

Policy 11: Land Development Guidelines

Section 6

6.0 Open Space Requirements

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6.1 Introduction

This section presents technical specifications for assets (manmade and natural) in public open space.

This section is underpinned by the following principles:

- Public open space shall provide opportunity for the community to enjoy and interact with elements of the natural environment.
- Works in public open space shall not adversely impact natural or heritage features and values.
- Public open space and its embellishment shall be safe.
- Public open space shall be socially and environmentally sustainable.
- Public open space should not contain an excessive amount of embellishment that results in an unsustainable financial burden on the community.

6.2 General Requirements

All approved works within public open space shall be undertaken by the developer. The works shall comply with Council's minimum standards and relevant Australian Standards current at the commencement of a designated 'Establishment Period'. Council's minimum standards prevail in the event of inconsistency.

Compliance certification of installations within public open space shall be required where considered appropriate by the asset owner. In instances of contributed assets being accepted by Council, this certification is required prior to 'On Maintenance'.

6.2.1 Safety

A safe community is one in which residents and visitors can interact confidently with one another and their environment. Community safety is promoted in the development of public open space by application of **Crime Prevention Through Environmental Design (CPTED)** principles relevant to open space classification. Adherence to these principles enhances perceptions of safety for users and reduces opportunities for crime and anti-social behaviour.

Application of CPTED principles at the planning and design stage benefits property owners and the general public, as it avoids the need for costly and ineffective retrofitting.

Key principles to be applied in the development of public open space are as follows.

a) Promotion of Casual Surveillance

Public open space must be integrated and designed in a way that promotes the visibility of users and avoids the creation of vulnerable settings.

b) Visibility in Public Spaces and Along Routes

Open spaces including pedestrian and bicycle paths should be designed to provide:

- i) Good visibility of spaces or routes by all users.
- ii) The user of the space is visible by others through natural or other surveillance.
- iii) Maximum street frontage with clear sightlines along other edges.

Opportunities for passive surveillance shall be maximised by adherence to the criterion set out in **Table 6.2-A**.

Table 6.2-A Surveillance Criterion

Criterion	Recreation Park		Sports Park	Natural Area	Utility Reserve
	Local, District, City	Outdoor Recreation, Linkage Park			
Unobstructed line of sight ¹	50m	20m	50m	15m	50m
Concealed spaces ²	No	No	No	Minimise	No
Entrapment spaces ²	No	No	No	No	No
Ground to canopy clearance ¹	1.8m	1.8m	1.8m	Existing	1.8m
Steep changes of grade	No	Existing grades	No	Existing grades	Minimise

Notes:

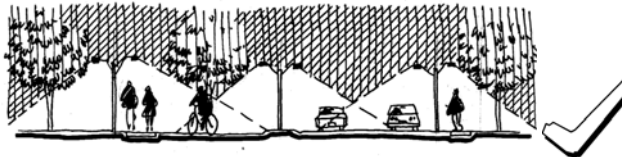
1. Refer Figure 6.2-A
2. Refer Figure 6.2-B

Fences and walls adjoining public spaces are to be designed so that permanent visibility through at least 50% of its surface is possible. It should be noted that dark coloured paling fences allow greater permeability than those painted a lighter colour.

c) Lighting

All outdoor public spaces should be appropriately and consistently lit where night time use is expected and encouraged. Areas or facilities that are not designed for legitimate use after dark should remain unlit to deter anti-social behaviour.

- i) Key public spaces (including key bicycle and pedestrian routes, public facilities and signs) are lit to the minimum **Australian Standard AS1158 – Public Lighting Code**.



- ii) Light fixtures are mounted high and are vandal-resistant. Bollards are not preferred as they can cause glare and are more easily vandalised.

d) Landscaping

All vegetation and other landscaping features established in or around any public open space area shall be located to maximise passive surveillance opportunities, maintain clear lines of sight and avoid the creation of concealment spots.

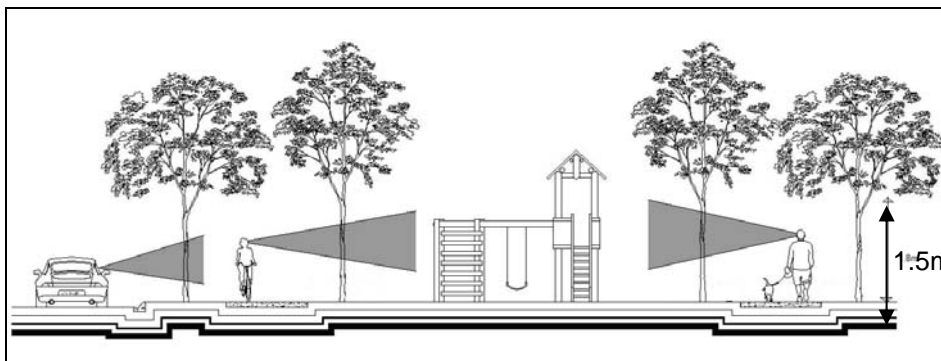


Figure 6.2-A: Lines of Sight and Ground to Canopy Clearance

Trees, shrubs and other landscaping features should be chosen and located in a way that does not block surveillance, create concealment spots or reduce sightlines.

- i) Visibility through vegetation is clear to a minimum height of 1.5 metres.



- ii) Planting is setback a minimum of 3 metres along routes or where this is not possible planting does not exceed 0.5 metres in height.



- Clear sightlines along footpath and road areas utilising
- Shrubbery setback from footpath
 - lighting sphere under tree canopy
 - avoiding large mass of vegetation

- iii) Landscape form, the arrangement of embellishments and vegetation shall not create gun barrel routes or pinch points along paths, trails and linkage parks. All forms of connections shall conform with minimum clear length to width ratios presented in **Table 6.2-B**.

Table 6.2-B Length to Width Ratios for Safe Connections

Length (metres)	Width (metres)
200	50
150	37.5
100	25
80	20
60	15
60 to 20	15
>20	10

e) Target Hardening and Access Control

All public open space areas shall be designed and constructed to reduce the potential for graffiti and vandalism. Design shall also restrict access to unsafe areas and prevent unauthorised access by illegitimate users.

- i) Provide access hindrances to elements vulnerable to graffiti and vandalism (for example, utility covers).
- ii) Use materials that are resistant to graffiti and vandalism and avoid large flat surfaces that restrict the opportunity for graffiti.

f) Locations of Embellishments and Features in Public Open Space

- i) Embellishments and features in public open space shall be configured in compatible arrangements and located where they are easily visible from the street or surrounding activity areas.
- ii) Embellishments and features in public open space areas shall be located to avoid creating a concentration of incompatible activities or activity nodes that could generate crime, conflict and nuisance behaviour (including vandalism). An example of such a concentration is depicted in **Figure 6.2-B**. The dog off-leash area is too close to both the bike track and playground. The playground is too close to the cycle track and the skate park.

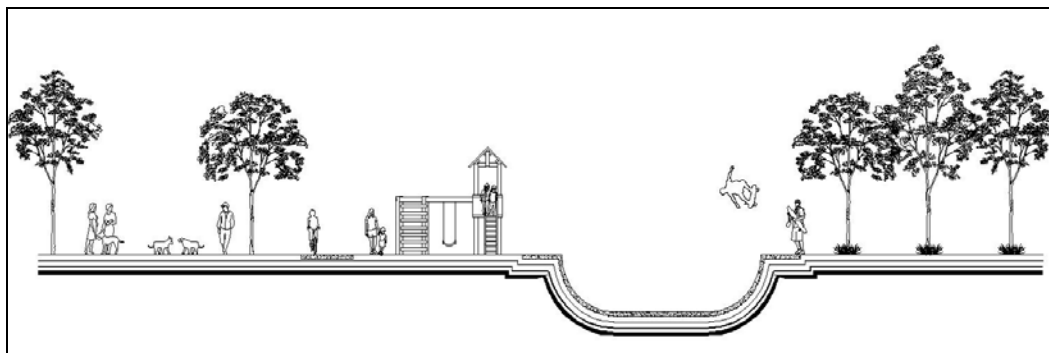


Figure 6.2-B Incompatible Activity Nodes

- iii) Activity nodes shall be configured to promote community safety by providing sufficient distances between nodes of incompatible activity; clustering compatible activities to encourage both user activity and community interaction; and locating nodes adjacent to areas that may otherwise be vulnerable or isolated, particularly along bicycle and pedestrian routes to increase activation of the area.
- iv) Children’s playgrounds are fenced using permeable materials, have more than one exit and provide adequate seating to encourage supervision.

g) Wayfinding and Legibility

Public open space should be designed to assist easy orientation within the site.

- i) Signage at entrances provides clear orientation to major points of interest such as the location of public toilets, safe routes, park activities and adjacent public transport.

Note: *The State Government's Crime Prevention Through Environmental Design - Guidelines for Queensland should be used as a reference tool in applying these principles. These are available for download from <http://www.police.qld.gov.au/programs/crimeprevention/cpted>.*

6.2.2 Responsive

Public open space shall be responsive to potential users and the environment.

a) Flexibility

Recreation Parks shall be able to accommodate a wide range of activities at different times as presented in **Figure 6.2-C**.

b) Permeability, Connectivity and Accessibility

Paths in public open space shall be configured to:

- follow desire lines;
- visit places of interest;
- form circuits;
- link destinations;
- contribute to a longer linkage;
- contribute to linkages external to the site;
- protect and retain vegetation;
- avoid sensitive, concealed or potentially unsafe places;
- follow natural contours where relevant.

