Public Tree Arboricultural Specifications

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Overview

The purpose of this document is to provide a set of standardised pruning, removal, maintenance, planting, and associated specifications related to the management of Council owned trees in the Penrith City Council LGA.

The Specifications are intended to be communicated and understood by; Penrith City Council staff, contractors, the general public and other stakeholders that are involved in or are affected by the management of Penrith City Council's public tree assets.

The specifications focus on the following areas:

- Tree assessment,
- Tree pruning,
- Tree removal,
- Stump grinding,
- Trees and development,
- Pest and disease management,
- Tree planting and establishment, and
- Customer service.

There are two sets of Tree Pruning Specifications in relation to the assessment frequency. One set is for trees on an annual or bi-annual assessment regime. The other is for trees that form part of a three or five-year assessment regime.

The specification also outlines:

- The minimum clearances trees must have to surrounding infrastructure,
- The minimum size of dead branches, and minimum pruning standards,
- Habitat trees,
- Council's definition of a tree, and
- The amount of foliage that can be removed in any single pruning event.

Method

Included is a set of tree pruning specifications in relation to the assessment frequency[1], along with specifications for grouping trees and the definition of a tree.

These specifications will form best practice pruning Techniques and will be applied in conjunction with the Australian Standard *AS4373-2007 Pruning of Amenity trees*:

- The Specification will cover the trees that will be assessed with a biannual or annual frequency (Very High Usage Service Zones[2], and High Usage Service Zones); and
- Further specifications may be applied to trees that are assessed every three years or more (Moderate and low USZs).

[1] **Inspection frequency** *Refer to document Precinct Assessment Program.*
[2] **USZs** *UsageService Zones. Refer to document Critical Assessment Program.*

Specifications

1. Definition of a Tree

Penrith City Council defines a tree to be a woody perennial[3] typically having a permanent main stem or trunks with a height (or the potential to grow to) more than three meters.

2. General and Safety Specifications

Below is a list of general specifications that must be adhered to in conjunction with the Australian Standard *AS 4373 Pruning of Amenity Trees.*

- Any trees that are suspected to be contaminated either by bacterial or fungal bodies must be properly sanitised directly after completion of the work, See section 9 Pruning Hygiene,
- Any material that is removed from a tree suspected of being contaminated must be disposed of in accordance with contaminated waste procedures and the site reinstated,
- Any tree being pruned in a public space must have the site delineated with an approved safety system such as safety cones and work appropriate signage,
- Where there is a risk to the general public a safety observer must be appointed to continually watch for and direct the general public around, and if necessary through the site.
- Any tree being pruned in a public space where there is risk of injury to the general public must either, have a physical barrier between the works and the general public, or have traffic management in place for the duration of the works.
- Any works being undertaken on Council owned trees must be accompanied with a Safe Work Method Statement.
- Any incident or near miss involving a Council owned tree must be reported to Council's Tree Asset Management Team (TAMT) as early as possible after the incident or near miss and no later than 24 hours after a major incident.

[3] **Perennial***: lasting or exiting for a long period of time.*

3. Pruning Specification

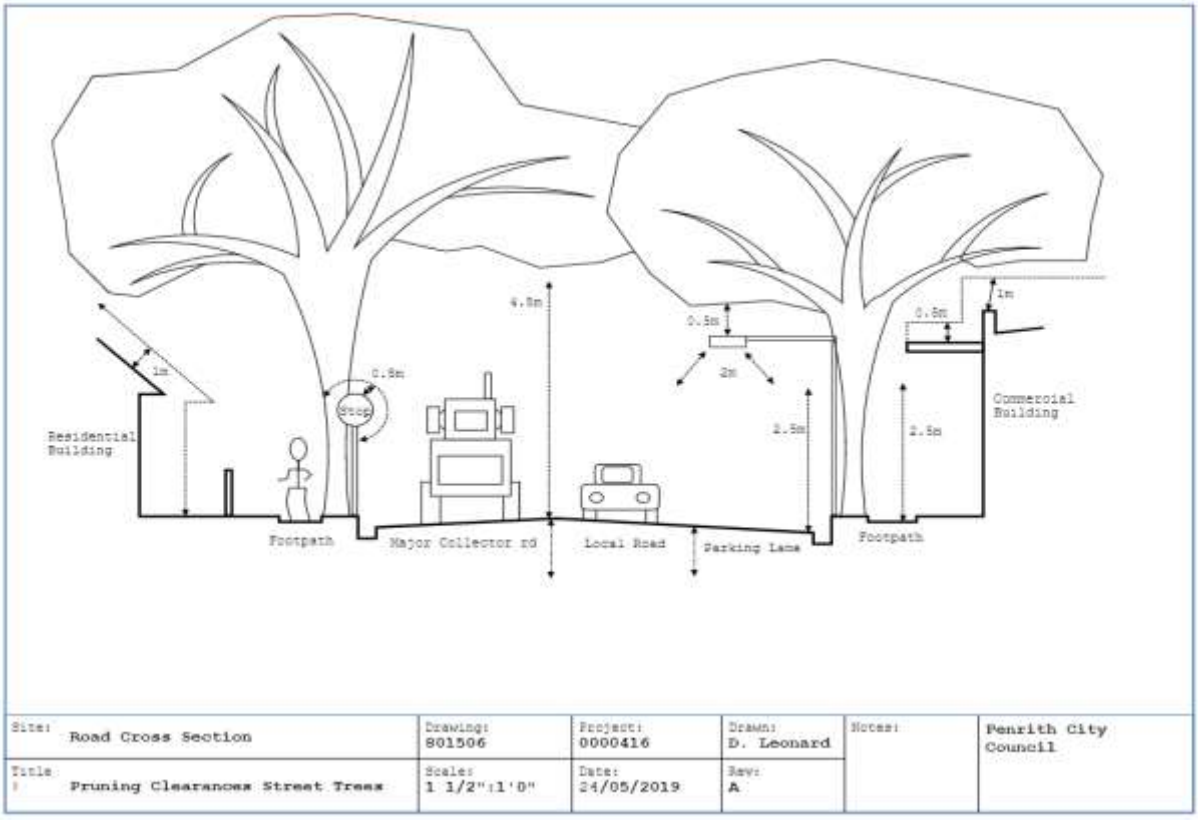
Tree pruning is an important and necessary part of maintaining the Urban Forest. It is important that trees are pruned correctly to ensure they continue to provide benefits to the community in the future.

