



## **DESIGN GUIDELINES**

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**PINE RIVERS SHIRE COUNCIL**

**DESIGN GUIDELINES**



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## **DG T10**

# **LANDSCAPE CONSTRUCTION ON ROAD RESERVES, PARKS AND DRAINAGE RESERVES**

## DG T10

# LANDSCAPE CONSTRUCTION ON ROAD RESERVES, PARKS AND DRAINAGE RESERVES

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**1.0.0****PURPOSE**

It is a Council requirement for Landscape Plans and Specifications to be approved prior to the installation of landscape works on what will become public land.

To encourage, wherever it is appropriate, the retention of as many trees as possible so that the essence of the original character of the land before development is retained thus providing shelter and food for endemic flora and fauna.

To encourage creativity in the design and construction of high quality long lasting public landscape which can be effectively managed at reasonable cost by Council at the expiration of the maintenance period.

Council recognises that tree planting is the most significant element of a quality landscape. To ensure that tree plantings are selected and located appropriately, then planted and maintained in such a manner as to benefit the community for many years to come.

## **2.0.0 SCOPE**

### **2.1.0 INCLUDED WORKS**

This Guideline covers works in the following areas: -

#### **2.1.1 Parks**

Parks are generally intensively maintained. Facilities and amenities aim to provide for a range of activities.

Parks are normally located in close proximity to clusters of high population density. Parks are often linked by walkways or bikeways. Motorised vehicles are excluded from Parks except where provision is made for formal access and parking.

Parks are designed to encourage walking, talking, sitting, gathering, playing and similar activities for residents who reside in close proximity to the Park. The Park may also function as a pedestrian/bicycle corridor.

Vegetation patterns provide for a range of uses eg, provision of shade, aesthetic appeal, and suburban open space. Parks may include significant areas of remnant vegetation.

#### **2.1.2 Reserves**

Reserves are generally maintained with a view to encouraging flora and fauna diversity rather than providing for concentrated activities. Understorey enhancement will limit the extent of mowing/slashing. "Park" areas may be developed within reserves.

Provision of amenities and facilities reflect the expectation of low impact activities.

The location of reserves is often dictated by remnant natural features. Motorised vehicles are excluded from Reserves except where provision is made for formal access and parking.

Users of reserves can be expected to travel to the reserve as a destination, or through it as a pedestrian/bicycle corridor.

Vegetation patterns and topography will often be a determining factor of site usage in reserves.

#### **2.1.3 Drainage Reserves**

Topography will often dictate that Drainage Reserves will be within Park or Reserve areas.

#### **2.1.4 Sporting Reserves**

These are areas set aside for specific sporting purposes. This document does not generally apply to landscape construction of formal sport surfaces.

#### **2.1.5 Road Reserves**

For the purpose of this guideline, road reserve is any part of a dedicated road not used for the carriage of vehicles.

### 3.0.0 DEFINITIONS

- ❖ Council – The Pine Rivers Shire Council
- ❖ Director, Assets and Infrastructure Services Division - the person occupying that position within the Pine Rivers Shire Council, or their nominated representative
- ❖ Manager, Development Services - the person occupying that position within the Pine Rivers Shire Council, or their nominated representative
- ❖ Manager, Parks Reserves and Landscape Services - the person occupying that position within the Pine Rivers Shire Council, or their nominated representative
- ❖ A Pine Rivers Shire Council engineer - the engineer employed by the Pine Rivers Shire Council to approve, supervise or inspect civil infrastructure construction, or their nominated representative.
- ❖ Developer - the company, organisation or person whom, under the provisions of the Planning Scheme, approval has been given to carry out the works and who acts as principal for the purpose of works carried out by contract.
- ❖ Consulting Engineer - the registered professional engineering company or registered professional engineer engaged by the principal to carry out the investigation, and design of the civil infrastructure to be constructed by the principal. When engaged for the construction phase, the company or engineer shall act as superintendent for the purpose of works carried out by contract.
- ❖ Contractor - as defined in AS 2124, the company, organisation or person engaged to carry out the construction of water supply works.