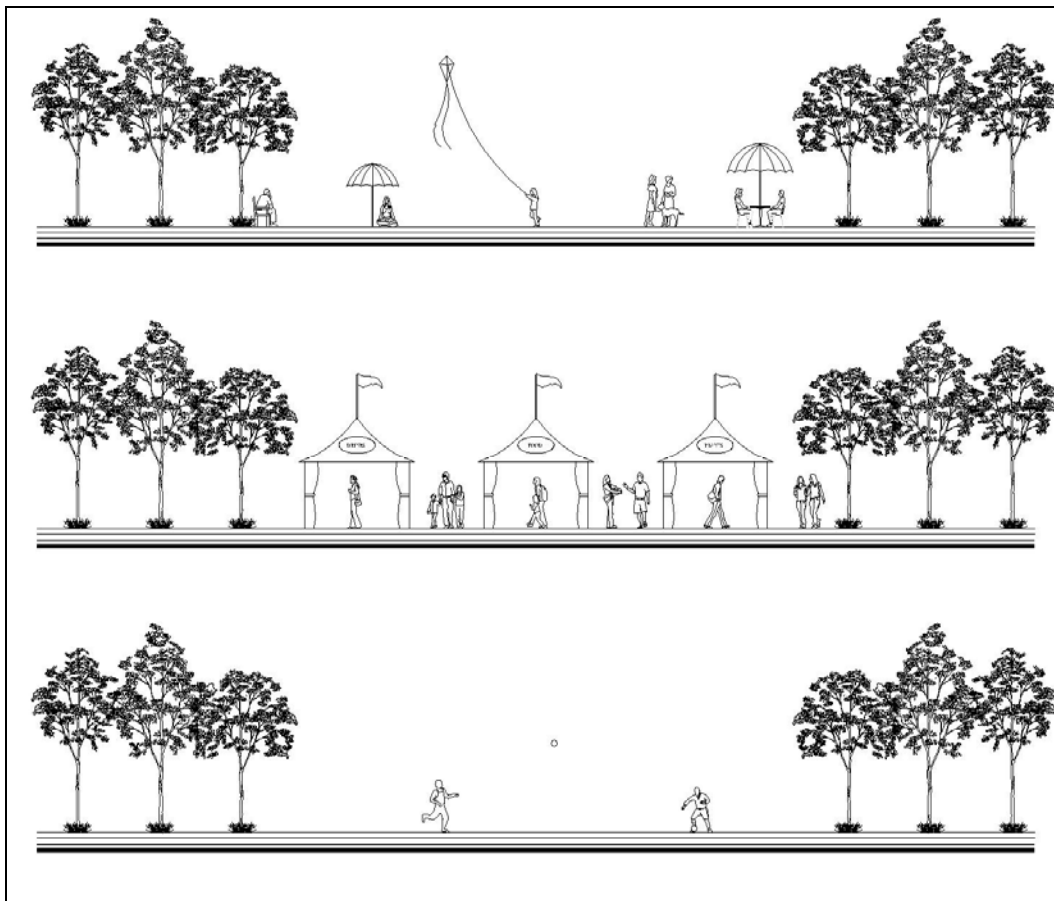


Figure 6.2-C Flexible Design of Public Open Space

Paths in public open space shall be legible, shaded, clearly marked and have clear lines of sight (in accordance with **Table 6.2-A**).

Recreation facilities established in public open space shall be located central to existing and projected catchments.

Provision of embellishments and features within Natural Areas should be designed on a site-specific basis, and shall minimise environmental impacts associated with construction, maintenance, and access to and use of embellishment and facilities.

Within Natural Areas embellishment and facilities shall be:

- Located within existing cleared or disturbed areas, or along vegetation edges.
- Designed to have a minimal footprint, particularly in terms of the area designated to impervious surfaces.
- Fauna friendly where relevant.

All embellishment within Natural Areas shall complement existing facilities and wherever possible, existing embellishment shall be upgraded or expanded in favour of new construction.

c) Equitable

Routes and facilities in public open space shall:

- Where signed be legible to people of all ages, abilities and cultural orientations (for example, children, elderly, vision-impaired, people from non-English speaking backgrounds).

d) Access

Access to public open space shall:

- Enable all-weather access for maintenance to all areas.
- Locate entry/exits to promote active transport to, through and within the area.
- Locate and orientate facilities to maximise solar cycles and prevalent climatic conditions.

e) Access to Natural Areas

Access to Natural Areas shall allow for:

- pest and weed management;
- ecological restoration;
- nature based recreation;
- bushfire management;
- general safety.

Bushfire trails shall be designed in consultation with Council officers. However, Bushfire Management Plans will need to address, at a minimum, the following matters:

- The design of trails are to follow natural contours.
- The removal of native vegetation is to be minimised.
- The crossing of waterways, creeks, and gullies is to be avoided. However, should this not be possible bushfire trails shall be designed to incorporate suitable drainage and water shedding devices to limit interruption of overland flow and drainage.

f) Access to Storm Water Basins

Appropriate access to water sensitive urban design treatment devices located within public open space shall be provided.

The access shall:

- Be appropriate to the device type.
- Provide space for dewatering bio-retention basins.
- Not be prevented by retaining walls or batters that are not safely traversable in heavy machinery.

g) Financially sustainable

Public open space shall not be over-embellished, regardless of whether it is managed by Council or another entity. Capital costs of assets installed in public open space shall demonstrate low whole of life costs and low establishment costs.

Long term management costs of public open space and the assets therein shall not exceed 15% of the general revenue rate generated by the development from which the public open space and embellishments was dedicated.

6.2.3 Materials

a) Manmade components

Manmade materials installed in public open space shall be:

- robust;
- low maintenance;
- fire resistant and vandal proof;
- non-corroding and non-corrosive;
- sustainable, with low whole of life costs;
- sourced locally (such as site rock, or rock obtained from a nearby development);
- utilise recycled materials (such as bollards milled from site timber);
- visually unobtrusive;
- fauna friendly;
- of the lowest possible amount of embodied energy (energy used in material and product manufacture, transportation and installation);
- non-toxic, sharp edged or harmful to humans or environment in any way;
- consistent with relevant Australian standards.

Materials appropriate for construction of facilities in Natural Areas include:

- recycled plastics;
- galvanised steel;
- stainless steel;
- aluminium;
- stone (sourced locally and sustainably);
- concrete;
- recycled hardwood;
- recycled glass;
- non-toxic paint;

b) Natural components

Natural materials installed in public open space shall:

- be resilient;
- require minimal maintenance;
- be appropriate for the local and micro environment.

Vegetation established in public open space shall be:

- endemic;
- appropriate for the area available for planting;
- appropriate to changed conditions presented by the development;
- planted to coincide with the growing season;
- in soil that is treated to improve essential and trace mineral availability;
- in soil that is treated to improve the quantity and diversity of soil flora and fauna;
- in soil that is conducive to growth of selected species;
- in soil that is protected from evaporation through the use of weed and seed-free mulches;
- require nil or minimal application of fertiliser at 'off maintenance';
- provide habitat for native fauna.

Materials installed in Natural Areas shall:

- be natural in the most instance (e.g. hollow logs, boulders);
- be non-toxic;
- have low embodied energy;

- have low whole of life costs;
- have high recycled content (where not natural);
- have high recyclable content (at the end of life);
- have a long life;
- be locally available.

6.3 Public Open Space Classification, Categories and Embellishment

To promote appropriate use and identification of public open space, a classification system has been developed. The classification system provides categories and subtypes used to identify and describe public open space. These classifications also determine the type of embellishment and landscape treatment that is generally suitable within particular types of public open space.

Public open space is to be categorised within one of the following:

- Recreation Parks;
- Sports Parks;
- Natural Areas;
- Utility Reserves.

The description/ identification of existing and future open space within development applications, compliance certificates, management and landscape plans shall utilise the above classifications.

The types and rates of provision for embellishments in these categories of public open space are presented in **Table 6.3-A**, **Table 6.3-B**, **Table 6.3-C** and **Table 6.3-D**.

Approximate siting distances (+/- 10%) for compatible embellishments and features, and examples of incompatible embellishments and features are presented in **Matrix 6.3-A**.

Table 6.3-A Recreation Park Potential Embellishments

Embellishment	Local Recreation Park	District Recreation Park	City Recreation Park	Outdoor Recreation	Linkage Park
Barbeques	0	2	2	0	0
Bike Racks	0	1 module	2 modules	0	0
Bins	0	2	4	0	0
Boardwalks	0	0	0	0	0
Bollards	As required	As required	As required	As required	As required
Car Parks	0	5 per ha	5 per ha	0	0
Community Gardens	By exception	By exception	By exception	0	0
Drinking Fountains	0	2	4	0	0
Electricity Box	0	1	2	0	0
Fencing and Barriers	By exception	By exception	By exception	By exception	By exception
Fishing Pontoons, Boat Launches, etc	0	0	By exception	By exception	0
Groundcover Vegetation and Landscaped Garden Areas or Beds	0	0	0	0	0
Gates	1	2	4	2	1
Horse Step Throughs	0	0	0	By exception	0
Park Maintenance Access and Emergency Vehicle Access	Adjacent to all private allotments adjoining open space and where identified on an approved Bushfire Management Plan. By exception under all other circumstances.				
Irrigation Systems	0	0	0	0	0
Lighting	0	By exception	By exception	0	0
Maintenance Taps	0	2	4	0	0
Maintenance Vehicle Access Driveways	1	2	3	2	2
Ornamental Water Features	0	0	0	0	0
Paths	100m	200m	400m	0	1,000m
Pedestrian Bridges	0	0	0	0	0
Picnic Nodes	0	1	2	0	0
Picnic Shelter	0	4	4	0	0
Play Nodes	0	1	2	0	0
Playing Fields	0	0	0	0	0
Primary Access Points	1	2	4	1	1
Public Art	0	1 piece	2 pieces	0	0
Seats	0	5	10	0	1
Signage – Park Entrance	1	2	4	1	1
Signage (Other Types)	0	0	1	0	1
Toilet Blocks	0	1	2	0	0
Trails	0	0	0	2,000m	0
Trees	20	80	150	0	100
Turf	9,000m ²	45,000m ²	90,000m ²	0	9,000m ²
Water Supply	0	1	1	0	0

Table 6.3-B Sports Park Potential Embellishments

Embellishment	District	City
Barbeques	1	1
Bike Racks	1 module	2 modules
Bins	2	4
Boardwalks	0	0
Bollards	As required	As required
Car Parks	5 per ha	5 per ha
Community Gardens	0	0
Drinking Fountains	2	4
Electricity	1	2
Fencing and Barriers	0	0
Fishing Pontoons, Platforms and Boat Launches	0	0
Gate	2	4
Groundcover Vegetation and Landscape Garden Areas or Beds	0	0
Horse Step Throughs	0	0
Park Maintenance Access and Emergency Vehicle Access	Located for the most direct, unobstructed, all weather access to playing surface	
Irrigation Systems	1	1
Lighting	As required	As required
Maintenance Taps	2	4
Maintenance Vehicle Access Driveway Gates	2	3
Ornamental Water Features	0	0
Paths	200m	400m
Pedestrian Bridges	0	0
Picnic Nodes	0	0
Picnic Shelters	4	4
Play Nodes	1	2
Playing Fields	0	0
Primary Public Access Points – Entry Statements	0	0
Primary Public Access Points – Pedestrian	2	4
Public Art	1	2
Seats	5	10
Sewer	✓	✓
Signage – Park Entrance	2	4
Signage – (Other Types)	0	1
Toilet Blocks	1	2
Trails	0	0
Trees	80	150
Turf	90,000m ²	145,000m ²
Water Supply	0	0

