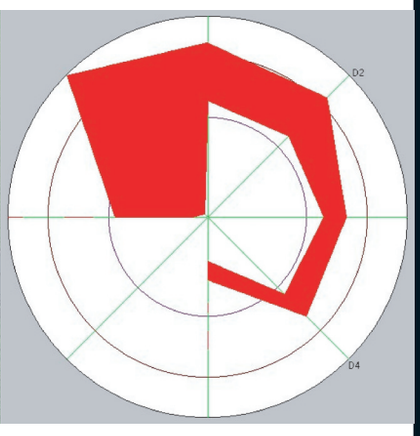
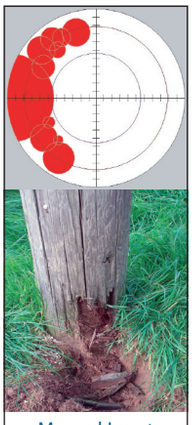
POLE FOUNDATIONS



Inspection

An inspection protocol has been developed in association with the Scottish Institute of Wood Technology (SIWT) that specifically addresses the identification of wood decay. The protocol allows the inspector to interpret decay visually and/or internally identified. A portable computer using the Pole Foundations software is then used on site to calculate the area of rot and how this affects the strength of the pole as a percentage reduction.

The determination of the reduced strength of the wood pole at any location is relative to the rot area and its diametrical position to the cross section of the pole. A residual strength value (RSV) is derived from the information entered into the computer software.

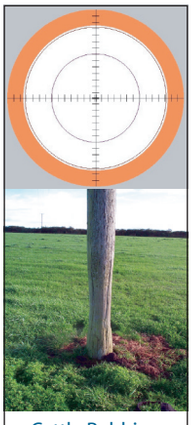


Manual Input

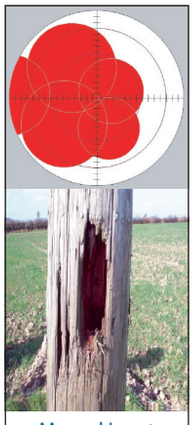
Microprobe Input

Rot Determination

The decay information can be entered via a microprobe drill, the results of which are converted into a display. The decay information can also be identified visually or by Mattson bore techniques and entered manually by the operator drawing the area of rot identified. Representations shown relate to different wood poles inspected.



Cattle Rubbing



Manual Input

Loadings

The line design parameters are used to determine the maximum permissible "wind span" loading for an unstayed structure and also the maximum permissible "strut loading" for stayed or unstayed structures as appropriate. All of the information required to make the calculations are either referenced from the computer software or observed on site. This information is immediately used to generate the appropriate guidance necessary for the inspector to accept or reject the wood pole.

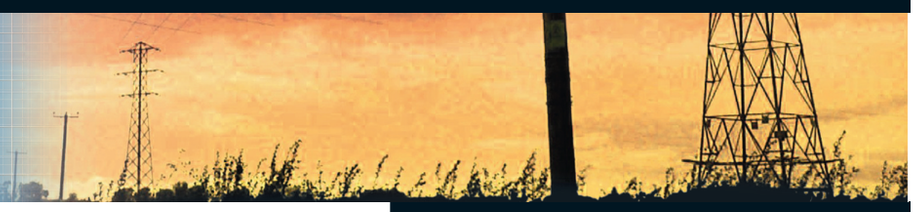
PASS pole testing

Line Design

Determination of the wood poles capability to withstand design loads calculated on site relative to:

- Conductor (cable) type
- Conductor number
- Wind span
- Angle of deviation
- Number of stays
- Stay spreads
- Pole grade
- Pole height
- Pole burying depth
- Reduced % RSV

POLE FOUNDATIONS

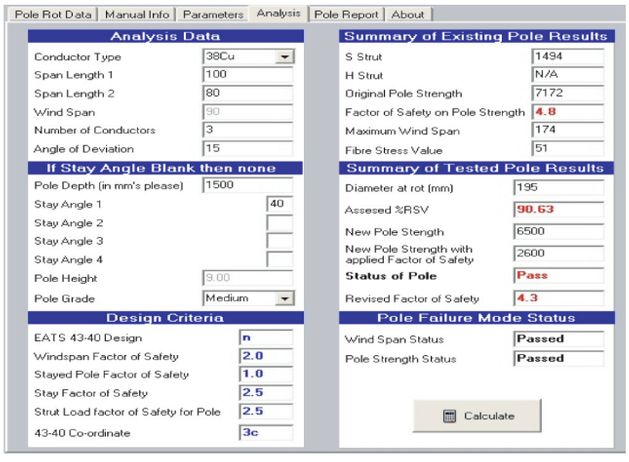


PASS pole testing

The Pole Foundations pole testing protocol (PASS) is currently approved and recognised by a number of Distribution Network Operators. It is Pole Foundations aim to be recognised as the preferred wood pole testing and evaluation service provider in Australia.

Software

Data is entered into Pole Foundations computer software to account for the design parameters encountered on site. Using the "Assessed % RSV" calculated earlier in the process a revised strength value is derived for the wood pole. Once this value is known, a true factor of safety is calculated relative to the customers design requirements.

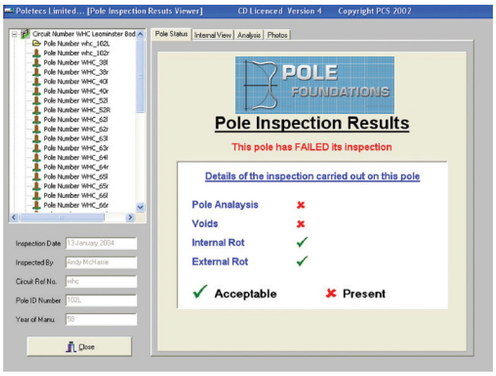


Load Design

The strut loading and windspan calculations are based on loaded design conditions (wind/ice criteria and factors of safety). If the revised pole strength value falls below the maximum permissible strut loading or windspan value specified the pole will "fail". If the on-site design loadings are acceptable with the reduced pole strength capability then the pole will "pass". This is subject to the rot identified being treatable with a remedial treatment process to slow or eliminate continued deterioration.

Results

An estimation of residual life can be considered through analysing the information provided and assessing the wood poles ability to be remedially treated effectively.



Viewer

The results of each wood pole tested are saved and provided with the Pole Foundations "viewer" so that the customer can review data and findings together with the digital photographs taken during the site visit.

Testing & Research

Seventy wood poles were tested at an outdoor site using the non-destructive Pole Analysis and Structural Security 'PASS' process followed by destructive tests. The purpose of these tests were to consider the (PASS) protocol and compare the results of the Residual Strength Values (RSV) theoretically produced and resultant strength capability of the wood pole, to the actual strength of the wood pole following destructive testing. It was also the intention of these tests to consider the mechanisms of wood pole failure and improve still further the PASS process as a greater understanding of wood pole failure is acquired.

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