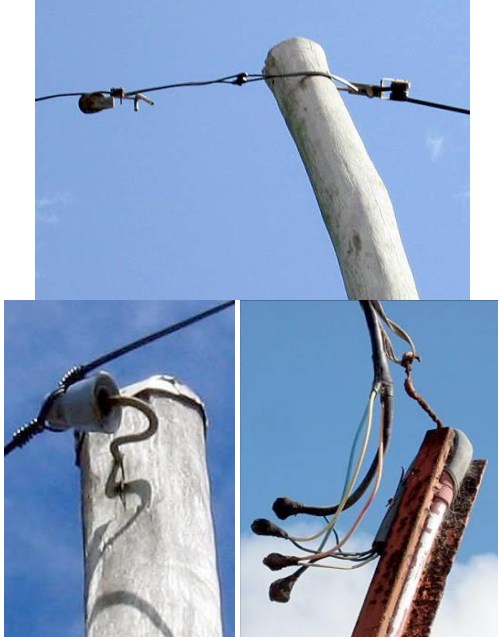
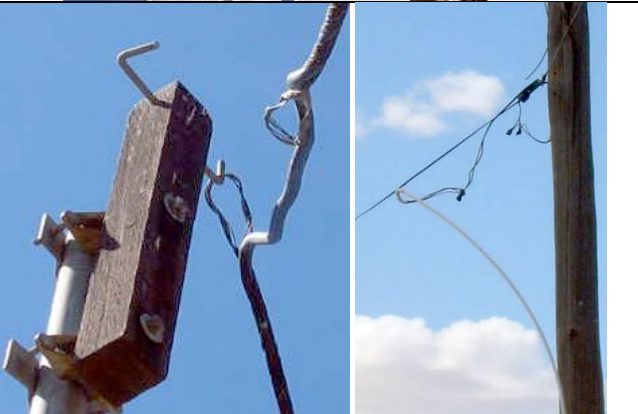
Crossarm is deteriorated from rot, fungal fruiting body, termites, splitting or cracking.

The crossarm shows signs of cracking, splitting or deterioration along the length of the crossarm.



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Conductor Pole Attachments

<p>The conductor fitting is broken or damaged.</p> <p>There is a risk of the conductor falling to ground.</p> <p>Life threatening if electrical connections are supporting tension.</p>	
<p>The customer's attachment point has spun, the service is continuous and has one attachment remaining.</p> <p>Or</p> <p>Conduit has detached from the pole.</p> <p>There is a risk of the conductor falling to the ground.</p>	

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Hardware



<p>Hardware such as arm braces, bolts or other fittings are broken, deteriorated, or missing.</p> <p>There is a risk of conductors or hardware falling to the ground.</p>	
<p>Customer's Attachment Point fittings are broken or deteriorated.</p> <p>There is a risk of conductors falling to the ground.</p>	
<p>The service fitting is broken or damaged,</p> <p>Or</p> <p>The service fitting has been attached by non-standard means such as a rope.</p> <p>There is a risk risk of the conductor falling to the ground.</p> <p>Life threatening if electrical connections are supporting tension.</p>	
<p>The service termination clamp on the customer's mains is loose.</p>	

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Conductor to conductor clearances

<p>The structure supporting the conductor is damaged and reducing the clearance between conductors.</p> <p>There is a risk of conductor clashing and fire.</p>	
<p>The clearance between conductors is reduced.</p> <p>There is a risk of conductor clashing and fire.</p>	

Conductor ground clearance

<p>The conductor clearance is less than 2.5 metres in an area not traversed by a vehicle.</p> <p>Bare conductors would be considered an immediate safety risk.</p>	
<p>Any visually identified conductor to ground clearance defects.</p> <p>Overhead conductor between 2.5 metres and 3 metres over a pathway/track.</p>	

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Meterbox

The meter box is severely damaged.

If live cables or terminals can be contacted, treat as life threatening.



The meter box has minor deterioration.

NO Bare cables or live parts are exposed.



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Conductor Ties

The conductor tie is missing or deteriorated and the conductor is unrestrained.

There is a risk of the conductor falling to ground.



The conductor tie is broken or deteriorated and the conductor remains partially restrained.

There is a risk of the conductor falling to ground.



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Insulators

Insulator support is broken or significantly deteriorated.

There is a risk of the conductor falling to ground.



Insulator is damaged but remains structurally sound.

There is a risk of the conductor falling to ground.