Table 6.3-C Natural Areas Potential Embellishments

Embellishment	Low/Local Catchment	Moderate/District Catchment	High/Citywide/Regional Catchment
Barbeques	0	0	0
Bike Racks	0	0	0
Bins	0	0	0
Bird Hide	0	0	0
Boardwalks	0	0	0
Bollards	As required	As required	As required
Car Parks	0	0	0.2 per ha
Community Gardens	0	0	0
Drinking Fountains	0	0	0
Electricity	0	0	0
Fencing and Barriers	0	0	0
Fishing Pontoons, Platforms and Boat Launches	0	0	0
Gate	1	2	4
Groundcover Vegetation and Landscape Garden Areas Or Beds	0	0	0
Horse Step Throughs	0	0	0
Park Maintenance Access and Emergency Vehicle Access	Where identified on an approved Bushfire Management Plan. By exception in all other circumstances.		
Irrigation Systems	0	0	0
Lighting	0	0	0
Maintenance Taps	0	0	0
Maintenance Vehicle Access Driveways Gates	1	2	4
Ornamental Water Features	0	0	0
Path	100m	400m	1,000m
Pedestrian Bridges	0	0	0
Picnic Nodes	0	0	0
Picnic Units	0	0	0
Play Nodes	0	0	0
Playing Fields	0	0	0
Primary Public Access Points – Entry Statements	0	In association with a complex trail network	
Primary Public Access Points – Pedestrian	Where pedestrian access is required to be facilitated along a gated maintenance/bushfire trail		
Public Art	0	0	0
Seats	0	0	0
Sewer	0	0	0
Signage - Advisory	0	0	0
Signage – Descriptive And Interpretive	0	1	3
Signage – Park Entrance	1	1	1
Signage – Regulatory And Warning	0	1	2
Toilets	0	0	0
Trails	1,000m	5,000m	10,000m
Trees	0	0	0
Turf	0	0	0
Water Supply	0	0	0

Table 6.3-D Utility Reserve Potential Embellishments

Embellishment	Water Body/ Canal	Utility Reserve	Waterway/ Drainage Reserve	Landscape Amenity Parks
Barbeques	0	0	0	0
Bike Racks	0	0	0	0
Bins	0	0	0	0
Boardwalks	0	0	0	0
Bollards	As required	As required	As required	As required
Car Parks	0	0	0	0
Community Gardens	0	0	0	0
Drinking Fountains	0	0	0	0
Electricity	0	0	0	0
Fencing And Barriers	0	0	0	0
Fishing Pontoons, Platforms and Boat Launches	0	0	0	0
Gate	0	0	0	0
Groundcover Vegetation and Landscape Garden Areas Or Beds	0	0	0	As required
Horse Step Throughs	0	0	0	0
Internal Park Maintenance Access and Emergency Vehicle Access	Where identified on an approved Bushfire Management Plan. By exception in all other circumstances.			
Irrigation Systems	0	0	0	0
Lighting	0	0	0	0
Maintenance Taps	0	0	0	0
Maintenance Vehicle Access Gates	1	1	1	1
Ornamental Water Features	0	0	0	0
Path	0	0	0	0
Pedestrian Bridges	0	0	0	0
Picnic Nodes	0	0	0	0
Picnic Units	0	0	0	0
Playground Equipment	0	0	0	0
Playing Fields	0	0	0	0
Primary Public Access Points – Entry Statements	0	0	0	0
Primary Public Access Points – Pedestrian	Where pedestrian access is required to be facilitated along a gated maintenance/bushfire trail.			
Public Art	0	0	0	0
Public Toilets	0	0	0	0
Seats	0	0	0	0
Sewer	0	0	0	0
Signage – (Others)	1	1	1	1
Signage – Park Entrance	0	0	0	0
Trails	0	0	0	0
Trees	0	0	0	As required
Turf	0	As required	As required	As required
Water Supply	0	0	0	0

Matrix 6.3-E Incompatible embellishments and minimum siting proximities of compatible embellishments

	Picnic Nodes	Sports Fields	Car Park	Bird-hide	Play Equipment	Skate Bowl	Dog Off Leash Area	Trees	Horse Trails	Cycle/ Shared Path	Pedestrian Footpath	Community Garden	Toilet	Seats	Bins	Barbeques	Drinking Fountains	Bike Racks
Picnic Nodes		20m	20m	x	10m	10m	80m	0m	x	20m	5m	10m	20m	0m	5m	5m	5m	10m
Sports Fields			25m	x	20m	20m	x	5m	x	20m	10m	25m	25m	0m	x	20m	5m	20m
Car Park				x	x	15m	x	0m	x	x	x	10m	10m	x	10m	20m	25m	5m
Bird-hide					x	x	x	0m	x	x	x	x	x	x	x	x	x	x
Play Equipment						25m	x	0m	x	15m	10m	20m	15m	5m	5m	15m	5m	5m
Skate Bowl							x	3m	x	5m	5m	20m	10m	5m	5m	15m	3m	3m
Dog Off Leash Area								0m	x	5m	x	x	x	0m	0m	x	0m	25m
Trees									x	1m	3m	25m	15m	0m	0m	30m	0m	25m
Horse Trails										x	x	x	x	x	x	x	x	x
Cycle/ Shared Path											15m	15m	x	x	10m	15m	5m	5m
Pedestrian Footpath												10m	x	0m	0m	15m	5m	5m
Community Garden													15m	0m	0m	5m	0m	5m
Toilet														x	10m	25m	5m	10m
Seats															5m	10m	5m	5m
Bins																5m	5m	5m
Barbeques																	5m	15m
Drinking Fountains																		5m
Bike racks										2m								

x = incompatible use
blank = compatible use

6.4 Technical Details for Embellishments

6.4.1 Barbeques

Barbeques shall only be installed in District Parks and City Parks. By exception, barbeques may be installed in natural areas with city/regional catchment, which are not subject to high potential bushfire hazard.

Barbeques shall:

- not be illuminated, unless in City Parks or oceanfront foreshore reserves;
- contain a secured, weather-proof power outlet;
- have a tap;
- be located in proximity to picnic units, preferably in a downwind location;
- be established in accordance with **Tables 6.3-A** through **6.3-D**.

6.4.2 Batters

Maximum batters created in public open space shall be 1V:6H (refer **Figure 6.4-A**). Maximum 1V:6H slope shall be turf or vegetated.

Any slope in excess of 1V:6H shall be revegetated or otherwise planted (refer **Figure 6.4-B**).

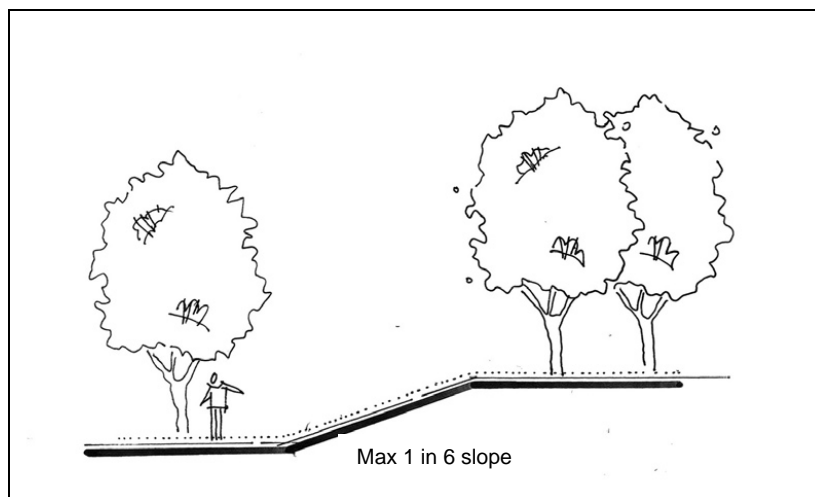


Figure 6.4-A Turfed Batter

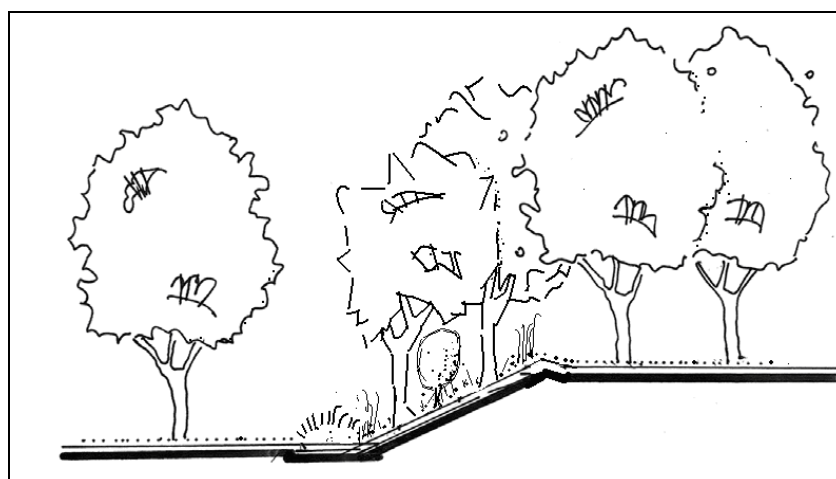


Figure 6.4-B Vegetated Batter

Batters with a height difference of greater than 2m should be avoided. Where batters of a size larger than 30m² are dedicated within public open space, these batters shall be planted at a density of two plants per square metre.

6.4.3 Bike Racks

The design, location, and construction of bicycle racks should be carried out in accordance with the **Australian Standard AS2890.3 Parking Facilities – Bicycle Parking Facilities** and **AUSTROADS Guide to Road Design Part 6A: Pedestrian and Cyclist Paths**.

Bicycle racks are to be located in District and City Parks where informal recreation facilities are located on a bikeway network and where skateboarding and other youth and sporting facilities are located (**Table 6.4-A**).

