Landscape Development Guidelines 2020

City of Kwinana

Document Control

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Contents

Introduction

The purpose of the Landscape Development Guidelines is to provide Developers and Landscape Architects with guidance in relation to the design, installation and maintenance of landscape areas within the City of Kwinana.

The Guidelines have been developed with the aim of ensuring appropriate equipment, infrastructure and materials are selected, and landscape areas are designed with consideration for efficient and cost-effective asset management.

This document applies to all proposals for landscape development within road reserves and POS, where the management of the landscape area will be handed over to the City of Kwinana.

The document consist of two sections, summarised as follows:

Section A – Landscape Development Process

Provides an outline of the City's landscape development process and the requirements associated with each stage.

Section B – Landscape Design

Provides guidance for the design and installation of landscape assets within the City.

Related Policies and Documents

The City of Kwinana has a number of policies and documents which relate to landscape design, as outlined in the table below. City documents are available on the City of Kwinana website.

Relevant Documents
Policy
Access and Equity
Advertising and Directional Signage in Thoroughfares and on Local Government Property
Conservation of Remnant Vegetation
Public Open Space
Verge Treatments and Trees on City Managed Land
Local Planning Policy No.1 - Landscape Feature and Tree Retention
Local Planning Policy No. 2 - Streetscapes
Local Planning Policy No. 7 - Uniform Fencing
Local Planning Policy No. 8 - Designing out Crime
Local Planning Policy No. 9 - Advertising Signage
Guidelines
City of Kwinana Landscape Development Guidelines 2020
City of Kwinana Irrigation Development Guidelines 2019
City of Kwinana Parks Maintenance Standards 2020
City of Kwinana Tree Selection Guide
Standard Drawings
Standard Drainage Drawings
Standard Road and Kerb Drawings
Standard Crossover Drawings
Standard Irrigation Details Drawing
Standard Landscape Details Drawing
Standard Fencing Details Drawing
External Documents
IPWEA Local Government Guidelines for Subdivisional Development
Utility Providers Code of Practice for WA

Australian Standards

All POS and streetscapes are to be designed in accordance with all relevant Australian Standards. Please note that compliance with Australian Standards does not guarantee approval by the City, as risk and ongoing maintenance requirements will also be evaluated when assessing proposals. The following is a list of Australian Standards commonly relevant to public landscape design, however the list is not exhaustive and other standards may be relevant. It is the responsibility of the designer to adhere to all relevant Australian Standards.

Australian Standards
AS 1428.1-2009 : Design for Access and Mobility - General Requirements for Access – New Building Work
AS 4685: Playground Equipment and Surfacing Set
AS 2560:2003: Sports Lighting
AS4970 – 2009: Protection of Trees on Development Sites

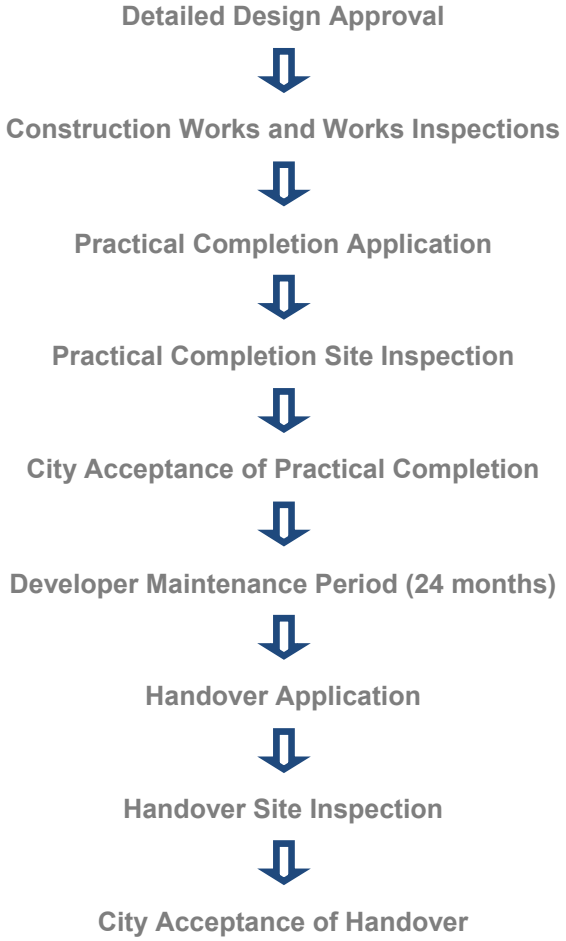
Section A

Landscape Development Process

1. LANDSCAPE DEVELOPMENT PROCESS

The City of Kwinana has a standard process and specific requirements for the approval and handover of landscape assets. These requirements are outlined in detail in the relevant sections of this Document as well as in the City of Kwinana Practical Completion and Handover Application Package (refer to appendix B).