#### **4.0.0 DESIGN CONSIDERATIONS**

The landscape design shall consider, among other things, the most appropriate species selection and size, density and location. Provision shall be made for appropriate root zone depth in a suitable growth media and for adequate water supply in accordance with this guideline.

Maintenance must be a strong consideration at the design stage. Design for mechanised methods is essential, e.g. well designed mowing strips with gentle curves so that whipper-snipper use is minimised especially near tree bases.



## 5.0.0 SPECIES SELECTION AND EXCLUSIONS

### 5.1.0 GENERAL

It is not the intention of this guideline to limit plant species to a restricted palate of plant material. Rather than provide a list, it is preferred that species be selected for suitability to site.

Selection criteria to be addressed shall include: -

- ❖ Soil structure, fertility, drainage and depth.
- ❖ Water availability.
- ❖ Climate, particularly sun, wind, frosts and exposure.
- ❖ Successful regional vegetation types.
- ❖ Mature size in cultivation.
- ❖ Known disease/insect problems.
- ❖ Visibility/sightline considerations with respect to compliance with road design.
- ❖ Proximity to public utility services, kerb & channel etc.
- ❖ Long term management considerations.
- ❖ Ability to provide shade.
- ❖ Single trunk trees are the preferred option.
- ❖ Endemic species.

### 5.2.0 EXCLUDED SPECIES

The species listed in Table 5.2.0 are not to be used for plantings on road reserves, parks or drainage reserves.

**Table 5.2.0**

Plant Name	
Schefflera actinophylla	Spathodea campanulata
Cinnamomum camphora	Celtis species (Elms).
Eucalyptus torelliana	Ligustrum species (Privets).
Salix species (Willows).	Cocos & other non self cleaning palms
Araucaria bidwillii	Pinus species (Pines).
Bedding plants	Roses
Topiary specimens	Clipped hedges
Fruit trees	Annuals

This exclusion list is indicative rather than extensive and should be read to exclude plants with high pruning, pest control or water requirement.

### 5.3.0 ANNUALS AND PERENNIALS

Annuals and perennials planted in beds for the purpose of high visual impact shall not be located on road reserves, parks or drainage reserves.

## **6.0.0 PLANT SIZE AND STAKING**

### **6.1.0 SIZE**

Where street trees are being installed as a single planting, they shall have a minimum container size of 45 litres. Grouped plantings (i.e. three or more trees in a group) may be a minimum container size of 25 litres each.

### **6.2.0 STAKING**

All street trees of root-ball size 25 litres and larger are to be staked with two hardwood stakes min 38 x 38 x 2000.

Pot stock plantings in parks or reserves which are not in mulched groves i.e. single plantings in mown areas shall be staked with a painted hardwood stake min. 38 x 38 x 1200. Plant ties are to be of a soft flexible material.

Refer to the following drawings for further detail.

## **7.0.0 PLANTING DENSITY**

### **7.1.0 STREET TREES**

Generally at least one street tree planting per residential allotment frontage.

### **7.2.0 TREES IN PARKS AND RESERVES**

Trees adjacent to walkways/bikeways shall be planted at densities such that mature trees will cast shadow morning and afternoon without disrupting evening lighting generally at 10 metre centres. Trees not to be planted within three metres of walkways.

Where trees are to be planted in areas subject to inundation, trunks are to be no closer than ten metres apart.

## **8.0.0 PLANTING LOCATIONS**

### **8.1.0 GENERAL**

Trees shall not be located under any uninsulated power lines, unless species are approved for such location by Council in consultation with SEQEB.

Planting locations may only be varied in specific situations with the approval of the Manager, Parks, Reserves and Landscape Services.

### **8.2.0 STREET TREES**

8.2.1 Council standard road reserve cross sections provide for an allocation of verge space for street planting. New plantings shall comply with the applicable road reserve section as detailed in the appropriate standard drawing.

Refer to PRSC Standard Drawings for details.

8.2.2 Where the width of verge permits, additional plantings may be carried out with the approval of the Manager, Parks and Reserves.

Plantings on new estates where no building has been commenced shall generally be positioned in front of the side alignment of the two adjacent properties, except where light poles or underground service conduits dictate otherwise.