Table 6.4-A Design Requirements for Bike Racks

Park Type	Location	Rack Module Requirement
District Recreation Parks	Adjacent skate bowls and or other youth facilities and close to toilets	1 module x 6 bike racks
City Recreation Parks	Adjacent skate bowls and or other youth facilities and close to toilets	2 modules x 6 bike racks
District Sports Parks	Adjacent skate bowls or club facilities or toilets	Minimum 1 module x 6 bike racks
City Sports Parks	Adjacent skate bowls or club facilities or toilets	Minimum 2 modules x 6 bike racks

6.4.4 Bins

When provided in Recreation Parks, Sports Parks or Natural Areas bins shall be located within 30 metres of a car park or roads for ease of servicing.

Bins shall be installed at rates of provision set out in **Tables 6.3-A** through **6.3-D**.

6.4.5 Car Parks

Car park spaces in public open space shall be provided at rates set out in **Tables 6.3-A** through **6.3-D**.

Suitable species shade trees shall be installed between every sixth and seventh car parking space in public open space. Sufficient volume for root growth through provision of growing media is required and shall be designed into the project. Innovative solutions such as bio-retention planters and structural soils are encouraged.

Selected species shall be of form and habit to provide maximum shading to adjacent hard surfaces. Lines of sight shall be maintained as shown in **Figure 6.4-C**.

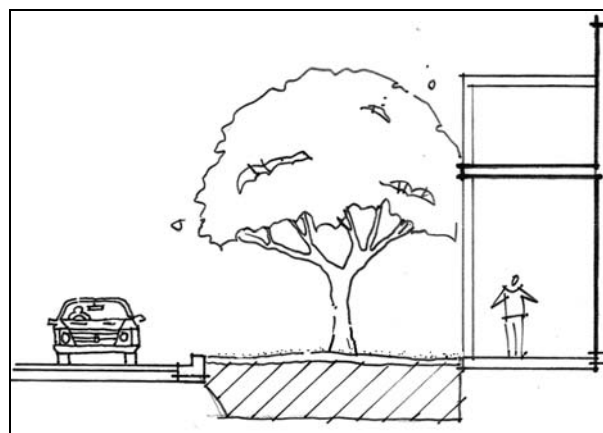


Figure 6.4-C Lines of Sight for Trees in Car Parks

6.4.6 Community Gardens

Community Gardens may contain various elements based on potential catchment as presented in **Table 6.4-B**.

Table 6.4-B Elements of Community Gardens

Catchment	Elements
Local	12 x 6 metres square plots (1 raised)
	1 lockable gate
	Shade trees
	1 Shaded seat
	Drinking fountain
	Fence
	Storage shed
	Water tank and associated equipment
District	24 x 6 metres square plots (4 raised)
	2 lockable gates
	Shade trees
	3 Shaded seats
	Drinking fountain
	Fence
	BBQ
	Storage shed
	Water tank and associated equipment
	Toilet
Shelter	
City	48 x 6 metres square plots (8 raised)
	2 lockable gates
	Shade trees
	6 Shaded seats
	Drinking fountain
	Fence
	BBQ
	Storage shed
	Water tank and associated equipment
	Toilet
	Shelter

6.4.7 Dog Off-Leash Areas

Dog off-leash areas shall be located in compatible arrangement with other embellishments in public open space. Dog off-leash areas may contain various elements based on the potential catchment as presented in **Table 6.4-C**.

Table 6.4-C Elements of Dog Off-Leash Areas

Catchment	Elements
Local	2,500 fenced square metres
	1 Double gated enclosed entrance
	Shade trees
	1 Shaded seat
	Drinking fountain (for humans and animals)
	1 dispenser and disposal bin
	Signage

Catchment	Elements
District	5,000 fenced square metres
	2 Double gated enclosed entrances
	Shade trees
	3 Shaded seats
	Drinking fountain (for humans and animals)
	2 dispenser and disposal bins
	1 Dog agility exercise node
	Signage
City	10,000 fenced square metres
	3 Double gated enclosed entrances
	Shade trees
	6 Shaded seats
	Drinking fountain (for humans and animals)
	3 dispenser and disposal bins
	3 Dog agility exercise nodes (2 for large dogs and 1 for small dogs)
	Signage

Dog off-leash areas shall be designed in accordance with **Standard Drawing N^{os} 13-05-001 to 13-05-006**.

6.4.8 Drinking Fountains

Drinking fountains should be located in, or adjacent to mulched or paved areas in high use areas, playgrounds, active play areas and along major pedestrian and bike paths in accordance with **Table 6.3-A** through **Table 6.3-D**, as well as **Matrix 6.3-A**. Drinking fountains shall be available for use by people of all abilities.

Drinking fountains shall be fitted with a flow inhibitor and automatic 'shut off' device to prevent water wastage.

Drinking fountains shall be installed at rates of provision set out in **Tables 6.3-A** through **6.3-D** and shall be designed and constructed in accordance with **Standard Drawing N^o 13-05-002**.

6.4.9 Electricity Supply

An electricity supply pillar of adequate capacity to meet the existing and future power requirements of a public open space, shall be installed at the open space boundary where required. Electricity connections shall be located within 25m of a maintenance vehicle access way to enable ease of use for maintenance purposes. The electricity connections should be located, designed, and constructed to minimise impacts on existing landform and vegetation.

Supply boxes shall be unobtrusive and contain energy metering apparatus.

All electrical installations in public open space shall be tested and certified by a suitably qualified and experienced electrical engineer.

6.4.10 Fencing

a) Safety Fencing

Galvanised tubular handrail with chain wire fencing shall be installed where there is a danger of children gaining access to hazards or hazardous areas (e.g. around stormwater drain head walls, outlets and Pollution Control Devices). Fencing in this instance is to be designed and constructed in accordance with **Standard Drawing N^o 13-05-013**.

Where co-location of play nodes and vehicular traffic cannot be avoided (the interface of roads and play nodes), pool style safety fencing shall be installed parallel with the road and returned for 3 metres along the perpendicular sides of the play nodes. The entire play node shall not be enclosed. Fencing in this instance is to be designed and constructed in accordance with **Standard Drawing N^{os} 13-05-614** and **13-05-615**.

b) General Fencing Requirements

Fencing and/or barriers shall to be provided to public open space to prevent illegal vehicle access, to demarcate private property and to provide protection from potential hazards. **Table 6.4-D** presents general fencing requirements for Recreation Parks, Sports Parks and Utility Reserves.

All fencing or barriers shall:

- Not impede hydrologic flows where installed below a flood regulation line or across an overland flow path.
- Be plumb, level, square and true.
- Be in straight alignment without dips or bumps at the top of the fence.
- Follow average height above ground level measured at 40 metres horizontal intervals along the top of the fence.

Fencing shall be designed and constructed in accordance with **Standard Drawing N^{os} 13-05-015, 13-05-016, 13-05-017 & 13-05-616**.

Where required only for vehicular exclusion, appropriate shade tree species may be established as living bollards within the bollard line. The tree shall be of minimum pot size 100L at the time of installation.

Table 6.4-D General Fencing Requirements for Recreation Parks, Sports Parks and Utility Reserves

Location	Standard
Road frontage and road reserves	Hardwood timber bollards. Steel rail lock (Standard Drawing N^o 13-05-016)
Boundary separating private property and public open space	Durable timber, masonry, galvanised steel chain/link mesh or a combination & shall be fit for purpose. a maximum of 1.2 metres high if solid/non-transparent construction; or a maximum of 1.8 metres high if 50% transparent construction.

Timber bollards shall be designed and constructed in accordance with **Standard Drawing N^o 13-05-616**. Bollards may be 600mm in height above ground in order to reduce the visual dominance of these structures in the landscape.

c) Fencing Requirements Specific to Natural Areas

Fencing and/or barriers shall be provided to Natural Areas to prevent illegal vehicle access, to demarcate private property, to provide protection from potential hazards and to ensure fauna movement is not hindered. Where the natural slope or density of vegetation within the natural area is believed to prevent access, the developer or their representatives may propose that fencing and vehicle exclusion are not required, within the Operational Works application. A determination of the need for fencing and vehicle exclusion will then be made through the approval process. **Table 6.4-E** presents fencing requirements for Natural Areas.

Table 6.4-E General Fencing Requirements for Natural Areas

Location	Standard
Road Frontage	Hardwood timber bollards. Steel rail lock (Standard Drawing N^o 13-05-016)
Entrances to Recreation Trails or bushfire Trails	Hardwood timber bollards. Steel rail lock (Standard Drawing N^o 13-05-016 or 13-05-605)
Interface between a Natural Area and a large intact area of native vegetation	Boundary markers at each change in direction along property boundaries
Boundary separating private property and public open space in rural areas	A four strand wire and star picket or
	A continuous two or three rail barrier fence (not a combination of two and three rails) where unauthorised or illegal access into a Natural Area is suspected or known to occur (Standard Drawing N^o 13-05-604).
Boundary separating private property and public open space in urban areas	Durable timber or masonry fencing:
	a maximum of 1.2 metres high if solid/non-transparent construction or a maximum of 1.8 metres high if 50% transparent construction.

A continuous three rail barrier construction shall be designed and constructed in accordance with **Standard Drawing N^o 13-05-604**.

6.4.11 Gates

a) General Requirements for Gates

Gates for timber bollards shall be designed and constructed in accordance with Standard Drawing Numbers **13-05-016** and **13-05-616**.

b) Natural Areas

Gates shall be installed at minimum intervals of 5km along fences in Natural Areas. Gates shall be adequately supported with braced fence panels as required. Horse step throughs shall be installed as required in **Table 6.3-C**.

Gates in Natural Areas shall be designed and constructed in accordance with **Standard Drawing N^{os} 13-05-605** and **13-05-016**.

Fence panels adjacent to gates shall be designed and constructed in accordance with **Standard Drawing N^{os} 13-05-612** to **13-05-615**.

Horse step throughs shall be designed and constructed in accordance with **Standard Drawing N^{os} 13-05-607** and **13-05-608**.

c) Gate Locking Devices

Gate locking devices shall be installed on all gates installed at public open space. Gate locking devices shall be installed by the developer in accordance with **Standard Drawing N^o 13-05-017**.