- No spurs or climbing spikes are to be used when pruning trees,
- Any persons performing pruning and associated works on a Council owned tree must hold an AQF level two in Arboriculture or equivalent as a minimum along with any other tickets or licences required to perform the works.
- Any tree part with a diameter greater than 200mm at the collar must be approved by an AQF level 5 Council Arborist prior to removing the tree part.
- Where possible the removal of major limbs should be 'staged' over several visits to allow the tree more time to adjust to the change.
- Any persons performing pruning and associated works on a Council owned Significant or heritage tree must hold an AQF level three in Arboriculture or equivalent as a minimum along with any other tickets or licences required to perform the works.
- Any rigging of tree branches must be undertaken according to approved methods and must not include the use of a neighbouring tree. The use of non-invasive rigging systems such as pulleys and porta wraps must be used on trees that are to be retained.
- Any pruning to be performed must not encourage long leaver arms with foliage only on the ends of the branches (lions tailing).

3.1. Pruning Clearances and Classes

Below is a list of the clearances and associated pruning specifications required for the pruning of trees within Council owned land.

- Building – one metre clearance for any permanent structure, this includes antennas. Bear in mind that this clearance can be relaxed for young trees with emerging canopies.
- Dead branches – remove any dead branches that have a diameter of 50mm or greater. Branches must be cut back to the next live collar or branch bark ridge, without cutting through live tissue. See Appendix 1 for clarification.
- Parking lane – 2.5m clearance of foliage from the kerb to the first branch. This is only for permanent parking lanes; clearways or temporary parking lanes shall be treated as carriageways.
- Carriageway – 4.5m clearance of foliage from the kerb to the first branch.
- Light – maintain clear sight lines for an approach distance of 40m to traffic lights, and 0.5m clearances for street lights ensuring light reaches the roadway.
- Footpath – 2.5m clearance of foliage from the top of the footpath to the first branch. Please note that trees in mulched or low use areas do not require uplifting if there is no footpath underneath the canopy.
- Sign – 0.5m clearance around traffic signs, and a clear line of sight for an approach distance of 40m for Stop and Give Way signs.
- Formative – removal of branches on young trees that may cause structural issues for the tree in the future or that are not considered to be in keeping with the natural form of the species. Care needs to be given to the amount of foliage removed <20%, and the branching structure (rubbing limbs, included branch unions ect) keeping in mind a 'worst first policy'
- Selective – the removal of a specified branch that is usually mature in order to mitigate risk. Details of the limb(s) to be removed will usually be specified in the notes of the work order.



4. Live Foliage Removal

The percentage of a canopy that can be removed without having a detrimental effect on a tree's health is species and age specific. However, Penrith City Council has adopted a general rule of no more than 20% live canopy to be removed in any single pruning event. Exceptions will be made to trees that require reduction[4] or selective pruning in order to reduce risk associated with the tree(s).

Removing large diameter branches can compromise the trees structure and alter the mass damping characteristics of the tree. Such as exposing internal branches to wind throw. Penrith City Council has adopted the following specification; no branch may be cut, that has a diameter at the collar of more than 200mm without prior approval of a level 5 Council Arborist.

5. Best Practice Tree Pruning

All Council owned trees will be pruned using AS 4373 Pruning of Amenity Trees as a minimum standard. The only exception to these standards will be if a tree or tree part is slated for habitat creation.

6. Habitat Trees

Habitat trees may have holes, hollows, cavities, cracks or nooks that provide a home, resting place or shelter for animals. From time to time there will be trees identified to be pruned for habitat creation.

[4] **Reduction:** *the ends of branches are removed to internal branch collars or stems.*

Most of these trees will be either dead or declining in health. Some rare circumstances may result in habitat creation of healthy trees.

Once a tree is slated for habitat it will need to be assessed by a suitably qualified and experienced Arborist or Ecologist (minimum AQF level 5) to determine what fauna is endemic to that area and what type of habitat creation is feasible.

A suitably qualified and experienced Arborist (minimum AQF level 3) will then perform the habitat creation under the supervision of the AQF level 5 Arborist or Ecologist.

7.Tree Removal Specifications

Tree removal can be a time consuming and potentially dangerous task. It is imperative that correct procedures are adopted and implemented by any persons undertaking the removal of Council owned trees.

Any persons undertaking tree removals and associated works on a Council owned tree must hold an AQF level two in Arboriculture or equivalent as a minimum along with any other tickets or licences required to perform the works.

Any tree being removed in a public space where there is risk of injury to the general public must either have a physical barrier between the works and the general public, or have traffic management in place for the duration of the works.

Once the tree has been removed it shall be cut to a stump height of no less than 1.4 metres. Two yellow X marks will be printed on opposite sides of the stump. Prior to stump grinding, the tree and root system must be dead. Any tree species that is known to produce epicormics shoots after removal will need to be poisoned two weeks prior to removal.

8.Stump Grinding Specifications

Stump grinding can be an onerous task with many factors limiting the task such as: underground services, parked cars, narrow streets, footpaths, and other trees. These factors need to be considered prior to undertaking stump grinding tasks.

- All stumps will be ground no more than 48 hours after the tree has been removed,
- Dial Before You Dig plans will be sourced for each site prior to stump grinding,
- All spoil[5] will be removed from the site and backfilled with A Horizon 60/40 sand soil top soil.
- All spoil will be disposed of in an environmentally friendly manner.
- Physical barriers specifically designed for stump grinding must be set up between the stump grinder and any object that may be impacted by the grinding.
- Proper site setup and traffic control is to be implemented where required.
- The stump grinder operator must hold all the necessary licences, training, and experience required to perform the works.
- The stump grinder, trailer, and support vehicle must be maintained correctly and in a serviceable condition.