### **8.3.0 LOCATIONS WHERE PLANTING IS NOT PERMITTED**

Planting will **not** be permitted in the following locations: -

- ❖ Where future changes to footpath profiles are likely.
- ❖ Generally within 4.5m either side of a driveway, within 3.0m of a hydrant, valve box, Telstra inspection pit or power pole and within 9.0m of street lights. All allotments shall have at least one planting site.
- ❖ Within 15.0m of approach side of a pedestrian crossing and 5.0m of the departure side.
- ❖ Within 20m of the centre of an intersection on access places, access streets and collector roads.
- ❖ Within sections of road curves with design speeds exceeding 60 kph where appropriately maintained trees would interfere with traffic vision.

### **8.4.0 TREES IN PARK AND RESERVES**

Generally trees may be planted at any location which is suitable to the park design and the tree species. Refer to the section Minimum Standards for Parks & Reserves. No tree shall be planted any closer than 10 metres to adjoining property boundaries.

## 9.0.0 ROOT ZONE PROVISION

Trees to be planted into median strips shall not be planted into individual pits, but rather a trench. This allows for the maximum root zone area. The minimum width of vertical sided trench prior to backfilling with growth media shall be 2.0m for trees.

In situations where exposed soil surface is less than 2.0m wide, but more than 0.5m shrubs or groundcovers shall be used. In medians, roundabouts and local area traffic management devices minimum soil depths are, as detailed in table 9.0.0: -

**Table 9.0.0**

VEGETATION TYPE	MATURE CULTIVATED HEIGHT	SOIL DEPTH
Trees	Cultivated mature heights greater than 5.0m	800mm
Shrubs	0.5m to 5.0m	600mm
Groundcovers	less than 0.5m	600mm

Refer PRSC Standard Drawings for details.

Approved drainage to stormwater pits **must** be installed in road centre plantings as per PRSC Standard Drawings.

Where trees/shrubs are planted singularly, the planting pit shall: -

- ❖ be free of glazed sides or bottom;
- ❖ be at least twice the width of the container; and
- ❖ be at least 1.5 times the depth of the container.

## **10.0.0 GROWTH MEDIA**

### **10.1.0 ON-SITE SOIL**

In most areas of the Shire, natural topsoil on development sites will not provide a sustainable long term growth media for the high density non-endemic plantings and will require soil improvement.

A horticultural analysis of representative site soil prepared by a National Association of Testing Authority (NATA) accredited laboratory shall be included in a report together with details of proposed improvements to soil structure, organic content and nutrient levels. This report shall be included in the Landscape Specifications.

The recommendations of the report shall be included on the landscape drawings when specifying topsoil won from the development site.

### **10.2.0 IMPORTED TOPSOIL AND CONDITIONERS**

Where topsoil is being purchased the mix is to be specified on the landscape drawings / specifications.

Topsoil shall be free of foreign matter and seed, able to pass through a 25mm screen, have an organic matter content of not less than 5% by volume, a pH in the range of 5.5 to 6.5.

Council will not agree to the widespread use of odorous chemicals, fertilizers or mulches in landscape construction.

## **11.0.0 IRRIGATION**

All garden bed areas, planted traffic islands and planted roundabouts shall be provided with an automatic irrigation system as specified by the Manager, Parks and Reserves.

Calculations for supply rates to individual irrigation stations are to be derived from the Three Days Demand Dynamic Analysis. This is the lowest expected pressure available in the water main system in the proposed location of tapping the main. This information is available from Council's Department of Works and Services, Water Supply Section.

Irrigation emission devices shall be limited to sub-surface emission systems or pop-ups retracting to below grade, installed to the manufacturer's specification.

Pop up systems shall be designed for head to head coverage. On median strips, centre placed strip-sprays shall be preferable to edge mounted 180° heads.

Micro, drip or spray head on riser systems may only be used with the prior written approval of the Manager Parks & Reserves.

Conduits 100mm in diameter for irrigation pipes and wiring shall be installed to all planting areas isolated by hard surfaces, to facilitate any future works. Conduit locations are to be marked on kerb with brass "I" markers.

Plastic "Plasson" Quick Coupling Valves (QCV 25mm) shall be provided at all irrigation stations immediately upstream of solenoid valves.