6.4.12 Park Maintenance Access and Emergency Vehicle Access

One or more primary public access points shall be provided at strategic locations along the road frontages of a public open space. Various access control devices, or combinations of access control devices shall be used to guide vehicular, pedestrian, cycle and other transport modes.

a) Standard Primary Access Points

Primary public access points should be designed and located in accordance with the following principles:

- Separate pedestrian and vehicular access points.
- Separated from residences where possible.
- Pedestrian access is to be designed in accordance with **Australian Standard AS 1428 – Design for Access and Mobility** (e.g. continuous accessible path of travel) and comply with the Human Rights Commission Advisory Notes on Access to Premises (including parks).
- Integrate park access to adjacent developments such as transport nodes, schools, shops and community facilities; and with other movement networks such as paths and roads and anticipated desire lines.
- Incorporate other elements to emphasise entry points such as signage.
- Where a public access road or car park may be closed at night a metal lock gate shall be installed in accordance with **Standard Drawing N^o 13-05-017**.

b) Horse Step Through

In most Natural Areas public access points shall be co-located with the entry to maintenance and/or bushfire management trails. Where this occurs, public pedestrian access shall be guided through horse step throughs in association with park access gates.

All horse step throughs within Natural Areas shall be installed at rates of provision set out in **Tables 6.3-A** through **6.3-D**, and shall be designed and constructed in accordance with **Standard Drawing N^{os} 13-05-607**, and **13-05-608**.

6.4.13 Irrigation Systems

a) General

This section shall be read in conjunction with **Section 3.8** of these Land Development Guidelines.

Reticulated, recycled or captured rain water are highly preferable sources of water for use in irrigation.

Relevant plumbing approvals shall be sought and provided for all water infrastructure.

Plan layout, design criteria, materials to be used system tolerances, and the results of existing water quality tests shall be submitted to Council prior to Council approval of an irrigation system plan and design. Post installation testing of the system and water quality shall be submitted to Council prior to Council acceptance of the irrigation system.

b) Sports Playing Fields

A bore-fed or recycled water (where acceptable water standards can be sustained) irrigation system and associated tanks and pumps shall be established for all areas of play on multi-purpose pitches. The use of potable water for irrigative purposes is undesirable.

Irrigation systems for sports playing fields in public open space shall be designed and constructed in accordance with **Standard Drawing N° 13-05-019**.

6.4.14 Lighting

Design and installation of lighting shall be undertaken by a suitably qualified lighting technician, in consultation with Council. At a minimum lighting design shall comply with the following Australian Standards:

- **Australian Standard AS4282 – Dark Surrounds**
- **Australian Standard AS1158 – Traffic Issues/ Obtrusive Lighting**

Recreation Parks and Sports Parks shall be appropriately and consistently lit to suit the use of the open space, and comply with the following:

- Enable identity recognition at a minimum distance of fifteen metres (15m) (refer **Figure 6.4-D**).
- Illuminate signage, key bicycle and pedestrian routes in accordance with the minimum **Australian Standard AS1158 – Public Lighting Code**.
- Not cause spill nuisance to adjacent dwellings (refer **Figure 6.4-E**).
- Light fixtures shall be mounted high and protected from vandalism.

Alternative power sources are preferable for lighting located within public open space.

Installation of electrical cabling shall not impact upon retained vegetation. Appropriate forms of installation shall be utilised where impacts are likely, in accordance with **Australian Standard AS4970 – Protection of Trees on Development Sites**.

Power supply for pathway lighting shall be underground and the lighting shall be on Rate 2 Tariff.

In pathways between allotments or in close proximity to allotments, cut-off luminaires shall be required to prevent glare problems to the adjacent houses.

A street light shall be provided:

- At the entrance to each pathway (may be an existing or proposed street light).
- At every bend or change of alignment greater than 200 metres.
- At every obstruction or hazard, for example a bridge or stairway.

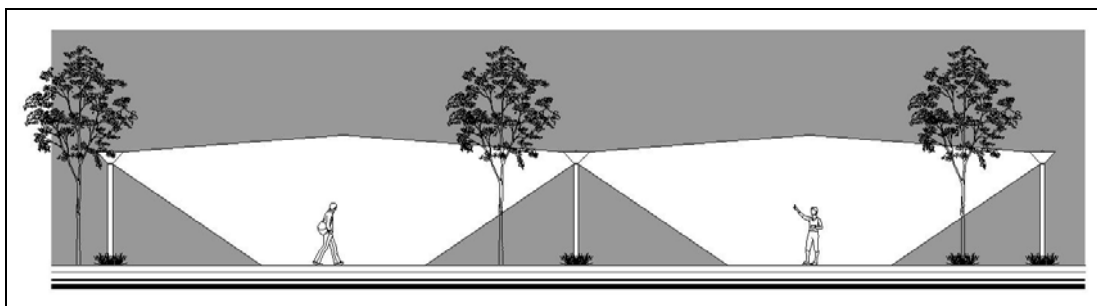


Figure 6.4-D Identity Recognition at 15 Metres

To avoid night-time nuisance, high use areas such as play ground equipment shall not be lit.

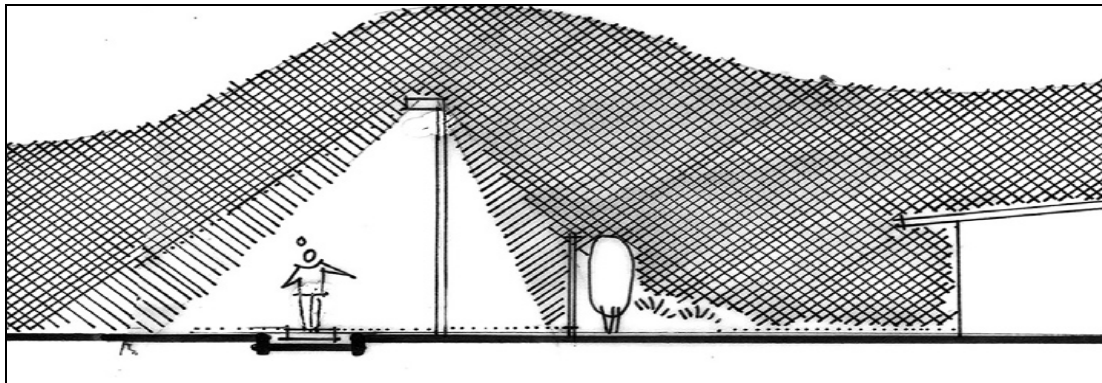


Figure 6.4-E Path and Lighting Arranged to Avoid Spill onto Adjacent Dwellings

The lighting of all playing fields shall comply with **Australian Standard AS2560.2.3 – 2002 Sports Lighting Part 2.3 Lighting for Football (all Codes)** for training and competition matches.

There shall be a minimum of 40 metres separation between lit facilities and residential allotments. Car parking and road layout requirements can be incorporated into buffer distances from playing fields.

6.4.15 Maintenance Taps

Taps should be provided in a park for maintenance of infrastructure, turf and landscaping.

Maintenance taps are only required where a reticulated water supply or pressurised potable water supply is available. Maintenance taps shall:

- Include a 20mm Council vandal proof hose tap fitting.
- Be located within 10m of the landscaping, turf or infrastructure to be maintained.
- Not pose a trip hazard.
- Not interfere with maintenance activities, such as grass mowing.
- Be co-located with BBQs or drinking fountains.

Maintenance taps in public open space shall be installed at rates of provision set out in **Tables 6.3-A through 6.3-D** and shall be designed and constructed in accordance with **Standard Drawing N° 13-05-003**.

6.4.16 Paths

Paths shall only be installed on slopes with a maximum longitudinal slope of 1:14 (H:V) except where otherwise approved. Path dimensions shall comply with criterion set out in **Table 6.4-F**.

Table 6.4-F Path Dimensions in Public Open Space

		Width (metres)
Recreation Park	Local	2
	District	2
	City	2
Outdoor Recreation		-
Linkage Park		2
Sports Park	District	2
	City	2
Natural Area	Low/ Local Use	-
	Moderate/ District Use	-
	High/ Citywide/ Regional Use	-
Utility Reserve	Water Body/ Canal	-
	Utility Reserve	-
	Waterway/ Drainage Reserve	-
	Landscape Amenity Parks	-

All paths within District Parks and City Parks shall be designed and constructed in accordance with **Standard Drawing N° 05-02-401**. Where paths are connected to or form part of the District or City level pedestrian/cycle transport network, the paths shall be constructed at widths determined by their intended use (refer to **section 3.4.23** of this guideline).

6.4.17 Picnic Nodes and Units

The type of picnic node provided in a park shall be consistent with the park. The standards for provision of furniture in picnic nodes are listed in **Table 6.4-G**.

Table 6.4-G Picnic Nodes

Open Space Category	Standard
Natural Area	Provided by exception
District Parks	2 x double electric barbecues (refer Standard Drawing No 13-05-018) 1 x picnic shelter per barbecue plate 1 x refuse bin per picnic node 1 x tap and 1 x drinking fountain per barbecue
City Parks	2 x double electric barbecues (refer Standard Drawing No 13-05-018) 1 x picnic shelter per barbecue plate 1 x refuse bin per picnic node 1 x tap and 1 x drinking fountain per barbecue

Paved areas under shelters shall extend 500mm beyond the extent of the shelter roof drip line. Picnic node furniture shall be designed and constructed in accordance with **Standard Drawing N°s 13-05-501 to 13-05-539**.

Picnic nodes shall:

- Be located at focal points, or adjoining features, or places of special interest.
- Complement and enhance other recreation opportunities in a park.
- Designed for daytime use only and promote passive surveillance through clear lines of sight from adjoining land uses and within the open space itself.
- Be located above Q100 minimum flood inundation levels.
- Be accessible by all weather vehicles for regular cleaning and maintenance.

Alternative technologies (e.g. solar energy) shall be used where conventional technologies are not readily available.

An indicative layout for a picnic node layout is presented in **Figure 6.4-F**.