[5] **Spoil:** *Stump grinding debris.*

9. Pruning Hygiene

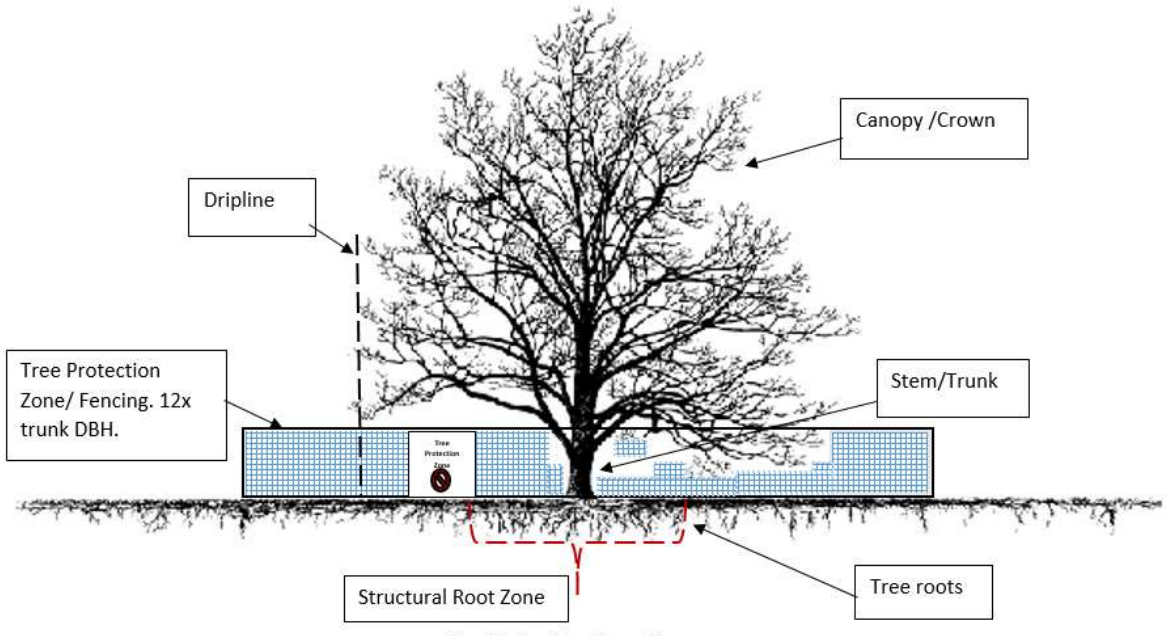
All tools used on disease-infected trees or shrubs must be properly disinfected before being used on any other plant material. Tools must also be disinfected between pruning diseased and uninfected areas within the same plant material.

Disinfecting can be carried out by wiping the tools with isopropyl alcohol diluted 50/50 with water. Other methods may be approved after being evaluated by the Council.

Any material of a contaminated nature must be removed from site and disposed of in such a way as it does not further contaminate other areas. A contaminated area must be recorded to ensure future management of the site can factor in the contamination.

10. Tree Protection

Wherever there is construction being undertaken around Council owned trees there is a risk that those activities may cause immediate or gradual damage to those trees or their root systems. Council requires tree protection methods to be employed to ensure the trees remain 'viable' long after the works have been completed. A Tree Protection Zone (TPZ) is an area (12 x the diameter of the trunk measured at Breast Height) measured from the trunk of the tree). It is an area where construction activities and other disturbances must be isolated so the tree remains viable.



Tree Protection Zone Diagram

Below is a list of specifications for the protection of Council trees on construction sites.

10.1. Protective Fencing

Construction activities of various types both above and below ground are undertaken around Council owned trees.

Any persons undertaking construction activities around Council owned trees must seek approval from the Tree Asset Management Team prior to undertaking the works. In some cases, an Arboricultural Impact Assessment may be requested by the TAMT at the cost of the applicant.

Once approval is given to undertake construction activities the following specifications must be followed in addition to any further specifications stipulated by the Tree Asset Management Team.

- Any construction activities undertaken around Council owned trees must comply with *AS:4790 Protection of trees on development sites.*
- Any Pruning to be undertaken must be performed by a minimum AQF level 2 Arborist,
- As a minimum the trunk must be protected by installing either protective fencing around the TPZ (tree Protection Zone) or planks of treated pine timbers around the trunk fastened together with strapping iron. The tree is not to be used to fasten the timbers.
- A clearly displayed sign must state that the area around the tree is a tree protection zone and list the activities that are not permitted within the area.

10.2. Excavation and Trenching

Any excavation or trenching near trees (within the TPZ) must be approved by the TAMT prior to undertaking the works.

In some cases, an Arboricultural Impact Assessment may be requested by the TAMT at the cost of the applicant.

Once approval is given to undertake excavation or trenching the following specifications must be followed in addition to any further specifications stipulated by the Tree Asset Management Team.

- Any excavation within the SRZ (Structural Root Zone) must be conducted either by hand or with a vacuum excavator under the direct supervision of an AQF level 5 Arborist.
- Any roots >40mm in diameter found inside the TPZ or any roots found within the SRZ must not be severed without approval by the TAMT. Failure to follow this specification may result in tree failure causing damage to property or people.
- If a tree root is to be cut it will be done so with a sharp implement such as a pruning saw to ensure a clean cut is made.
- Once the work is completed photos are to be taken of any pruned roots and sent to Council for our records.

10.3. Hoardings and Scaffolding

Hoardings and scaffolding must be designed and installed to prevent the injury to trees by accommodating tree canopies, trunks and root zones as part of the structure design. Where a street tree adjoins a development or is required to be retained and protected by the approval, the applicant must:

- Identify the species, height and canopy dimensions and tree condition in the application form. Obtain an arborist's report if necessary.
- Footpath garden beds must also be detailed in the application to ensure all measures to alleviate any damage is considered.
- For street trees with large trunks and canopies it will be necessary to design the hoarding to accommodate the trees ensuring they are not damaged.