Developers may be required to install buried supply pipes with QCVs at 50 metre centres in areas where hand watering may be required to support plantings, e.g. adjacent to bikeways through parks.

For specification details, refer to Appendix A of this Guideline.

## **12.0.0 MULCHING**

Mulch shall be free of soil, seed and phytotoxic agents. Settled depth of mulch shall be minimum 75mm.

Mulch shall be applied around all tree plantings for a minimum radius 600mm from trunk, but not in contact with the trunk.

In lineal or bordered plantings, mulch cover shall be complete. Approved barriers shall be provided in accordance with this guideline. See section 15.0

### **13.0.0 GRASSING AND TURFING**

Before any area intended for mowing is seeded or turfed, topsoil a minimum of 50mm thick must be developed. All surfaces shall be profiled and prepared to a standard suited to mowing.

Seeded areas intended for mowing shall include a blend of tropical and subtropical rhizomatous grasses to at least 60% by volume of the total mixture.

Temporary grasses such as rye, millet and oats may be added for fast cover and erosion control.

Turfed areas intended for mowing shall use minimum B grade turf with minimal weed infestation.

In Residential A and Residential B subdivisions, the road reserve between kerb and property line shall be turfed as a condition of practical completion.

### **14.0.0 EMBANKMENTS**

Embankments, whether grasses or mulched, shall generally not exceed a gradient of 1:4 on road reserves.

Grassed banks falling below the level of the formed road will be profiled to enable access to the bottom of the bank for ride-on mowing equipment. The access strip at the toe of the mown bank is to have a minimum width of two metres and access to the kerb up a grade not exceeding 1:4.

### **15.0.0 BARRIERS**

Where mulched areas adjoin turf areas, an approved containment barrier 75mm above soil and 75mm into soil must be installed.

These barriers are to be constructed of a material with good longevity properties both in and above ground. Treated or untreated hardwood is not to be used.

Appropriate barriers include the following, and those shown in PRSC standard drawings: -

- ❖ CCA Pine Class H5 150 x 19 secured to CCA Pine stakes at maximum centres of 1.5 metres with hot-dip galvanised fasteners
- ❖ continuous concrete
- ❖ pavers set into concrete
- ❖ Continuous vertical plastic barriers

## **16.0.0 PLAYGROUND EQUIPMENT AND PARK FURNITURE**

The Developer shall pay a contribution toward Park Equipment in accordance with Local Planning Policy LP 30.

Where Council agrees to the installation of playground equipment and park furniture, it shall meet the requirements of relevant Australian Standards both in supply and installation.

Once Park equipment has been satisfactorily installed to the satisfaction of Manager Parks and Reserves, a refund shall be payable by Council.

## **17.0.0 STRUCTURES**

### **17.1.0 GENERAL**

16.1.1 Structures shall be designed for safety, to minimise vandalism and have all building elements sized for aesthetic appeal. All elements shall be designed for durability. All timber components of structures shall be "Preserve" TM or CCA treated plantation grown timber.

16.1.2 Once approval in principle has been obtained for proposed structures, a building application shall be made for the issuance of a Building Permit.

### **17.2.0 ROAD RESERVES**

Generally the only structures approved for road/reserves will be street furniture, or shelters associated with public transport.

Features such as entrance statements, feature walls etc. must be located on private property.

### **17.3.0 PARK AND RESERVES**

Structures such as shelters, pergolas, gazebos, retaining walls and decorative walls shall only be erected with an approval in principle from the Manager, Parks, Reserves and Landscape Services.



## 18.0.0 MINIMUM STANDARDS FOR PARKS AND RESERVES

### 18.1.0 HANDOVER OF PARK / RESERVE AREAS

#### 18.1.1 Contact

Developers are strongly advised to contact the Manager Parks, Reserves and Landscape Services in advance of the commencement of any planning to determine the future use and maintenance for Parks, Reserves or Drainage Reserves areas. Failure to do so may expose developers to significant delays and inconvenience.

Following are the minimum conditions to be met at practical completion for the acceptance of Park areas to go on maintenance. The conditions for Reserves may include any but not necessarily all of these conditions depending on the intended use and maintenance methods.