In brief, the City of Kwinana's landscape development process is as follows:



2. DESIGN APPROVAL

2.1 Local Structure Planning Stage

2.1.1 A landscape masterplan is to be included with the Local Structure Plan. The landscape masterplan is to include the following at a minimum:

- The location of all proposed POS areas in the development
- Size (in square metres) and classification of each POS
- Proposed facilities to be accommodated in each POS
- Proposed play area locations
- Proposed informal sporting equipment locations
- Location of significant trees to be retained in POS (in accordance Local Planning Policy No.1 Landscape Feature and Tree Retention)
- Indicative area (in square metres) of permanent irrigation and turf for each POS
- Areas identified for conservation
- POS Schedule (in accordance with Liveable Neighbourhoods) that outlines the overall POS provision, as well as detail on the proposed purpose, function, size and the restricted and unrestricted component of each individual POS and their percentage contribution towards overall POS provision
- Acknowledgment of the requirement to provide street trees in accordance with Local Planning Policy No. 2 Streetscapes
- Location of proposed temporary entry statements
- Indicative planting palette

2.2 Concept Design Approval

2.2.1 A street tree masterplan will be required to be submitted to the City for approval prior to the detailed design process beginning for streetscapes, in accordance with Local Planning Policy No. 2 Streetscapes.

2.2.2 Before detailed landscape design commences for POS and streetscapes, it is preferred that a concept plan is to be submitted to the City for comment. The City will provide comment on the concept plan to help guide detailed design.

2.3 Detailed Design Approval

2.3.1 Plans detailing all landscape and irrigation works which are proposed to be installed within POS and road reserves are required to be submitted for approval as per the detailed design approval process outlined below. This includes designs for all street tree planting, biofiltration systems, rain gardens and basins, public open space and streetscape landscaping.

2.3.2 Where the City permits street trees / landscaping to be installed after Civil Works Practical Completion and subdivision clearance, a landscape early clearance bond will be required to be paid by the developer to the City to ensure that tree planting / landscaping is completed in line with the City's requirements.

Landscape and irrigation detailed design drawings are required to be submitted to the City for approval prior to the bond being calculated.

A landscape construction bond and a maintenance bond will be required. The landscape construction bond figure will be the cost of landscape construction, plus 25% contingency, plus 10% GST.

A The maintenance bond figure will be 5% of the total landscape construction cost, plus 25% contingency, plus 10% GST.

The landscape construction bond will be returned once Practical Completion has been awarded and the maintenance bond will be returned at the end of the two year maintenance period and when the City accepts handover.

2.3.3 Detailed design plans are to be prepared by a qualified Landscape Architect.

2.3.4 The detailed design approval process is as follows:

1. Landscape and Irrigation drawings are to be submitted electronically to the City.

2. The plans will be assessed against the approved Local Structure Plan for the subdivision, relevant conditions of the WAPC subdivision approval, approved concept plans and the requirements set out in this document.

3. The drawings will be marked up with any required changes. The drawings will either be approved, approved with conditions (if minimal amendments are required), or not approved. Drawings which are not approved will need to be amended as required and resubmitted to the City for approval.

2.3.5 Detailed design drawing sets which are submitted to the City for approval are to include all details and information relevant to the design. The City will not accept part or incomplete submissions. The drawings are to be free of drafting errors and clearly communicate the intent of the design.

2.3.6 Drawing sets are to be a bound PDF with the drawing sheets in order, drawings are not be submitted as individual PDF's.

2.3.7 All drawings, including presentation drawings, are to be shown at a scale suitable to the amount of detail shown in the drawing, that can be read using a standard scale ruler (i.e. 1:5000, 1:500, 1:250, 1:200. 1:100 1:50, 1:10, etc.). A scale bar is to be included on each drawing.

2.3.8 To ensure the plans are clear, multiple layers of information are not to be included on one drawing sheet, elements are to be separated out into applicable drawings.

