Cabling, bracing, guying & propping SYSTEMS. Tree support systems, along with correct pruning methods, can greatly reduce the risk of structural branch failure. Tree failures are often a result of defects that have been neglected. Failures that occur within a tree canopy cannot only be of great risk, but can also change the dynamics within a tree and cause future health and structural issues that may eventuate in the need for removal.

cabling & bracing

ARTISTREE
PROFESSIONAL TREE CARE

Properly installed support systems redistribute weight loads, support poor branch attachments, and limit the movement of branches, leaders and entire trees. At **Artistree,** we assess and examine tree defects in a holistic manner and engineer each system according to a trees specific condition to reduce risk. It is important that the system installed achieves its objective of adding support, without changing the dynamics of a tree or increasing risk. We believe tree support systems are a productive necessity for managing trees in the urban environment.

ARTISTREE
PROFESSIONAL TREE CARE

ASSESSMENT OF TREES
INSTALLATION OF SYSTEMS
MONITORING AND ADJUSTMENTS.
INSPECTION PLANS
DOCUMENTED RECORDS

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CLIENT: Oakleigh South Park Services

Date of Installation	Location/Address	Hardware Used	Date of Inspection	Methods used to Perform Inspection	Comments
24.10.2017	Oakleigh South Park	2 x 12mm galvanised threaded rod. 4 x 12mm nuts. 4 x 12mm washers. 2 x 12mm eyenut. 2 x 11mm thimble 2 x 11mm Eureka clamps. 5 metres 11mm galvanised fibre core steel wire rope.	24.10.2018	Climbing inspection carried out to inspect 1 x Steel cable brace. All hardware checked for tensioning or any loose hardware with appropriate tools. Tension of the steel cable brace checked. Rubber mallet to sound for any decay. Visual tree assessment on the defective union supported and entire tree.	All nuts and bolts on all hardware and Eureka clamps were checked for tensioning. No corrosion on any of the hardware was visible. Steel cable brace was slightly loosened. Re-inspection date: 24.10.2019.

sample report artistree

cabling

Cables are installed to limit the amount of movement between branches or stems and reduce the risk of failure. This example shows an 11mm steel cable terminated with saddle clamps.

propping

Props are rigid structures that support long lateral limbs or entire trees from below.

bracing

Unions or branches that have (or threaten to) split or crack, are fastened together using brace rods. These threaded rods are secured with nuts on either end and lock the rod into position. Brace rods are a preventitive and/or restorative solution.

guying

Guy cables are installed to trees that have been uprooted and which can be re-erected. Established trees that have grown or been transplanted in poor soil conditions with compromised anchorage may also benefit with guying.

tree support systems fall under 4 categories

steel wire ropes

Diameter	Finish	Core	Minimum Breaking Force (kN)
8mm	Galvanised	Fibre	28.7
9mm	Galvanised	Fibre	36.4
10mm	Galvanised	Fibre	44.9
11mm	Galvanised	Fibre	54.3
12mm	Galvanised	Fibre	64.0
13mm	Galvanised	Fibre	75.9
14mm	Galvanised	Fibre	88.0
16mm	Galvanised	Fibre	115.0

Diameter	Finish	Core	Minimum Breaking Force (kN)
4mm	Stainless Steel	Wire	9.27
4.8mm	Stainless Steel	Wire	13.32
6.4mm	Stainless Steel	Wire	23.71
8mm	Stainless Steel	Wire	37.07
9.6	Stainless Steel	Wire	53.4
12.7	Stainless Steel	Wire	94.84

Yale: Yale dynamic bracing and fall arrest systems. 2 ton. 4 ton. Black in colour.

Prunus serrulata; Japanese Flowering Cherry.

Root system failure in a storm event.
Tree was lifted to its original state and secured with rated guy rope anchors.

Ulmus parvifolia; Chinese Elm.

Trifurcated at the base. Steel cables installed between the three major limbs to reduce the risk of failure.

Ulmus glabra; Golden Elm.

Trifurcated 1m from the base. This Golden Elm had a cable bracing system installed to prevent failure of major stems. A rated ring was used in the centre and tensions carefully adjusted to ensure loads are distributed correctly.

Melaleuca styphelioides; Prickly Paperbark.

Dynamic Yale bracing system installed onto four stems with a rated central ring. Foreshore property with high winds, it was important for this system to be dynamic.

Ulmus procera; English Elm.

Co-dominant union which had a centre split . Brace rods installed to stitch up the split as well as a dynamic brace in the upper canopy.

Ulmus glabra; Golden Elm.

Trifurcated at the base. This golden elm failed before a support system could be installed.

Eucalyptus saligna; Sydney Blue Gum.

Steel Bracing & dynamic fall arrest system.

Quercus robur; English Oak.

Importance of Inspections & Adjustments.
After an inspection on cable bracing that was done 20 years previous on a significant Oak, which had not been inspected or adjusted since installation. New cable braces were recommended and installed.

References:
Tree Support Systems. Cabling, Bracing, Guying and Propping. Third Edition 2014. E. Thomas Smiley. Sharon Lilly.

support systems