- ❖ Open areas to have >90% grass cover.
- ❖ To have a constant grade and to be left in a mowable condition with surface variations not to exceed 50mm over one metre.
- ❖ Ensure parks are freely and safely drained with minimum falls of 1%.
- ❖ All debris to be removed from parks.
- ❖ All surface rock over 25mm to be removed from areas intended to be mown.
- ❖ No cut, fill or trenching within the dripline of any tree.
- ❖ Trees to have been **fully protected** from any damage during the development period, especially **trunk bases**. **Failure to comply may lead to forfeiture of bonds.**
- ❖ Dead trees providing habitat for birds or marsupials are to be removed or pruned only if considered dangerous and following agreement from the Manager Parks, Reserves and Landscape Services.
- ❖ Any dangerous trees made safe to the satisfaction of the Manager Parks and Reserves.
- ❖ Remove all declared plants and noxious weeds.
- ❖ No other existing plant species to be removed from proposed parks or reserves unless designated.
- ❖ No overburden or spoil to be pushed or deposited into treed Park areas unless approved in advance by Manager Parks & Reserves.
- ❖ Provide a minimum of 1 x 25mm. water point for every Park / Reserve in a place to the satisfaction of Manager Parks and Reserves. The water point is to be an underground service with a 25mm QCV in a valve box.
- ❖ Provision for vehicle exclusion.
- ❖ All playground equipment and park furniture to meet Australian Standards both in supply and installation to the satisfaction of Manager Parks Reserves and Landscape Services.
- ❖ Council will require native vegetation replanting in areas of wildlife corridors which have been cleared.

- ❖ Council will require restoration replanting to be carried out if trees are damaged or removed from proposed Parks or Reserves without the written authority of the Subdivision Engineer.
- ❖ Where a park or area of a park is intended for use as an active recreation area, 75mm of topsoil (settled depth) is required to be placed over the formed area. This topsoil shall be material stripped and won from site prior to commencement of earthworks. Material shall be sieved to remove matter greater than 25 mm in diameter.

## **18.2.0 SPECIFIC REQUIREMENTS FOR DRAINAGE RESERVES**

Drainage Reserves are provided to not only convey quantities of stormwater, but in many cases, also to improve stormwater quality through natural processes involving vegetation.

Provision for landscaping in these areas is the same as that required for Parks, except that additional erosion and stability requirements may be required as a result of engineering considerations.

## **19.0.0 DRAWINGS AND SPECIFICATIONS**

### **19.1.0 DESIGN DOCUMENTS**

Design drawings for landscape and irrigation, the soil report, the specifications and the maintenance schedule shall comply with the relevant Pine Rivers Shire Council requirements.

Once the engineering drawings have been approved, the landscape and irrigation documents shall be submitted for approval to the Department of Development and Environment and where approvals have been given by the Manager, Parks and Reserves in accordance with this guideline, and then copies of the written approvals shall accompany the documents. Approvals may be given for:

- a) Planting locations,
- b) Additional plantings in street verges,
- c) Micro, drip, or spray heads on risers,
- d) Ex-ground trees greater than 4 metres in height,
- e) Removal of healthy trees from Park or Reserves.

#### **19.1.1 Landscape Design Certification**

Each drawing shall be certified by the Landscape Consultant with the following: -

"I, .....  
(Landscape Consultant's Name)

being a duly authorised representative of

.....  
(Consulting Firm or Company)

hereby:

- certify that this drawing complies with any conditions of approval as specified by Council
- certify that this drawing and supporting documents are in accordance with this guideline and Council's Design Manual generally,
- certify that where specific approvals have been given by the Manager, Parks and Reserves and Landscape Services, this drawing is in accordance with those approvals,
- accept responsibility for this certification and undertake to make good any works which are found to be contrary to the above during construction or the maintenance period.

Certification for      Stage.....by.....on.....  
(Stage No.)                      (Signature)                      (Date)

for:.....  
(Company Name)

Note:      Where consulting firms or company and stage numbers do not apply, complete with N/A for 'not applicable'."