2.3.9 Detailed design landscape drawings are to contain the following at a minimum:

- A cover page detailing drawing numbers, titles and revisions of all drawings included in the drawing set, with a key plan showing the locations the drawings refer to.
- A grading plan showing finished levels and contours.
- A surfaces and finishes plan showing location and type of all surface treatments, as well as details of all materials.
- Planting plans which detail proposed plant species and locations, and contain a planting schedule showing pot sizes, density and quantity of all species. Tree planting plans are to detail location and species of all retained trees, as well as proposed.
- Location and details of all furniture, including material, supplier and model. Images / line drawings of proposed furniture are required to be included within the drawing set.
- Location and details of all play equipment, including material, supplier and model. Images / line drawings of proposed equipment are required to be included within the drawing set.

- Sections, elevations, planting and construction details relevant to the design. Note all construction details are to be shown on the plans, the City will not accept specifications in lieu of construction details.

- A playground design audit may be required to be submitted prior to approval being granted if the City deems necessary.

- Arborist reports will be required to be submitted prior to approval being granted for all mature trees which are to be retained in close proximity to playgrounds and high use areas.

2.3.10 Refer to City of Kwinana Irrigation Development Guidelines for information regarding the requirements for irrigation detailed design plans.

3. PRACTICAL COMPLETION

3.1 Requirements for Practical Completion

3.1.1 The City of Kwinana will not issue practical completion for a POS or streetscape which has not been completed in accordance with the approved landscape and irrigation plans, or has only been completed in part.

3.1.2 Developers are advised that the City of Kwinana will require an irrigation pipe-work back-fill inspection during project works to enable acceptance of Practical Completion to take place. This will be noted on the approval letter for the landscape area.

3.1.3 The developer is required to submit a 'City of Kwinana Practical Completion and Handover Application Package' a minimum of 14 days prior to intended practical completion inspection. The application package outlines submission requirements.

3.1.4 A practical completion inspection must be undertaken, at which time the City shall compile a list of defects. At its discretion, the City of Kwinana may engage a professional irrigation consultant to undertake the inspection of the irrigation works and provide a defects list.

3.1.5 The Developer shall be responsible for carrying out the remedial works as noted on the defect list.

3.1.6 Defect rectification re-inspection shall be undertaken by City staff, where applicable, prior to acceptance of practical completion.

3.1.7 A practical completion acceptance certificate will be issued by the City, with the developer's two year maintenance period commencing from the date of acceptance.

3.2 Practical Completion Checklist

3.2.1 The following is required to be submitted for all landscape areas at time of Practical Completion, if applicable:

- ☑ Completed Practical Completion Application Package
- ☑ As constructed irrigation drawings in DWG and PDF format
- ☑ As constructed landscape drawings in DWG and PDF format
- ☑ Construction cost schedule (for asset management purposes)
- ☑ OSPEC data (note trees included in RSPEC specification)
- ☑ Proposed Playground Inspection Schedule (refer to section 5.8.2)
- ☑ Electrical Certification for all electrical items
- ☑ Playground Safety Audit
- ☑ Copy of recent Arborist reports
- ☑ Artwork Management Plan

4. DEVELOPER MAINTENANCE PERIOD

4.1 General

4.1.1 The developer maintenance period for landscape and irrigation assets is 24 months from the date of acceptance of practical completion, unless otherwise specified and agreed upon. Landscape assets refers to all elements proposed to be installed within POS or streetscapes on the approved landscape and irrigation drawings, as well as retained bushland and trees within the developed area.

4.1.2 Wetland and natural area development and management is to be as per the approved Wetland Management Plan in coordination with the City's Senior Environmental Planner.

4.1.3 The City of Kwinana expects the developer to engage a suitably qualified landscape contractor to undertake scheduled maintenance works during the developer maintenance period.

4.1.4 A maintenance bond will be required for all landscape areas and will be required at time of Practical Completion if not collected as an early clearance bond.

The maintenance bond figure will be 5% of the total landscape construction cost, plus 25% contingency, plus 10% GST. The bond willl be returned at the end of the two year maintenance period and when the City accepts handover.

4.2 Maintenance Inspections

4.2.1 The City will undertake quarterly maintenance inspections on developed landscape areas during the developer maintenance period. The Developer will be notified of any issues which require attention or rectification, or if maintenance is not being carried out in accordance with the standards as outlined in this document.