- If pruning is required, this must be specified in the application and only undertaken once approval is given by a TAMT member. Pruning is to be conducted as per section 3 of this document.
- Street trees will not be permitted to be removed to allow for the installation of a hoarding. Where poor condition or health can be demonstrated Council may consider the removal if the applicant agrees to replace and maintain a suitable species and size of tree for a prescribed period after the hoarding is removed. All costs associate with the removal and replacement and maintenance must be covered by the applicant.
- Trunk and major limb protection must be undertaken prior to the installation of the hoardings. The protection systems must be installed by qualified arborist and as agreed by Council.
- A minimum clearance of 250mm must be maintained between the structure and the tree at all times. Some tree branches may be requested to be tied back as opposed to being pruned for temporary hoarding.
- Trunk and major branch protection are to remain in place whilst the hoarding are in place and must be removed upon project completion. Following the assessment of the trees to be found as satisfactory, the performance bond will be returned.
- Should any damage occur to the street trees or gardens as a result of the hoardings installation, this must be immediately reported to Council to determine the appropriate action for ensuring the health, structural integrity and the public safety.
- Should a replacement tree be required, they must be maintained by a suitably qualified and experienced landscape contractor for a minimum 12-month period. At the end of the maintenance period formal notice must be given to Council requesting handover. Following the assessment of the trees to be found as satisfactory, the performance bond will be returned.

10.4. Audits and Penalties

Council reserves the right to audit any works or protection methods being undertaken around Council owned trees at any time. Council will use its own criteria based on these specifications along with any further specifications that may have been stipulated for the particular project.

Penalty's for non-conformance will be at Council's discretion.

11. Tree Planting Specifications

Trees are an integral part of our community as a whole and their importance to the visual amenity, as well as their contribution to the environment cannot be overstated.

Newly planted street and park trees represent a significant investment for Council and as such it is important to ensure the newly planted trees have the best chance of not just surviving but also thriving. This will ensure a strong and vibrant urban forest for current and future generations.

11.1.1. Selecting Tree Stock

Planting a good quality tree is essential to the long-term success of the tree. At the time of planting a tree should:

- Be true to type,
- Be healthy,
- Have good crown symmetry,

- Not have included branch unions,
- Not show any signs of pests or disease,
- Have a good crown root balance,
- Be self-supporting,
- Have good stem taper,
- Be able to see the trunk taper at the base,
- Have a well-developed root system, and
- Be free from defects.

All tree stock planted in the Penrith LGA will be of high quality, sourced from a commercial nursery if possible, and comply with AS2303-2018 Tree stock for landscape use.

Good quality tree stock should establish rapidly and grow to maturity with less maintenance requirements than poor quality stock. Poor plant selection can lead to poor vitality and form, susceptibility to pests and diseases, and premature death.

11.1.2. Planting Site

Trees need room to grow. Competition for space both above and below ground can significantly limit the size and vitality of a tree, decreasing the tree's useful life expectancy and the benefits it can provide.

Council will select the largest tree species suitable for the space available. Because large trees need a large rooting space, in key locations this may require designing the soil space under adjacent roads and pavements to provide this.

The requirements for selecting tree planting sites in road reserves are listed below.

- A minimum of 3m from existing crossovers/driveways,
- A minimum of 10m from street intersections and traffic signals,
- A minimum of 10m from the approach side and seven metres from the departure side of a pedestrian crossing,
- Eight metres from the approach side and three metres from the departure side of a bus stop,
- centrally in the front of a house block, but not directly in front of the front door,
- Five metres from a light pole,
- Two metres from stormwater inlet pits,
- Evenly spaced seven metres (small tree) to 15 metres (large tree) apart in the street, and
- A minimum of 0.5m from the kerb and path.

Table 1 below contains guidelines used by Council for the planting space needed for small, medium and large trees.

Planting Site Size	Planting pit surface area (M)	Distance from kerb to Property	Soil Volume Per Tree	Maximum Tree Height at Maturity	
Small	Less than 9.5m2	1.0m to 1.3m	30m2	Less than 6m tall	
Medium	9.5m2 to 18.5m2	1.3m to 2.5m	33m2	Less than 15m tall	
Large	More than 18.5m2	>2.5m	35m2	Taller than 15m	

11.2. Planting Method

Trees require good growing conditions when they are first planted. If this is done correctly the tree will thrive in the environment. Therefore, it is so important that trees are planted correctly. The planting method adopted by Council for pot sizes >25L have been listed below:

- Tree planting must be undertaken by a suitably trained and experienced person holding a minimum AQF level two in Horticulture or Arboriculture.
- A current DBYD plan must be present onsite and checked correctly prior to conducting any excavation on Council owned land. Any utility providers should be consulted as indicated by the DBYD plans.
- A hole is then to be dug to the same depth of the root ball and at least three times the diameter of the root ball. The sides of the hole must be rough (not glazed). Special care should be taken when using mechanical drilling methods.
- The root ball is to be exposed and inspected for circling and girdling roots. If either are found, they are to be removed. The root ball is then to be shaved to ensure there is a rough surface and the roots are not circling.
- The tree it then to be inserted into the centre of the hole. If the tree has a north point, make sure it is aimed to the north. Ensure the top of the root ball is either level with the surrounding soil or slightly higher.
- When back filling, use a combination of 80/20 sand soil mix and the site soil to create a transition soil between the root ball and the edge of the hole. Do not compact the soil with anything other than your hands. Insert ag pipe around the tree 100mm below the surface if specified. Ensure there is no excess soil piled around the trunk and if the tree is on a slope create a swale around the tree just outside the root ball.
- Cover the surface around the tree with approx. 75mm thick composted mulch as specified in *AS: 4454 Composts, soil conditioners and mulches* to a minimum diameter of 1m or in the case of constructed pits, to the edge of the pit.
- Water the tree to saturation and place 50mm stakes well outside the root ball and hessian tape around the stakes without going around the tree. The stakes should not be supporting the tree.
- Lastly undertake any initial formative pruning required in accordance with AS 4373 Pruning Amenity Trees taking into consideration the timeframe between inspection periods may allow for staged formative pruning.