### 19.1.2 Traffic Engineer Certification

Each drawing shall be certified by the Consultant Traffic Engineer with the following: -

"I, ..... (Consultant Traffic Engineer)	
being a duly authorised representative of	
..... (Consulting Firm or Company)	
being a registered professional engineer with experience in traffic design, hereby certify that I have reviewed the proposed landscaping works and the works do not compromise required sight distances for drivers of vehicles operating on the roads where landscaping works are proposed.	
I accept responsibility for this certification and undertake to make good any works which are found to be contrary to the above during the construction or maintenance period.	
Certification for	Stage.....by.....on..... <div style="display: flex; justify-content: space-around;"> <span>(Stage No.)</span> <span>(Signature)</span> </div> <div style="display: flex; justify-content: space-around;"> <span>(Date)</span> </div>
for:..... (Company Name)	
<i>Note: Where consulting firms or company and stage numbers do not apply, complete with N/A for 'not applicable'.</i>	

### 19.2.0 AS CONSTRUCTED DRAWINGS

The purpose of as-constructed drawings is to provide an accurate record of construction. Variation from the approved drawings is sometimes necessary due to unforeseen site difficulties or unavailability of plant stock. Departure from the approved drawings should be kept to a minimum and shall remain within the requirements of this guideline, or the specific approvals given by the Manager, Parks and Reserves and Landscape Services.

As-constructed drawings for landscaping and irrigation shall be forwarded to Council's Engineer prior to the practical completion inspection and shall be accompanied with: -

- ❖ Copies of the Manager, Parks and Reserves written approval of variations not conforming with this guideline,
- ❖ Back flow prevention test approvals.

#### 19.2.1 As Constructed Drawing Certification

Each drawing shall be certified by the Landscape Consultant as conforming to this Guideline with the following: -

"I, \_\_\_\_\_  
(Landscape Consultant's Name)

.....  
(Consulting Firm or Company)

- certify the information contained in this drawing is an accurate "as constructed" representation of the works.
- accept responsibility for the "as constructed" information contained in this drawing.
- acknowledge the "as constructed" information contained in the drawing may be relied on by Council and others.

Certification for Stage.....by.....on.....  
(Stage No.) (Signature) (Date)

for:.....  
(Company Name)

Note: Where consulting firms or company and stage numbers do not apply, complete with N/A for 'not applicable'."

## 20.0.0 PRACTICAL COMPLETION

## 20.1.0 GENERAL

Landscaping and irrigation works will not be inspected until all the works associated with a particular development are completed.

Landscaping and irrigation works shall be completed in accordance with the approved drawings and specifications prior to inspection of the civil engineering works.

## 20.2.0 ROAD RESERVES

The following are the minimum conditions to be met at practical completion for acceptance on maintenance of landscaping on road reserves: -

- ❖ Vegetation plantings in compliance with approved drawings and these guidelines in all respects.
- ❖ Irrigation installations are a component of landscaping works and must be operational and commissioned before practical completion.
- ❖ Written evidence of compliance with testing of backflow prevention devices as per AS 2845.3 and the Water Supply and Sewerage ACT Queensland shall be undertaken prior to practical completion inspection.
- ❖ Tree stakes, ties and cabling to be in sound and safe condition.

### 20.3.0 PARK AND RESERVES

The minimum conditions to be met at practical completion for the acceptance of Park and Reserves on-maintenance are provided in accordance with Section 18.0 of this Guideline.

### 21.0.0 MAINTENANCE REQUIREMENTS

The intent of the maintenance period is to establish, enhance and maintain the installed landscaping. Maintenance shall be on regular on-going basis in accordance with the approved maintenance schedule.

The maintenance period shall commence on the date that Council's Subdivision Engineer advises in writing of practical completion of all civil and landscaping works at each stage of the development and shall continue until handover to Council.

Maintenance periods shall be as shown in Table 21.0.0: -

**Table 21.0.0**

TYPE	MAINTENANCE PERIOD
Footpaths, parks, reserves and areas requiring approved automatic irrigation	6 months from practical completion

#### 21.0.1 Transplanted Trees

Ex-ground trees over 4 metres in height transplanted without being containerised and re-established **do not** comply with this Guideline and require a separate approval by the Manager Parks, Reserves and Landscape Services in advance of the submission of drawings.

Where an approval is given it may include such things as specifying species selection and request an extended maintenance schedule. The intent of this section is not to deter the use of large plant material, rather to ensure a high standard of work to protect the longevity of transplanted specimen trees.