4.3 Turf Maintenance

General

4.3.1 Turf areas shall be maintained with a full coverage of healthy and vigorous turf, with uniform green colour and evenly groomed in appearance.

4.3.2 The standard treatment frequency shall be a minimum of every two weeks from October to May, and every three weeks from June to September (a total of 22 treatments per annum). The mowing frequency shall be appropriate for the growth rate of the turf to avoid scalping.

4.3.3 Soil, water and tissue analysis for determining ongoing fertiliser and nutrient requirements for turf shall be conducted at the end of the first maintenance year and immediately prior to handover. The report that is generated is to be provided electronically to the City within 14 days of the samplings.

4.3.4 All litter must be removed from all turf surfaces prior to the commencement of mowing. Litter that is mowed over must still be removed.

Mowing and Edging

4.3.5 The turf sward height shall be maintained between 30mm and 50mm above the soil level with a consistent height of cut across the mowed areas. Mowing equipment should provide a clean cut, so that leaf blades are not torn or shredded. There shall be minimal to no grass clippings visible on the surface after mowing.

4.3.6 The edges of turf areas shall be mechanically edged and/or line-trimmed, at the same frequency as mowing, to prevent grass encroachment on kerbs, paths, paving, and fixed objects such as bollards and posts.

4.3.7 Edged turf shall be maintained at a minimum distance of 5mm and a maximum distance of 15mm from the edge of all fixed objects and edges.

4.3.8 Runners or stolons are to be removed from pathways and hardscapes.

4.3.9 All waste material and other debris are to be removed from pathways and hardscapes after edging and line trimming.

4.3.10 Line-trimming of turf is to be to the same height as surrounds and shall not cause lines, trails, scalping or divots.

4.3.11 Line-trimming around existing vegetation (e.g. trees) shall be undertaken in such a manner as to not cause damage to stems or trunks.

4.3.12 Line-trimming around hardscapes (e.g. bollards, signs, light poles, walls, etc) to be undertaken in such a manner so as not to cause damage to finishes.

Weed, Pest and Disease Control

4.3.13 Turf areas shall be kept free of the visual presence of weeds that detract from the appearance of the turf surface, and free of weeds that are considered hazardous in terms of forming prickles or attracting bees. Weeds should be removed as required, using registered/approved selective herbicides, or by manual means.

4.3.14 Herbicide shall only be utilised up to the four leaf stage of weed development, after which manual removal shall be employed.

4.3.15 Turf areas shall be kept free of the visual presence of damage caused by pests and diseases that detracts from the appearance of the turf surface. These should be treated as required with registered and approved pesticides.

Minor Tree Maintenance

4.3.16 Works such as minor under pruning, and basal growth removal, of landscape trees within the designated turf areas, as required, to allow safe and unimpeded access through reserves for persons and mowing equipment.

4.3.17 Tree canopies above turf areas shall be maintained with a minimum clearance of 2.5 metres above ground level to allow unrestricted passage of pedestrians and mowing equipment.

4.3.18 Around the base of trees shall be maintained free of turf and weeds at a distance of approximately 150mm from the trunk to avoid damage by line trimming operations.

Fertilising

4.3.19 The turf areas shall be fertilised as required to sustain acceptable colour and density, maintaining the turf free of visual symptoms of nutrient deficiency.

4.3.20 Fertilising shall take place, generally once annually, at the commencement of the growth season (October-November).

4.3.21 Fertiliser shall typically be granulated and be applied utilising a small plant or pedestrian spreader.

4.3.22 Typical fertiliser product to be applied shall be an N.P.K. fertiliser, such as ‘CSBP Turf Special’ (or approved equivalent), and generally applied at a rate of 200kg/hectare.

4.3.23 Fertiliser to be watered in as soon as practicable.

4.3.24 Fertiliser to be removed from all pathways and hardscapes prior to irrigation.

Soil Wetter Application

4.3.25 The turf areas shall have soil wetting agent applied as required to reduce soil hydrophobia, reduce watering requirements and sustain acceptable colour and density, maintaining the turf free of visual symptoms of water deficiency.

4.3.26 Soil wetter application shall take place generally once annually, at the commencement of the growth season (October-November).

4.3.27 Typical wetting agent product to be applied shall be 'Bailey's Grosorb' (or approved equivalent), and generally applied at a rate of 25L/hectare.

Broadleaf Application

4.3.28 The turf areas shall have broadleaf herbicide applied as required to reduce the incidence of annual weeds.

4.3.29 Broadleaf herbicide application shall take place as required, generally once annually, during the turf dormancy period (July-August).