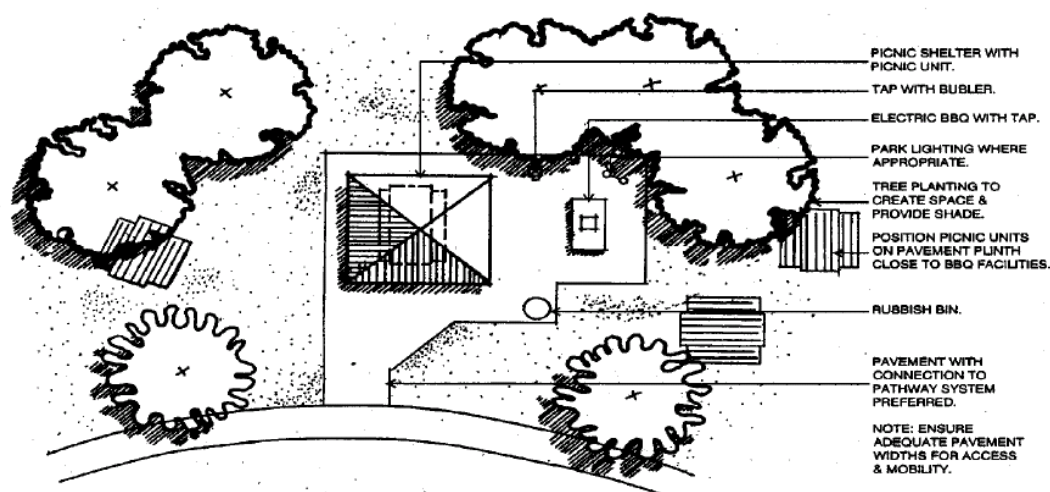


Figure 6.4-F Indicative Picnic Node Layout

6.4.18 Play Nodes

Play equipment in public open space shall be provided at rates set out in **Tables 6.3-A** through **6.3-D**. Play nodes shall conform to standards set out in **Table 6.4-H**.

Table 6.4-H Play Node Standard Embellishments

Park Type	Standard
District Parks	1 node consisting of minimum 3 play modules
	Each node shaded by a temporary, manmade shade structure and trees
	Suitable/compliant under surfacing
	Pool type fencing installed at the interface of roads and play node
	Provide equitable access
	Min 2 naturally shaded seats per activity node
	Min 1 picnic shelter and picnic unit per play node
	Drinking fountain
City Parks	2 node consisting of minimum 6 play modules
	Each node shaded by a temporary, manmade shade structure and trees
	Suitable/compliant under surfacing
	Pool type fencing installed at the interface of roads and play node (refer Standard Drawing No 13-05-614)
	Provide equitable access
	Min 2 shaded seats per activity node
	Min 1 picnic shelter and picnic unit per play node
	Drinking fountain

Play equipment shall be designed, manufactured, installed and certified to comply with **Australian Standard AS4685 – Playground Equipment Safety** and **AS/NZS 4486 Playgrounds and Play Equipment**.

The innovative use of elements of natural and unstructured play equipment within public open space is considered highly desirable.

6.4.19 Under-Surfacing

Under-surface shall be installed under all playgrounds as an impact attenuation treatment. Under-surfacing of playgrounds shall:

- Comply with **Australian Standard AS/NZS 4422 – Playground Surfacing**.
- Be chipped bark with rubber-based matting on impact zones or be rubber-based material.
- Be graded to drain at on gentle fall (maximum 1V:50H) to the outer edges of the playground, away from fall zones and areas of high traffic or activity.
- Be designed to avoid and be protected from overland flow and erosion.
- Incorporate drainage treatment around the outer edge or below the under surfacing area consisting of a robust plastic agricultural drain fitted with a filter sock, which drains to a stormwater system, soakage pit, or dispersal structure.
- Incorporate a moulded border around the perimeter of the playground node, the outer side of which is to finish flush with the surrounding finished surface levels to avoid trip hazards.
- Complement the location, colours and texture of the playground and play equipment.

All chipped bark under-surface medium shall:

- Be screened 5mm to 10mm pine bark;
- Comply with the depth requirements for fall heights as set out in **Australian Standard AS/NZS 4422 – Playground Surfacing**.
- Completely cover fixings and anchors.

Rubber-based matting on impact zones shall be:

- Pre-formed matting or wet pour synthetic.
- Installed under all fall and impact zones (e.g. swings, slippery dip exits, fireman’s poles, and extend the length and width of a flying fox unit including entry and exit).

6.4.20 Public Art

Public art in public open space shall be provided at rates set out in **Tables 6.3-A** through **6.3-D**. The commissioning and installation of public art in public open space shall be only undertaken through consultation with officers from Council's Parks and Recreational Services Branch.

6.4.21 Rehabilitation

a) Natural Areas Rehabilitation

Rehabilitation within Natural Areas shall be undertaken for the purposes of restoring ecosystem structure, function, dynamics, health and integrity associated with existing and pre-clearing vegetation communities on a site.

There are 4 rehabilitation approaches:

1. **Natural regeneration**
2. **Assisted regeneration**
3. **Reconstruction**
4. **Fabrication (type conversion)**

The rehabilitation approach used will be dependent on the issues present for each specific Natural Area. **Figure 6.4-G** and **Table 6.4-I** provide further guidance for determining which rehabilitation approach shall be applicable. Note that more than one approach may be required within a Natural Area.

In addition to the use of single or multiple rehabilitation approaches, it may also be necessary to identify work zones within a Natural Area. Zones shall often be appropriate on larger (more than 2 hectares) and more complex Natural Areas involving different vegetation communities and/or different rehabilitation treatments. Determining the location of zones should be made through the rehabilitation planning process.

Note that anticipated outcomes shall vary depending upon the vegetation community being restored and the level of disturbance (refer **Table 6.4-I**). Rehabilitation planning shall be undertaken by an experienced and suitably qualified rehabilitation planning consultant and rehabilitation works shall be conducted by experienced and suitably qualified bush regenerators or ecological restorationists.

Table 6.4-I: Detailed Description of Rehabilitation Approaches

Natural Regeneration	Assisted Regeneration
<p>Applies:</p> <ul style="list-style-type: none"> ▪ To relatively large, intact and weed-free areas of native vegetation. ▪ Where the native plants are healthy and capable of regenerating without human intervention. ▪ When native plant seed is stored in the soil or shall be able to reach the site from nearby natural areas, by birds or other animals, wind or water. ▪ Where the plant community has a high potential for recovery after any short-lived disturbance, such as a fire or cyclonic winds. ▪ When preventative action is all that is required to avert on-going disturbance, e.g. erection of fencing to prevent intrusion by cattle. ▪ Where the re-establishing plant community shall be similar in structure, composition and diversity to the original vegetation. <p>Note: <i>Planting in such sites can work against the aims of restoration by interfering with natural regeneration.</i></p>	<p>Applies:</p> <ul style="list-style-type: none"> ▪ To natural areas where the native plant community is largely healthy and functioning. ▪ When native plant seed is still stored in the soil or shall be able to reach the site from nearby natural areas, by birds or other animals, wind or water (i.e. where a site exhibits resilience). ▪ Where the natural regeneration processes (seedling germination, root suckering, etc.) are being inhibited by external factors, such as weed invasion, soil compaction, cattle grazing, mechanical slashing, etc. ▪ When limited human intervention, such as weed control, minor amelioration of soil conditions, erection of fencing, cessation of slashing, etc. shall be enough to trigger the recovery processes through natural regeneration. ▪ When the major component is weed control. ▪ Where the re-establishing plant community shall be similar in structure, composition and diversity to the original vegetation. <p>Note: <i>Planting in such sites can work against the aims of restoration by interfering with natural regeneration.</i></p>

Reconstruction	Fabrication (Type Conversion)
<p>Applies:</p> <ul style="list-style-type: none"> ▪ Where the site is highly degraded or altered. ▪ When the degree of disturbance has been so great and for long-standing that the pre-existing native plant community cannot recover by natural means. ▪ To sites such as areas of fill, sites affected by stormwater flow, changed hydrological conditions and areas that have been drastically cleared, either mechanically or by stock even though there may be a few remaining native trees or shrubs. ▪ When a greater degree of human intervention is required, such as weed control, cessation of grazing and/or slashing, amelioration of soil conditions such as importation of soils, drainage works or reshaping of the landscape. ▪ When a major component is the importation of local native species through planting. ▪ Where the re-establishing planted community should be similar to the original vegetation in structure, composition and diversity as well as addressing changed conditions or threats to landscape by appropriate species selection and placement. 	<p>Applies:</p> <ul style="list-style-type: none"> ▪ Where site conditions have been irreversibly changed. ▪ When it is not possible to restore the original native plant community. ▪ Where a better-adapted local plant community can be planted that shall function within the changed conditions. ▪ In situations such as the construction of a wetland plant community to mitigate increased urban stormwater run-off. ▪ Where the re-establishing planted community should be similar to a naturally occurring plant community of the same type, for example, freshwater wetlands, in structure, composition and diversity. <p>Note1: <i>Revegetation (planting) is the major component in a fabrication program.</i></p> <p>Note2: <i>Sometimes a combination of approaches is required. For example, when remnant native vegetation is surrounded by cleared and degraded lands, an assisted natural regeneration approach is appropriate for the remnant and a reconstruction approach for the surrounding lands. If increased stormwater run-off is a threat to the recovery of these areas, it may be necessary to establish a wetland plant community (fabrication) that shall slow run-off and increase nutrient uptake, thus improving the quality of water entering surrounding areas, a natural area or waterway etc.</i></p>