11.3. Tree Stock Conformance

Tree Stock inspections are required to ensure any stock that has been acquired meets or exceeds minimum specifications.

Tree stock conformance can be demonstrated by either:

- Records of internal nursery production systems that demonstrate conformance to *AS 2303 Tree Stock for Landscape Use,* or
- Testing in accordance with Appendix A and Appendix B of the *AS 2303: Tree Stock for Landscape Use.*

Once a method has been determined, documentation must be supplied to the Council Tree Asset Management Team prior to planting.

From time to time destructive testing will be required to ensure the stock that has been secured is compliant with the Australian Standard *AS 2303: Tree Stock for Landscape Use.* Destructive testing will

only be carried out for tree plantings where 30 trees or more are being planted and will be at the cost of the developer if applicable.

Hold points may be enforced for major planting projects where Council may need to ensure processes have been followed correctly.

Some examples of typical hold points may be;

- Hole dug and tree placed in hole prior to backfilling,
- Root ball exposed and shaved, or
- Finished tree prior to mulching.

Once a tree has been planted and completed the maintenance period it will need to be assessed as healthy by Council tree management staff prior to being handed over to Council

11.4. Young Tree Maintenance

Establishing trees require monitoring and further maintenance to ensure they establish successfully. In order to ensure a newly planted tree establishes well the responsible party will:

- Ensure that a suitably trained and experienced staff undertakes the work and holds the necessary licences and qualifications to perform the task.
- Undertake one site visit per week for the first six weeks and one site visit per fortnight for a further 12 weeks. At which time they will be reviewed for suitability to be taken off maintenance by the Tree Asset Management Team,
- Check each tree soil moisture levels prior to watering and water accordingly,
- Use a gravity fed or low-pressure hose to ensure the soil/mulch is not displaced when watering,
- Remove any weeds growing within a 1m diameter of the trunk,
- Ensure mulch is topped up with composted mulch where required,
- Check the tree for and report any instance of vandalism or pest attack to the Tree Asset Management Team, and
- Apply fertilisers as per the fertilising schedule.

11.5. Fertilising

Establishing trees require fertile soils in which to thrive. A fertilising schedule will be devised to encourage healthy tree growth.

Soil conditions vary from site to site. A soil test may be required to determine the soil pH, nutrient deficiencies and the nutrient quantities to be applied to improve the growing conditions for the trees.

Application may be by hand or as a liquid mixture applied in solution at the time of watering. When applying fertiliser ensure that the instructions and quantities on the label are followed.

12. Pest and Disease Management

Council acknowledge that street and park trees occasionally require assistance when dealing with pests and disease. It is important to ensure a broad integrated approach is employed when managing pest and disease in order to ensure minimum impact to other plants, organisms and the environment.

Young trees, ageing trees, or trees that are stressed are more susceptible to pest and disease attack than healthy trees. These trees may take priority when selecting trees to remediate.

Chemical treatments of Council owned trees are not to be undertaken unless they have been approved by the TAMT. A work order will be created specifying the method to be implemented, and the timeframe of treatment.

Any persons undertaking chemical injections or spraying must hold a current and valid *AQF 3 Chemical Accreditation* and be suitably experienced in performing the task. The site must be delineated and warning signs displaying the use of the chemical must be displayed around the perimeter. Appropriate PPE must be worn when using the chemical. An MSDS of the chemical must be available onsite at all times.

The chemical should be registered for the control of the pest. The pests will be listed on the label. If the chemical is not registered for the pest, an 'Off Label Permit' is required from the Australian Pesticides & Veterinary Medicines Authority to use the chemical. The website is https://apvma.gov.au/node/1061 Always follow the instructions on the label.

12.1. Integrated Pest Management

Integrated Pest Management (IPM) involves a combination of strategies that are designed to control pest and disease infestations, and hopefully reduce the need for ongoing costly chemical controls which can also be harmful to the environment.

The aim of IPM is to improve the tree's natural defences as well as control the pest or disease through either chemical methods or the introduction of other controls such as predators or remedial pruning.

Applying various methods to control the pest or disease before resorting to the use of chemicals is the preferred method to ensure the pest or disease is controlled without harming beneficial organisms and the environment.

If a chemical solution is required, the least toxic chemical should always be used, the chemical is to be target or pest specific where possible, and is applied using the least invasive methods available.

The TAMT will decide which methods of IPM will be applied in a case by case basis using the following method:

- Correctly identify the pest or disease, determine if it is a cyclical pest or disease, a pest or disease that can cause a lot of damage, or a pest or disease that can spread to other trees.
- Consider whether the damage is significant enough to require control or whether the attack is going to be minimal or cyclical take the tree's natural defences and overall health into consideration when making the determination.
- Specify the treatment. This may include watering, mulching with a preferably pasteurised mulch, applying a suitable fertilizer, Chemical control, or the introduction of predatory species.
- If there are repeated infestations, assessment of the health and condition of the tree, its susceptibility to attack and its suitability to the location may also be a factor. Consideration may need to be given to replacement of the tree with a species that is better suited to the growing conditions, and more resistant to the pest or disease.

If drought conditions exist, some treatments may not be effective.

12.2. Stem injection

Stem injection is the injection of a systemic chemical into the trunk and branches of the tree. It is an effective method of controlling some types of insect infestations in large trees.

Arborjet and Sidewinder are the preferred stem injection systems adopted for use on public trees.

If trees require repeat treatments, the same area of the tree trunk is not to be reused for stem injection and new locations are to be selected including first order branches. This will prevent clustering of drill holes that can cause accumulated tissue damage and increased risk of secondary infections.

The manufacturers tree injection procedure for the set out of holes and injection method must be adhered to. If the manufacturer does not have a procedure refer to the TAMT for further specifications.

It is important the soil is moist and that the tree is not water stressed. If drought conditions exist, the stem injection may not be effective.