4.3.30 Typical broadleaf herbicide product to be applied shall be 'Casper' (or approved equivalent), and generally applied at a rate of 6.5L/hectare.

4.3.31 Spraying of herbicide shall only take place:

- When performed by a qualified and competent operator
- When weather conditions are suitable
- With suitable plant and equipment
- In accordance with all relevant items outlined within the Health (Pesticides) Regulations 2011

Renovations and Repairs

4.3.32 Turf areas shall be renovated as required, the renovation methods include verti-mowing to prevent excessive thatch accumulation, coring to de-compact the soil on heavily trafficked sites, and localised topdressing with sand to correct uneven surface levels.

4.3.33 Severely damaged or bare areas should be replaced with roll-on turf ('Village Green' or approved equivalent only) sourced from an approved turf farm.

4.4 Horticulture Maintenance

General

4.4.1 Garden beds shall be maintained in neat and tidy condition with a full complement of healthy and vigorous plants.

4.4.2 Unless otherwise specified, irrigated drainage areas within the landscape area are included with garden beds and, as such, shall be maintained as per the garden bed maintenance.

4.4.3 All garden beds shall be maintained free from the visual presence of litter. Any and all litter must be removed from all garden bed areas at every maintenance visit.

4.4.4 Removal of dead vegetation shall be undertaken to maintain the visual appearance of a healthy and vigorous landscape. The replacement of plants is the developer's responsibility and shall be undertaken immediately.

Weed Control

4.4.5 Garden beds shall be kept free of the visual presence of weeds that detract from the appearance of the gardens. Weeds should be removed as required, using registered herbicides or by manual means.

4.4.6 Herbicide shall only be utilised up to the four leaf stage of weed development after which manual removal shall be employed.

4.4.7 Care shall be taken with regard to spray drift damage when utilising herbicide within garden bed areas. The developer shall be liable for the replacement of dead or damaged non-target vegetation resulting from poor herbicide application practice, as deemed by the Principal.

Pruning

4.4.8 Pruning shall be carried out so that plants retain as natural an appearance as possible, including the removal of dead or degenerating material and regular tip pruning to maintain form.

4.4.9 Shrubs and groundcovers should be cut back from road edges, kerbs and path edges to remove any overhang. Shrubs adjacent to roads shall be maintained at a height of no more than 600mm. Hedging plants should have formative trimming carried out to create hedges.

Pests and Disease

4.4.10 Garden beds shall be kept free of the visual presence of damage caused by pests and diseases that detracts from the appearance of the plants. These should be treated as required with registered and approved pesticides.

Mulching

4.4.11 Garden beds shall have an even coverage of mulch, maintained between 75mm and 100mm in depth. Mulching works shall be completed as required to maintain the acceptable coverage and thickness.

4.4.12 Chunky Pine Bark or Marri Chip mulch or approved equivalent is the preferred mulching material.

4.4.13 All debris, including weeds, to be cleared or treated prior to applying mulch and mulch shall be cleared from hardscapes immediately after application.

Plant Replacement

4.4.14 Any dead or dying plants shall be removed and replaced as and when required. All replacement plants shall be of a healthy condition.

4.4.15 Plants shall be replaced with species of the same type and cultivar, with plant stock supplied as a minimum 140mm pot size and sourced from an approved plant nursery.

4.4.16 Replacement of dry planted tubestock is to be undertaken in winter, with Terracottem or similar applied.

Fertilising

4.4.17 Fertilising may be used as required to the plants within the garden beds to sustain acceptable plant growth. Typically this may involve approximately 20 grams of a slow release N.P.K. fertiliser per plant per application.

Soil Wetter Application

4.4.18 Soil wetter as required may be applied to garden beds to reduce soil hydrophobia, watering times and sustain acceptable plant growth.

4.4.19 Typical wetting agent product to be applied shall be 'Bailey's Grosorb' (or approved equivalent), and generally applied at a rate of 25L/hectare.

Manual Watering

4.4.20 Manual watering may be required for any juvenile dry plantings during the summer months for the first two seasons following planting.

4.4.21 Water quantity shall be 5L per plant per treatment (200 plants/m3 water).

Bushland / Dry Bed Maintenance

4.4.22 Where dry bed and bushland areas are part of the nominated landscape maintenance areas, they shall be maintained in a clean, tidy, litter and invasive weed free condition, encouraging a natural bushland habitat for native flora and fauna to thrive.