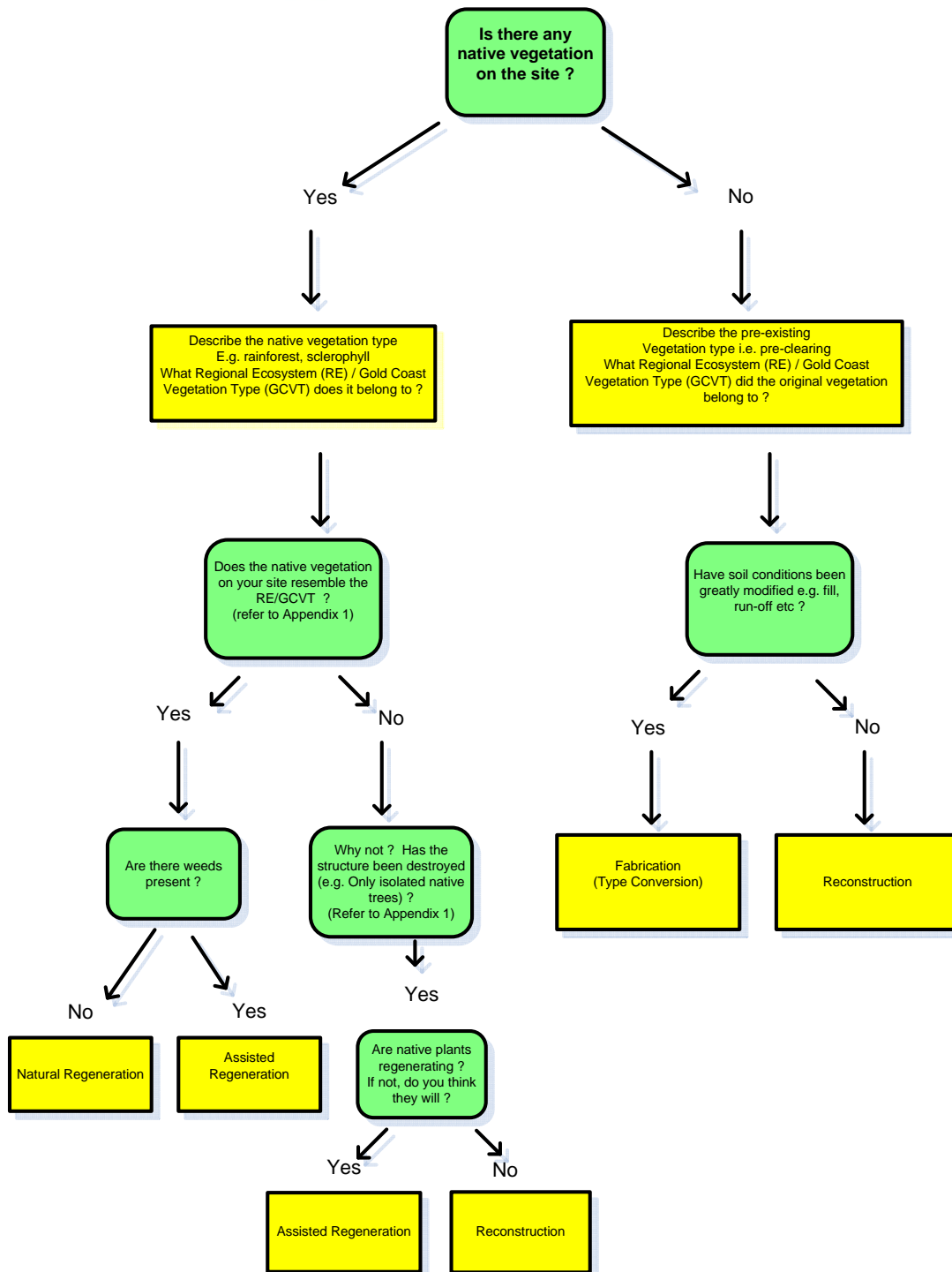


Figure 6.4-G Site Rehabilitation Approach Selection

b) Weed Control in Natural Areas

The weed control and rehabilitation process shall follow stages presented in **Table 6.4-J**.

Table 6.4-J Weed Control Stages for Rehabilitation Works

Weed Control Stage	Description
Primary Weed Control	Involves initial weed control and rarely entails the removal of all weed species at once, but rather the selective and strategic removal of weeds based on information gathered through site assessment and rehabilitation planning.
Secondary Weed Control	Follows the completion of primary work and is a vital stage in the regeneration process. During this stage it is necessary to correctly manage the growth of not only weed species on-site, but also regenerating natives.
Maintenance and Follow-up Weed Control	This is the final stage in rehabilitation. In order to ensure primary and secondary work is successful, ongoing maintenance and follow-up weed control is essential. The frequency and duration of this process shall vary according to the resilience of native vegetation, the shape of the reserve, viability of weed seed in the seed bank, the proximity of weed sources for reinfestation to the site, the type of weeds impacting the site and the skill level of workers.

6.4.22 Retaining Structures

Retaining structures in excess of one (1) metre high shall not be created in, or directly abutting public open space. Retaining structures created in public open space shall be:

- Constructed of solid masonry (not rock or dry walling).
- Be free of hollows or cracks in which vermin or snakes may dwell.
- Designed in accordance with **Australian Standard AS4678 - Earth Retaining Structures**.
- Buffered by landscape planting.
- Reflect the theme or character of its surrounding landscape.

Multiple or tiered retaining structures shall not exceed 1.8 metres high within a 30 metre wide horizontal plane.

Where the need for a change in level adjacent to a public open space is required the high side of the road shall be retained within private lots. The difference in levels adjacent to the public open space shall be no more than 500mm. Residual difference in levels shall be dispersed across the road reserve (nature strips and centre median), which if in excess of 1H:6V shall be vegetated.

Retaining structures to be dedicated to Council shall be designed and certified by a Qualified Engineer for a minimum asset life of 60 years.

Retaining structures within public open space shall be designed and constructed in accordance with these land development guidelines.

6.4.23 Seats

Seats in public open space shall be provided within shaded areas and orientated towards scenic views, play equipment and at rates prescribed in **Table 6.3-A** through **Table 6.3-D**.

Where shaded areas are not present, shade tree planting shall be incorporated to provide future shade for all seats and seating areas.

Seats shall be designed and installed in accordance with **Standard Drawing N^{os} 13-05-501, 13-05-502, 13-05-504, 13-05-506, 13-05-507, 13-05-508, 13-05-511, 13-05-512, 13-05-514, 13-05-516, 13-05-517, 13-05-518, 13-05-520, 13-05-521, 13-05-523, 13-05-525, 13-05-526 and 13-05-527**.

6.4.24 Sewer

A connected sewer shall be provided where toilet blocks or other relevant approved embellishments that require plumbing into the sewer network. Where a future sewer connection is required within the public open space a sewer connection shall be:

- Provided at the open space boundary if public toilets or buildings are to be constructed in the open space.
- Located at the closest point to the proposed development site in the open space.
- Marked with a service indicator attached securely to a bollard, or other permanent marker, such as a steel post.

Sewer installation shall be designed and constructed in such a way as to protect retained vegetation, including singular trees.

6.4.25 Shade Structures

Play equipment should take advantage of natural shade cast by existing trees wherever possible. Where natural shade to play equipment is not immediately available shade structures shall be installed. Shade structures shall be slightly offset to the north and west of clusters of play equipment to reduce heat and harmful effects of UV radiation during the peak levels expected between 10am and 3pm.

Conical barrier plates (anti-vandal) shall be fixed at the top of each supporting arm of the shade structure to discourage climbing of the framework and damage to the surface of the shade cloth.

Shade structures shall be designed, manufactured, installed and certified to comply with **Australian Standards AS1170.2 – Structural Design Actions Wind Actions** and **AS4100 Steel Structures**.

Shade structures are temporary installations. Shade trees shall be planted that replace the need for a shade structure within five-ten years of the commencement of a designated 'Establishment Period'.

Shade tree species and pot size shall be selected to ensure the achievement of a shaded play node within the specified time frame whilst remaining relevant in the selection to the surrounding natural vegetation communities and locally occurring species.

6.4.26 Signage

Signage shall be installed in strategic locations in public open space in accordance with **Table 6.4-K**.

Directional signs shall orientate users in relation to exit/entry, park facilities and features of interest.

Site maps shall graphically represent the public open space.

Descriptive and interpretive signs shall relate relevant information about a public open space.

Regulatory and warning signs shall advise about local laws and statutory obligations, safety and property threats.

All signs must be clear, legible, visible and accessible.

Table 6.4-K Locations for Signage Types

	Directional Signs	Site Maps	Descriptive and Interpretive Signs	Regulatory and Warning Signs
Where park entry/exits are obscured	District and City Parks	By exception	By exception	By exception
Any location in excess of 500 metres from an entry/exit	District and City Parks	By exception	By exception	By exception
At 500 metres intervals	Linkage Parks and Trails	By exception	By exception	By exception
At main Entry/Exit Points	City Parks	City Parks	By exception	All parks
At intersections of paths and at forks on routes	Linkage Parks and Trails	By exception	By exception	By exception
Adjacent heritage and ecological features of interest	By exception	District and City Parks	District and City Parks	By exception
Advise how to report maintenance or vandalism problems in the area	By exception	By exception	By exception	District and City Parks
Private property vandalism and theft warnings	By exception	By exception	By exception	Foreshore Reserves, District and City Parks

6.4.27 Sports Playing Fields

Sports playing fields shall:

- Have a minimum field surface camber of 1% from the centre of the surface outwards. The camber shall be created beneath the required growing media (i.e. soil). Flat surfaces are not acceptable in any circumstance.
- Have a minimum of 300mm growing media profile with a consistent camber as nominated above.
- Have growing media with a drainage rate of 10mm/hr to 200mm/hr, a pH of 6.5 to 7.0, and have an even range of friable soil particle size that limits compaction, loss of drainage capabilities and which encourages healthy, vigorous root development.
- Provide for 100% turf coverage.
- Have any supporting drainage infrastructure designed to accommodate the intended use of the field.
- Have no drainage pit located along the perimeter of a specific sporting field where it overlaps with another sporting field. Any extra surface field drainage shall meet the satisfaction of a qualified sports drainage consultant after tests of soil quality and characteristics.
- Have pitches oriented in a north/south direction.
- Council's standard dimensions for sporting fields are provided in **Table 6.4-L** (exclusive of spectator areas and clubhouse requirements), and layout in **Figure 6.4-H**.

Table 6.4-L Standard Dimensions for Sports Playing Fields

Sport	Pitch Dimensions	Hard surface Clearance/runoff	Total Dimensions ¹	Rotational Area ²
AFL	185m x 155m	Min 5m from pitch perimeter	195m x 165m	5m x 5m
Cricket ³	138m x 119m	Min 5m from pitch perimeter	148m x 129m	6m x 2m ⁴
Soccer	110m x 75m	Min 2 x 5m	130 x 85m	5m x 5m
Rugby Union	144m x 69m	Min 2 x 5m	154m x 79m	5m x 5m
Rugby League	122m x 69m	Min 2 x 5m	132m x 79m	5m x 5m
Touch	76m ⁵ x 50m	Min 2 x 5m	86m x 60m	5m x 5m

Notes:

- 1** Spectator areas to be added to total area dimensions.
- 2** Rotational areas to added to total area dimensions.
- 3** Longitudinal centre of crease to parallel pitches shall be 6.83m, and shall be in accordance with Standard Drawing Numbers 13-05-008 and 13-05-009.
- 4** 6m for crease width rotation.
- 5** Includes 2 x 3m for in goal area.