12.3. Soil Injection

Due to environmental concerns, soil injection can only be carried out with the permission of the TAMT. Care is to be taken to avoid damaging surface roots. The treatment is to be limited to the tree being treated.

The chemical is absorbed by the roots and translocated or dispersed throughout the tree. The treatment is slow acting and the timing for application is important to the success of the treatment.

Soil injection can be used on any size tree but is toxic to soil organisms and **cannot** be used where it can leach into waterways or drains.

Always follow the instructions on the chemical label and wear protective safety equipment.

It is important the soil is moist prior to treatment and that the tree is not water stressed. If drought conditions exist, the soil treatment may not be effective.

1.1. Soil Drenching

Soil drenching can be used on any size tree but is toxic to soil organisms and cannot be used where it can leach into waterways or drains.

Due to environmental concerns, soil drenching can only be used with the permission of the TAMT and must be recommended by the chemical manufacturer as the preferred way of applying the chemical control.

The treatment is to be limited to the target tree and contained within the dripline. If there is potential for runoff a TAMT member must be onsite to supervise the works along with a spill kit to mop up spillages. For some areas coir logs can be used to create a ‘Dam’ around the tree to prevent the chemical escaping the treatment area.

It is important the soil is moist and that the tree is not water stressed. If drought conditions exist, the soil treatment may not be effective.

12.4. Weed Spraying

Where possible, the area under the tree canopy should be mulched with a preferably pasteurised mulch to the edge of the dripline of the canopy. The mulch will help control the weeds, reduce soil erosion of bare soil, reduce the loss of soil moisture, improve soil microbial activity and the health of the tree.

An herbicide gel applicator or stem injector is to be used in environmentally sensitive areas and under trees where target specific control is required.

The chemical to be used should be target specific, non-residual and as least toxic as possible. Herbicides containing the chemical 'Dicamba' are not to be sprayed anywhere tree roots are growing to a minimum distance at least 5 metres past the edge of the canopy.

Do not spray under the canopy of semi mature trees with a trunk diameter less than 150mm to a minimum distance of 5 metres past the edge of the canopy. Weed control under these trees is to be by hand.

Spray signage is to be placed at strategic points to inform the public that spraying is in progress. Care must be taken to only spray on still days when there is minimal risk of spray drift.

Avoid spraying the foliage and bark of any plants other than the target weeds or tree. A spray panel is to be used as a barrier when spraying near the foliage of non-target plants. If contamination occurs, wash the chemical off immediately.

Always follow the directions on the label and wear protective equipment required for spraying chemicals, including a spray respirator, rubber gloves, disposable spray suit, eye protection and rubber boots.

12.5. Foliar sprays

The use of foliar sprays can be effective on small trees where direct contact of the pest or disease by the chemical can be achieved.

If chemical control is required, the chemical to be used should be target specific, and as least toxic as possible.

Spray signage is to be placed at strategic points to inform the public that spraying is in progress. Care must be taken to only spray on still days when there is minimal risk of spray drift.

Avoid spraying non target trees. Spray early in the morning, in the coolest part of the day to avoid spraying beneficial insects like bees, and predatory insects.

Always follow the directions on the label and wear protective equipment required for spraying chemicals, including a spray respirator, rubber gloves, disposable spray suit, eye protection and rubber boots.

12.6. Soil Tablets

Apply soil pesticide tablets in accordance with the manufacturer's instructions on the pesticide label. The tablets are to be covered to prevent contact by animals or people. The tablet slowly breaks down and is absorbed by the roots of the tree and translocated or dispersed throughout the tree.

The treatment is slow acting and the timing for application is important to the success of the treatment.

Soil tablets can be used on any size tree but is toxic to soil organisms and cannot be used where the chemical can leach into waterways or drains.

13. Tree Grouping Classifications

There are three different types of tree classifications in terms of grouping tree assets into stands. They can be found below:

- Individual trees, these trees are predominantly street or park trees that do not have other trees within a 2m radius of its trunk that are of a similar species.
- Localised stands, these trees are situated in a stand of more than 5 trees but less than 100. In order to be classified as a localised stand, the trees need to have to be generally closer than a 2m radius to the next tree. These stands can be made up of more than one species of tree.
- Bushland areas, these trees are situated in a stand of more than 100 trees and generally have an average radius of less than 2m to the next tree trunk. These stands are predominantly found along river banks and in reserves and generally have an understory.

14. Qualifications

Council recognises that various tasks require a certain level of expertise to perform said tasks. The level of expertise required to undertake each part of the specifications is listed below:

- Pruning: Minimum AQF Level Cert 2 Arboriculture is required to perform pruning works on Council owned trees.
- Tree Assessment: Minimum AQF Level Cert 5 (diploma) Arboriculture is required to conduct tree assessments on Council owned trees.
- Field work: A construction Induction (white card) must be held by any persons working on or around council owned trees.
- Traffic Control: any staff working around traffic must have the relevant traffic control tickets in order to perform their prescribed duties.
- Working at Height: Any person operating an elevated work platform must have the appropriate tickets and equipment required to use the elevated work platform.

15. Working near Overhead powerlines

Trees on Council owned land often interact with overhead powerlines. Care needs to be taken with working on trees that are in the vicinity of overhead powerlines.

Any tree that is in contact with live overhead electrical lines must only be worked on by workers that have been inducted into the relevant electrical authority's framework and hold the necessary tickets and qualifications to undertake the work.

Any persons undertaking works on a tree where they are closer than 3m to live overhead electrical lines must have a 'working near overhead powerlines permit' or equivalent. Any tools being used around electrical lines must be insulated and have been electrical tested inside the last 12 months. This includes EWPs.

16. List of References and Abbreviations

AS 4373, 2007, *Australian Standard, Pruning of Amenity Trees,* Standards Australia.

AS 4970, 2009, *Australian Standard, Protection of Trees on Development Sites*, Standards Australia.

Draper, D. & Richards P, 2009, Dictionary for Managing Trees in Urban Environments, CSIRO Publishing, Victoria, Australia.