4.4.23 Standard treatment frequency shall be the same as garden bed maintenance.

4.4.24 Un-irrigated drainage areas within the landscape area are included with the maintenance of dry bed/bushland areas.

4.4.25 Bushland areas shall be kept free of invasive weeds such as Lilies and Veldt grass. Treatment of such weeds shall be undertaken using registered herbicide treatments approved, or by manual means. All invasive weed or exotic vegetation shall be controlled and removed from site where appropriate.

4.4.26 Dead, dying or diseased vegetation that detracts from the natural aesthetic appeal of the bushland area are to be removed/felled as necessary. Where appropriate, dead trees may remain in situ as long as they are not hazardous and felled limbs/trunks are to remain on site to provide habitat for native fauna.

Dry Grass Slashing

4.4.27 Dry land slashing will be required to maintain grass heights to not exceed 200mm.

4.4.28 Dry grass cut height shall be 50mm above the soil level and may be undertaken by a tractor slasher combination or mower with flail or slashing cutting action.

4.4.29 Typically these dry areas would only be slashed 4-6 times per annum.

4.5 Tree Maintenance

General

4.5.1 The developer shall be responsible to conduct maintenance on all retained and planted trees within landscaped areas for the two year landscape maintenance period.

4.5.2 Retained trees within all road reserves are subject to a two year developer maintenance period, corresponding to the street tree planting stage which they are located in, in accordance with the City's Local Planning Policy No 2 - Streetscapes.

4.5.3 If a play space or activity area is located beneath retained mature trees, an arborist report and risk assessment will be required to be submitted with detailed design plans. If the playground or activity area is approved to be placed under retained trees, then the developer will be required to engage an arborist to undertake inspections of the trees once a year and at time of handover, unless the arborist report recommends inspections at a higher frequency.

Any ongoing tree works recommended in the report will be required to be undertaken by the Developer during the two year maintenance period in accordance with the Arborist's recommendations.

Pruning

4.5.4 The developer shall be responsible for under pruning and basal growth removal of trees in the designated landscape areas.

4.5.5 Under pruning shall be carried out where necessary to remove lower branches to allow safe and unimpeded access through reserves for persons and where appropriate, mowing equipment.

4.5.6 Tree canopies shall be maintained with a minimum clearance of 2.5 metres above ground level to prevent sight lines from being obscured and to allow unrestricted pedestrian movement.

4.5.7 Pruning shall be carried out such that the trees retain their natural developmental shape, including the selective removal of low level lateral growth and the removal of low lying dead, diseased, damaged and dying limbs.

4.5.8 The developer/Contractor shall be responsible for the removal and disposal of all pruning and debris resulting from tree maintenance on the same day that pruning activities are carried out.

Stakes, Ties and Mulch

4.5.9 Remnant tree stakes and ties shall be maintained until the trees are wind firm and then removed, adjusting and replacing them as necessary to prevent tree damage by wind or chaffing. Ties should be loosened as required to prevent strangulation and damage to the bark.

4.5.10 Tree bole mulch should be maintained between 75mm and 100mm in depth. Mulch top-up works shall be at the discretion of the Principal, but should be recommended by the Contractor where required.

4.5.11 Chunky Pine Bark or Marri Chip mulch or approved equivalent is the preferred mulch material. Mulch bowls are to be maintained during the two year developer maintenance period.

Tree Replacement

4.5.12 Dead or dying trees within the landscape area shall be removed and replaced by the Developer as per the approved landscape plan. If a change in species and/or size is proposed, approval from the City is to be obtained.

4.5.13 All trees are to have TerraCottem soil conditioner, or approved equivalent, applied at time of planting at manufacturer recommended rates and methods. This involves the thorough mixing of the specified quantity of soil conditioner into the root zone growing media.

4.5.14 Trees shall only be staked using two or three stakes of a suitable length and thickness and using a suitable tie material. Stakes shall be located parallel to prevailing wind direction on site and shall not pierce the root ball.

4.5.15 Initial deep water-in of any tree shall be undertaken immediately following planting and shall be considered as part of the tree planting responsibility. Initial watering-in minimum water application quantities are outlined in the table below.