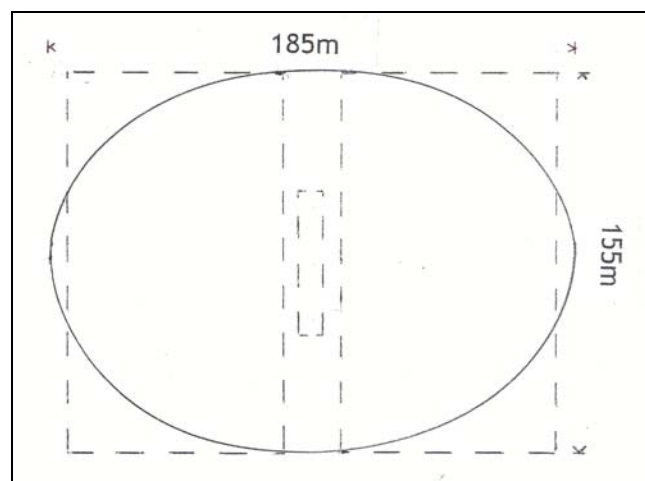


Figure 6.4-H Sports Playing Field Dimensions

Electrical supply shall provide suitable capacity to cater for 200 lux lighting for sports fields if required at a later date i.e. installation of conduits and underground infrastructure to accommodate lighting in an appropriate locale.

6.4.28 Public Toilets

Public toilet infrastructure within public open space shall be designed, located and constructed in accordance with the following broad design parameters:

- Form and materials respond to the local site character e.g. is the site in a high use tourist area or a small pocket park.
- Designed to reduce vandalism and maintenance.
- Utilise fixtures and fittings that Council can easily maintain or readily replace as needed.
- Be of a contemporary design and less liable to date.
- Designed to allow for flexibility to facilitate only superficial renovations over time where required without the need to undertake major structural renovations.
- Be safe, accessible and user friendly (ultimate is to exceed compliance with CPTED and DDA requirements).
- Located within reasonable proximity to a car park or other source of demand.
- The facility is 'grounded' in the site landscape setting by the use of minor landscape works.
- Incorporate energy efficiency initiatives.
- Constructed above the flood inundation level of a flood event that has an Annual Exceedance Probability (AEP) of 1% (probability of 0.01 or a likelihood of 1 in 100 of the event occurring in any one year).

Prior to the commencement of the conceptual design of any public toilet infrastructure written agreement from the Parks and Recreational Services Asset Custodian is required addressing the following matters:

- Location and orientation (typically public amenity buildings shall not be provided within 400m of non-Council facilities that are freely available to the public.
- Facility requirements e.g. number of gender unisex ambulant and PWD facilities, if a separate change room and showers are required, and number of basins.
- Whether the facility is of a 'high' or 'standard' profile e.g. materials, finishes, landscaping, form etc.
- Is security lighting required.
- Is the facility to provide 24 hour access or have restricted access.
- Sustainability requirements.
- Modular space design public convenience shall be provided at the rates and standards in **Table 6.4-M**.

Table 6.4-M Public Convenience Rates and Standards

		Public Convenience	Standard
Recreation Park	Local	0	-
	District	1 per 5ha	2 male + 2 female + 1 disabled cubicles + change room
	City	1 per 5ha	2 male + 2 female + 1 disabled cubicles + change room
Outdoor Recreation		0	-
Linkage Park		0	-
Sports Park	District	1 per 5ha	2 male + 2 female + 1 disabled cubicles + change room
	City	1 per 5ha	2 male + 2 female + 1 disabled cubicles + change room
Natural Area	Low/ Local Use	0	-
	Moderate/ District Use	0	-
	High/ Citywide/ Regional Use	0	-

		Public Convenience	Standard
Utility Reserve	Water Body/ Canal	0	-
	Utility Reserve	0	-
	Waterway/ Drainage Reserve	0	-
	Landscape Amenity Parks	0	-

6.4.29 Trees

a) Tree species selection

The selection of tree species for public open space shall consider the following:

- Preference for local endemic species selected from the site's vegetation types or which are part of the nearby natural landscape.
- Species morphology match the site's spatial restrictions, with consideration and provision for both under and above ground requirements of the particular tree.
- Climatic and growth habit of the plant match the site's features (provision of shade, habitat etc).
- Soil/ Sub-soil type and conditions.
- Health and safety requirements of the public open space (for example, allergenic or toxic properties).
- Not be a known environmental weed, be a species that performs poorly in the location in question, have disease or pest problems (provision of sufficient usable soil volume for root growth of native species with invasive roots).
- Maintenance and water requirements of the species relative to the site.

Where species meet the above requirements, priority shall be given to endemic species in the first instance, then native species from the south-east Queensland bioregion, and productive and useful species before exotic species.

Species identified as undesirable in the following documents shall not be utilised:

- **Gold Coast Planning Scheme Policy 13: Landscape Strategy Part 2 - Landscape Works Documentation Manual.**
- Declared Plants of Queensland Fact Sheet (which forms part of the **Land Protection (Pests and Stock Route Management) Act 2002**) (http://www.dpi.qld.gov.au/4790_7023.htm).
- Declared Plants of NSW list (<http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/noxweed/>).

Council's Parks and Recreational Services Branch shall direct species selection where master planning has been undertaken and shall guide plant selection in all other areas.

b) Tree Installation

Trees shall be:

- Located in accordance with **Planning Scheme Policy 13: Landscape Strategy Part 2 Landscape Works Documentation Manual.**
- Installed without hard edging.
- Planted in accordance with industry best practice.
- Positioned to provide shade (refer **Figure 6.4-I**).
- Planted in accordance with **Standard Drawing N° 13-05-010.**

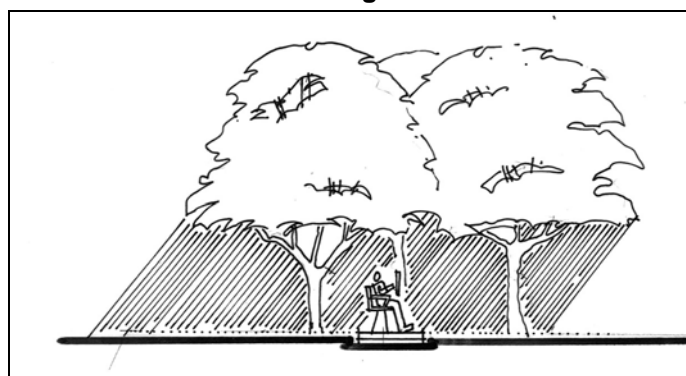


Figure 6.4-H Tree Positioned to Provide Shade

- Mulched where clustered.
- A minimum of four (4) metres apart to allow easy access for mowing machinery (refer **Figure 6.4-J**).
- Located at a distance from structures reflective of their mature size and growth characteristics and in order to prevent damage to building foundations.
- Of more advanced stock in high use activity areas to create an immediate visual impact, as well as amenity, habitat and shade.

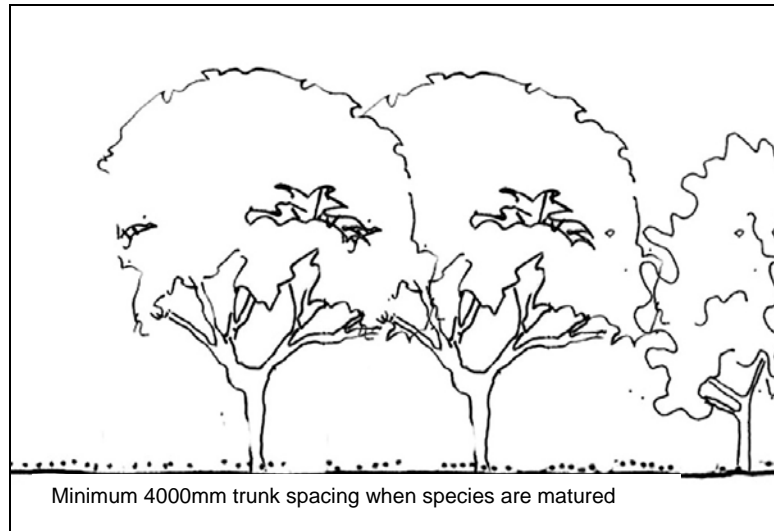


Figure 6.4-J Tree Spacing

The standard minimum tree spacing distances in Recreation Parks, Sports Parks (except playing fields) and Utility Reserves is four (4) metres centre to centre plus normal trunk girth for specific species at 20 years maturity.

Refer **Gold Coast Planning Scheme Policies 12 and 13 – Landscape Strategy (Part 1 and 2)** for further detail.

c) Tree Protection

Trees that are to be retained within a site, and/or external to the site where affected by works associated with the provision of public open space shall be protected in accordance with **Australian Standard AS4970 – Protection of Trees on Development Sites**.

A completed site analysis is to be provided to Council identifying any trees (within and/or external to the subject site) that may be affected by any works relating to the site and the proposed public open space.

'Tree Protection Zones' and 'Structural Root Zones' shall be identified and protected via the use of temporary fencing prior to any work commencing on the site.

Removal of vegetation from public open space, including the road reserve, due to insufficient planning and design is not acceptable.

6.4.30 Turf

Turf shall be weed free.

The perimeter of turf areas shall have 'Spade Cut' or 'Sprayed' edges. Hard edging such as continuous concrete edging or timber edging is not appropriate.

The hydro-seeding of turf, or via a similar method, is not to be used to provide lawn grass cover.

Within the road reserve, turf shall be laid and established for the full width of the reserve, that is, from back of kerb to the property boundary, in a continuous swath. This also applies to the road frontage adjacent to public open space.

6.4.31 Water Supply

Where available, reticulated and recycled water sources shall be installed to points within public open space. All water provided from Council's reticulated water supply system shall be metered and any irrigation systems shall comply with the back-flow prevention requirements of **Australian Standard AS3500 – Plumbing and Drainage**.

Water tanks and trickle feed systems shall be used in community gardens, and at community facilities and club houses.

A 25mm water service connection shall be installed at the boundary of public open space with a water meter and vandal proof water tap. Water supply connections shall be located within 25 metres of a maintenance vehicle access driveway to enable easy access for maintenance purposes. Water supply connections shall be located, designed and constructed to minimise impacts on existing landform and vegetation. All pipes, fittings and joint seals shall comply with **Australian Standard AS4020 – Testing Of Products For Use In Contact With Drinking Water**.