#### 21.0.2 Developer's Responsibilities

The Developer shall immediately replace all dead or missing plants. Loss or poor performance of landscape elements may, at the Manager, Parks and Reserves discretion, lead to extension of the maintenance period and withholding of applicable bonds.

The Developer shall pay all costs associated with maintenance of the works including the water rates.

The maintenance schedule shall be a compulsory component of the landscape specification.

### 21.0.3 Maintenance Schedule

Indicative headings for the maintenance schedule will include.

- |    |            |    |                                |
|----|------------|----|--------------------------------|
| 1. | Lawn       | a) | Fertilizer schedule            |
|    |            | b) | Weed control schedule          |
|    |            | c) | Insect control schedule        |
|    |            | d) | Mowing schedule                |
|    |            | e) | Edging schedule                |
| 2. | Garden     | a) | Fertilizer schedule            |
|    |            | b) | Weeding schedule               |
|    |            | c) | Pruning schedule               |
|    |            | d) | Pesticide schedule             |
| 3. | Irrigation | a) | Operation checks               |
|    |            | b) | Filter cleaning                |
| 4. | Trees      | a) | Pruning schedule               |
|    |            | b) | Watering schedule              |
|    |            | c) | Stakes and ties check schedule |

The maintenance schedule will also provide for inspections and remedial works following severe weather conditions.

A log shall be kept and made available by the developers upon request, and at the expiration of the maintenance period. All works performed as per the maintenance schedule.

## 22.0.0 OFF MAINTENANCE REQUIREMENTS

22.0.1 All development works shall be accepted off-maintenance at the same time.

Landscaping and irrigation works shall only be accepted off maintenance when the civil / engineering works are accepted off maintenance.

Landscaping and irrigation works shall have been: -

- ❖ maintained in accordance with the maintenance schedule;
- ❖ mowed or pruned prior to inspection; and
- ❖ remedial works undertaken.

22.0.2 At the inspection, the following are required to be forwarded to Council's Engineer: -

- a) All irrigation manuals and warranties; and
- b) Any other relevant materials and documents.
- c) Asset value of the constructed landscape.
- d) Asset value of the installed irrigation system.
- e) The landscape maintenance log.

# APPENDIX A

## IRRIGATION SPECIFICATION

### 1.0 INTRODUCTION

This specification applies to the design, supply and installation of irrigation systems to water garden/turf areas/trees on road reserves/parks and reserves.

### 2.0 DESIGN & INSTALLATION

The contractor shall supply and install of all materials required to control each zone as drawn.

The design & installation shall ensure correct water flow to each outlet.

The supply and installation of controllers and control wire shall at the specification of the Manager Parks and Reserves.

**N.B All areas can only be irrigated by pop-up sprinklers, or soak-type pipes that are installed to manufacturers specifications.**

All materials used shall have full spare parts servicing readily available.

Backflow prevention valves in accordance with AS 3500 shall be encased in galvanised sheet metal boxes hinged to a concrete slab. Padlocks supplied by Pine Rivers Shire Council.

Controllers shall be installed so as to be vandal resistant.

### 3.0 WARRANTY AND GUARANTEE

All items of equipment and materials shall be in new condition with a minimum (12) months warranty against defects.

All Workmanship shall be guaranteed for a period of (12) months from practical completion.

### 4.0 APPROVALS AND AUTHORITIES.

All relevant state and/or local codes and by-laws shall apply.

All necessary permits shall be obtained and fees paid, before starting work.

### 5.0 INSTALLATION

If it is proposed to vary the installation away from approved plans, permission must be obtained from the Manager Parks, Reserves and Landscape Services before commencing any such change.

The contractor shall provide "as constructed" drawings, showing reference dimensions and unusual conditions to the Manager Parks, Reserves and Landscape Services upon commissioning.

All work shall be supervised by a person who, to the satisfaction of Council is competent in this type of work.



## **5.1 PIPEWORK**

All mains pressure pipes shall be High Density Poly Ethylene (H.D.P.E.) Class 12

All service pipe after mains pressure valve may be Low Density Poly Ethylene (L.D.P.E.) or 50B.