Edward F. Gilman, 1997, An Illustrated Guide to Pruning, Delmar Publishers, Albany, New York.

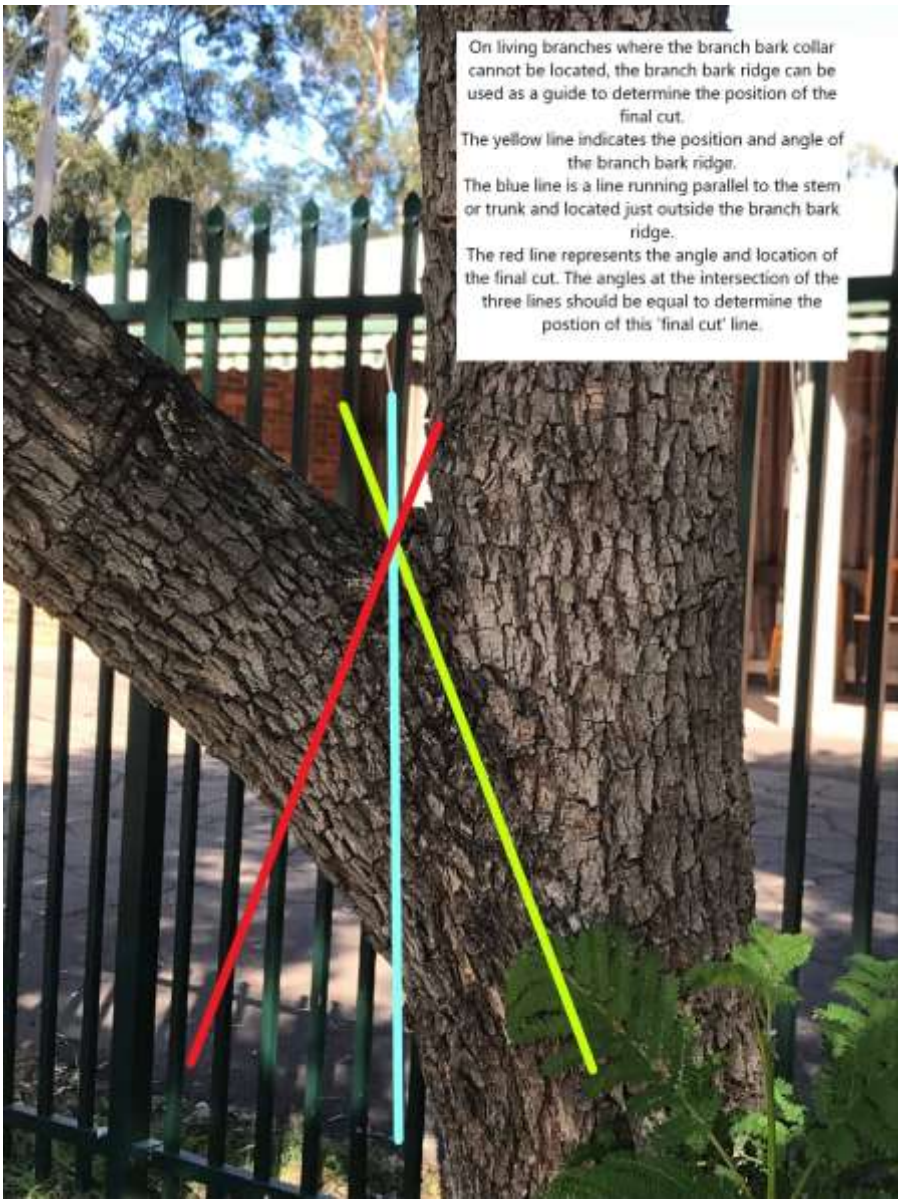
Kenyon P & P, 2010, Habitat Creation, Pruning for Habitat workshop, Treenet Symposium, Adelaide Australia.

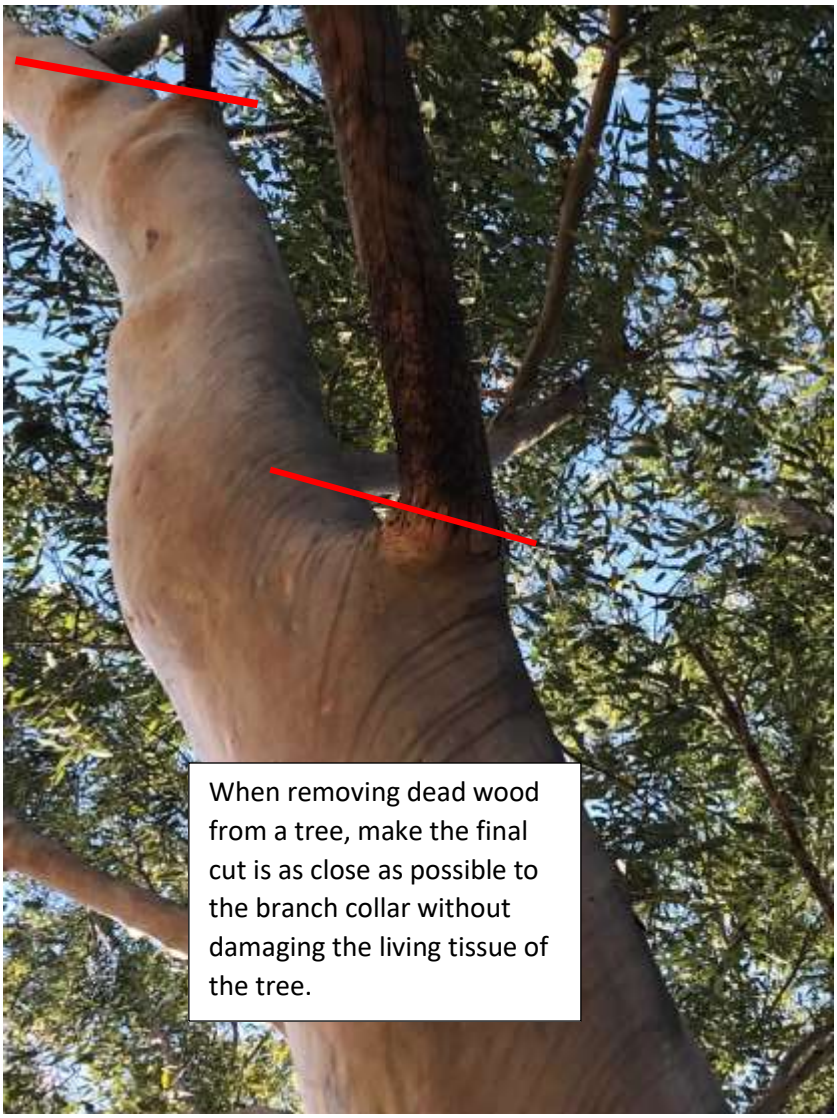
In order to ensure the Public Tree Inspectors are efficient with the input of data, a list of abbreviations have been created that will be used by the Public Tree Inspectors when listing works to be undertaken on tree assets. The abbreviations will directly relate to the specifications listed above.

