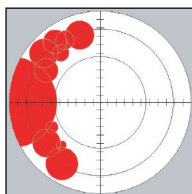


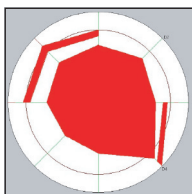
Inspection

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.



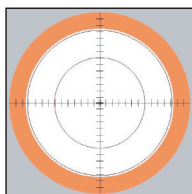
Manual Input



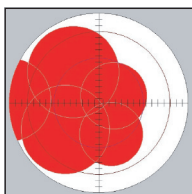
Microprobe Input

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

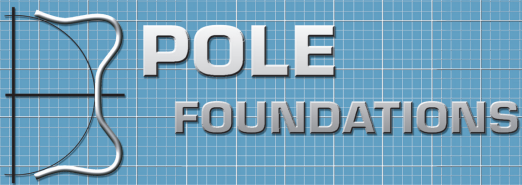
Line Design

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





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.

Pole Rot Data Manual Info Parameters Analysis Pole Report About	
Analysis Data	
Conductor Type	38Cu
Span Length 1	100
Span Length 2	80
Wind Span	90
Number of Conductors	3
Angle of Deviation	15
If Stay Angle Blank then none	
Pole Depth (in mm's please)	1500
Stay Angle 1	40
Stay Angle 2	
Stay Angle 3	
Stay Angle 4	
Pole Height	9.00
Pole Grade	Medium
Design Criteria	
EATS 43-40 Design	n
Windspan Factor of Safety	2.0
Stayed Pole Factor of Safety	1.0
Stay Factor of Safety	2.5
Strut Load factor of Safety for Pole	2.5
43-40 Co-ordinate	3c
Summary of Existing Pole Results	
S Strut	1494
H Strut	N/A
Original Pole Strength	7172
Factor of Safety on Pole Strength	4.8
Maximum Wind Span	174
Fibre Stress Value	51
Summary of Tested Pole Results	
Diameter at rot (mm)	195
Assessed %RSV	90.63
New Pole Strength	6500
New Pole Strength with applied Factor of Safety	2600
Status of Pole	Pass
Revised Factor of Safety	4.3
Pole Failure Mode Status	
Wind Span Status	Passed
Pole Strength Status	Passed
Calculate	

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.

Poleless Limited Pole Inspection Results Viewer CD Licensed Version 4 Copyright PCS 2007	
Pole Status Internal View Analysis Photos	
POLE FOUNDATIONS	
Pole Inspection Results	
This pole has FAILED its inspection	
Details of the inspection carried out on this pole	
Pole Analysis	✗
Void	✗
Internal Rot	✓
External Rot	✓
✓ Acceptable	✗ Present
Inspection Date	13 January 2008
Inspected By	Andy Michalek
Circuit Ref No.	104
Pole ID Number	105
Year of Manufacture	10
Close	

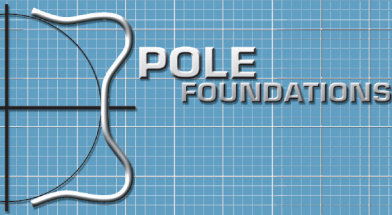
Viewer

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.

PASS pole testing

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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