In general, pipework shall be installed in straight lines with a minimum number of joints, elbows and tees.

Pipework shall be installed at depths specified by drawings.

Pipe shall be bent and curved in preference to elbows.

Backfill material must be free of stones, organic material, or other sharp objects. Trenches shall be left 50mm overfilled to allow settlement. Compaction shall be sufficient on 3 passes of a vehicle wheel.

## **5.2 FITTINGS**

For H.D.P.E. pipe use "Plasson" type fittings or approved equivalent.

For L.D.P.E. pipe use insert fittings with ratchet clamps.

All screw threaded connections before the solenoid or gate valve shall be thread sealed with approved tape.

All end sleeves shall be readily removed and marked for easy identification.

## **5.3 VALVES**

Supply and fix all Quick coupling (QCV) valves, gate valves, ball valves etc. to manufacturer's specifications. QCV's to be 25mm plastic Plasson fittings.

Supply enough valves to control the flow of water to separate zones as per drawings.

QCV's shall be installed immediately upstream of solenoid valves and at no greater than 50m centres as system back-up.

All backflow prevention valves shall meet AS 2845-1 standards.

## **5.4 VALVE BOXES**

Shall be made from virgin high density polyethylene thermoplastic material and of a size to permit ready access for maintenance and replacement off all internal fittings.

Shall be vandal resistant, bolt secured and installed to manufacturer's specifications.

## **5.5 FILTERS**

All filters (if required) shall be made easily accessible to permit regular maintenance.

Primary filters shall be installed in the backflow prevention valve box.

## **5.6 SPRINKLERS, ETC.**

All watering outlets shall be positioned and installed as per drawings.

## **5.7 CONTROL UNIT(S)**

Control unit(s) specified by Manager Parks, Reserves and Landscape Services shall be positioned and secured against vandalism as directed and installed to manufacturers specifications.

Allow for unbroken runs of specified control wire.

## **5.8 WIRE**

Allow for half metre loops at each valve box

Depth shall be as specified.

Conduit may be specified for some situations.

Any cable splices shall be water-proof, marked on "as constructed" plans and covered by a valve box.

All cables under footpath shall be laid in conduit (min. 32mm).

## **5.9 CONDUITS**

Conduits under roads shall be minimum 100mm U.P.V.C. installed (with brass "I" kerb markers) at minimum 300mm below finished soil levels, in positions specified by drawings and Parks management.

Conduits shall be installed to all areas isolated by hard surfaces

## **6.0 TESTING**

### **6.1 FLUSHING**

The system shall be flushed so that clear water runs before an outlet is installed.

### **6.2 ELECTRICAL (IF APPLICABLE)**

Each part of the electrical system shall be tested fully and any malfunction repaired.

### **6.3 SYSTEM OPERATION**

Each zone in turn shall be operated for a period long enough to check each outlet for correct function.

### **6.4 BACKFLOW DEVICE**

Commissioning of backflow prevention devices shall be as per AS 2845-3 and the Water Supply and Sewerage ACT Queensland.

## **7.0 COMMISSIONING**

After thorough testing the system shall be programmed and fully explained to the Manager Parks, Reserves and Landscape Services.

As constructed drawings, operational manuals and warranties etc, shall be forwarded to the Manager Parks, Reserves and Landscape Services.

Asset valve shall be supplied to the Manager Parks, Reserves and Landscape Services in the form of a copy of the final contract sum.

The system shall not be commissioned until all plant material installation has been completed and approved.

The date of commissioning shall be the day that all of the above work has been done and approved.

## **8.0 MAINTENANCE**

Operational adjustments to the system will be performed at the direction of the Manager Parks, Reserves and Landscape Services.

Additional flushing of the system may be required and checks made to ensure that all pipe work remain buried and free from leaks and blockages.

All emitters and filters shall be checked regularly to ensure proper functioning.

The system shall be at the contractors risk until acceptance (off maintenance).

The developers/contractors maintenance period shall commence on the date that the developer advises Council of practical completion at each stage of the development and shall continue until acceptance off maintenance by Council.

The system will be inspected by the Manager Parks, Reserves and Landscape Services prior to acceptance off maintenance.