- S1 = Specification 1,
- S2 = specification 2,
- BLD = building clearance,
- DW = remove dead branches,
- PL = parking lane clearance,
- CW = Carriageway clearance,
- LT = Light clearance,
- FW = Footpath Clearance,
- SGN = Sign clearance, and
- Form = Formative pruning.
- SEL = Selective.

Appendix

1.Pruning Diagrams

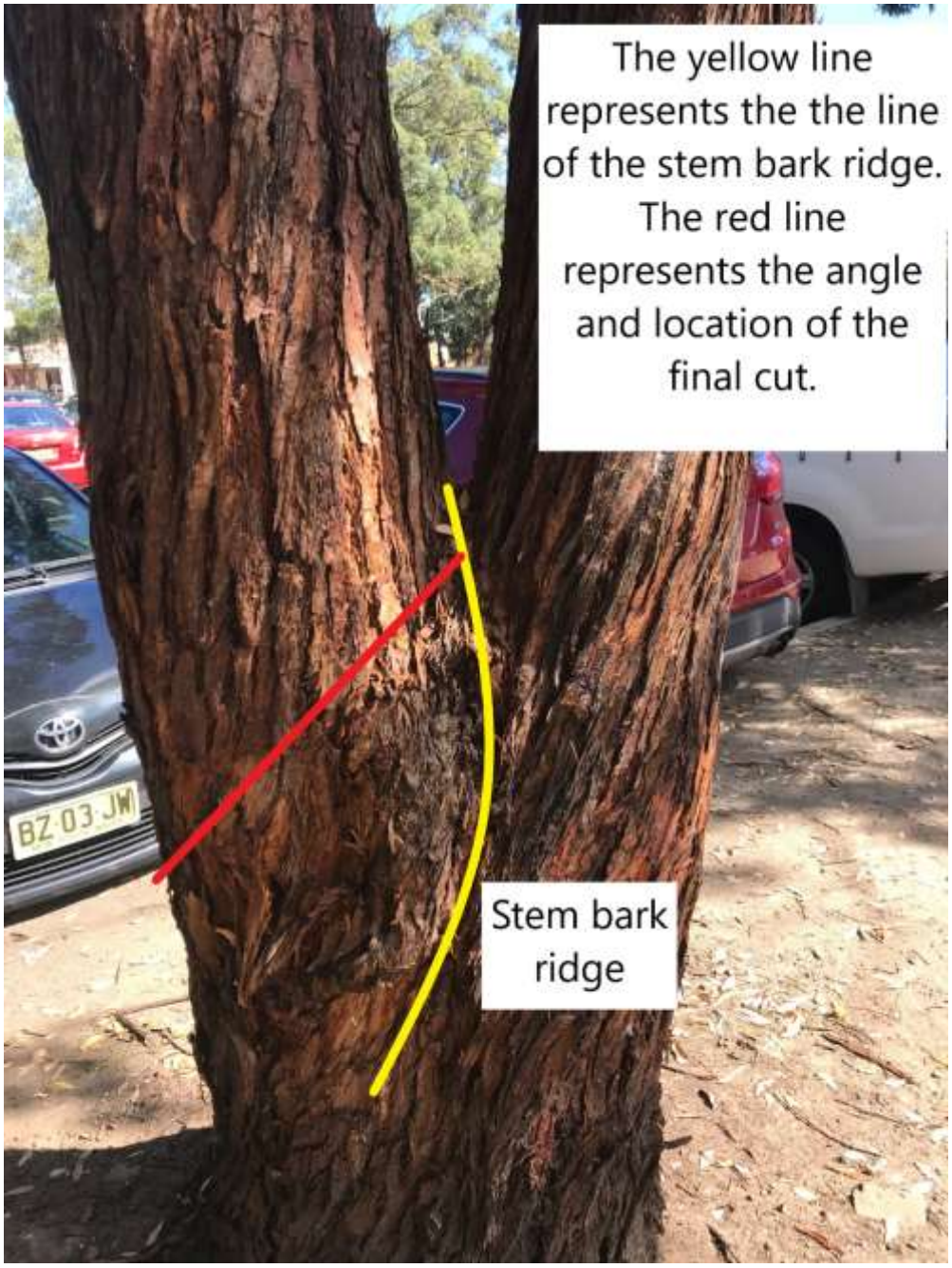



When removing dead wood from a tree, make the final cut is as close as possible to the branch collar without damaging the living tissue of the tree.

When removing dead wood from a tree, make the final cut is as close as possible to the branch collar without damaging the living tissue of the tree.


The yellow line indicates the location of the stem bark ridge.
The red line represents the suggested angle and location of the final cut for removal of the right hand side stem .
Stem bark ridge


The yellow line indicates the location of the stem bark ridge. The red line indicates the angle and location of the final cut for the second co-dominant stem.


The yellow line represents the the line of the stem bark ridge. The red line represents the angle and location of the final cut.
Stem bark ridge
BZ 03 JW