Tree Size	Initial Water-In Quantity
45L	70 L
100L	150 L
200L	300 L

Manual Watering

4.5.16 Where trees have been planted without irrigation manual watering of trees during summer months will be required.

4.5.17 Water quantity shall be 60L per tree per treatment (16.6 trees/m3 water), unless otherwise specified by the Principal.

4.5.18 The developer is responsible for sourcing the water supply required for works, including the collection, transport to site and application of the water.

Fertilising

4.5.19 Trees may be fertilised as required to sustain acceptable growth.

4.5.20 Typically this may involve 100 grams of a slow release granulated N.P.K. fertiliser or 50ml/9L water of liquid kelp fertiliser applied per tree per application as determined by the Principal.

4.6 Irrigation Maintenance

4.6.1 Refer to Irrigation Development Guidelines 2019 (available on City of Kwinana website).

4.7 Hardscape Maintenance

4.7.1 All paths, paving, hardstands, kerbing etc within the designated landscape maintenance areas shall be maintained free of litter, debris and weeds.

4.7.2 Standard treatment frequency shall be the same, and conducted at the same treatment, as mowing operations.

4.7.3 Organic debris is to be mechanically swept or blown down after each mow and additionally as required.

4.7.4 All litter shall be collected prior to any blowing down or mechanical sweeping. Only small organic material is to be transferred to adjacent softscapes by such means.

4.7.5 All paths and hardstand areas shall be maintained free of weeds or unwanted vegetation, which should be removed using registered herbicides approved by the Principal, or by manual means.

4.7.6 The developer shall be responsible for minor under pruning, and basal growth removal, of landscape trees within the designated path and hardstand maintenance areas, as required, to allow safe and unimpeded pedestrian, cyclist and maintenance personnel access.

4.7.7 Tree canopies above path and hardstand areas shall be maintained with a minimum clearance of 2.5 metres above ground level.

4.7.8 Any issues identified with these assets, such as vehicle damage, lift/depression damage, etc shall be repaired immediately by the Contractor.

4.8 Playground Maintenance

4.8.1 The developer is responsible for all playground maintenance, repairs and replacements during the developer maintenance period.

4.8.2 The developer is required to undertake playground safety inspections. At Practical Completion the City is to be provided with a proposed playground inspection schedule based on AS 4685 and the equipment manufacture's requirements. The inspections are to be carried out by a suitably qualified person. If any safety issues are identified the City is to be notified and the issue rectified by the Developer. The inspection records are to be provided to the City at time of handover.

4.9 Furniture, Playground Equipment, Structures and Lighting

4.9.1 The developer is responsible for all maintenance, repair and replacement of furniture during the developer maintenance period.

4.9.2 Intergrain UltraDeck Slip Resistant (or approved equivalent) is to be applied to timber decking, and Intergrain UltraDeck (or approved equivalent) is to be applied to all other timber every 6 months.

4.9.3 The Developer is responsible for payment of the electricity account relating to POS furniture and lighting until handover.

4.9.4 The Developer is responsible for all BBQ maintenance and cleaning until handover. Barbecues are to be cleaned a minimum of once per week.

4.9.5 BBQ electrical safety inspections are to be carried out by the Developer during the maintenance period every 6 months, using the BBQ Electrical Testing Form (refer to Appendix D). Completed forms are to be provided to the City at handover.

4.9.6 RCD push button testing is to be carried out by the Developer during the maintenance period on all RCD's every 6 months. The log of inspections is to be provided to the City at handover.

4.9.7 The Developer is responsible for the payment of the water account relating to developed landscape areas until handover.

4.9.8 The Developer is responsible for the maintenance and emptying of bins within developed landscape areas until handover.

4.10 Maintenance Period Checklist

4.10.1 The following is a summary of documents which are to be provided to the City during the Maintenance Period:

- ☑ Soil, water and tissue analysis at end of year one, submitted via email to depot.admin@kwinana.wa.gov.au (title 'Attention Technical Officer Parks Operations – Soil, water and tissue analysis') - refer to section 4.3.3
- ☑ Arborist inspection reports undertaken during the Developer maintenance period for all trees overhanging play and activity areas, submitted via email to depot.admin@kwinana.wa.gov.au (title 'Attention Technical Officer Parks Operations – arborist report') - refer to section 4.5.3
- ☑ Monthly reporting of irrigation bore meter reading/s to the City of Kwinana (to be undertaken in the first week of each month) submitted via email to depot.admin@kwinana.wa.gov.au (title 'Attention Irrigation Supervisor - Bore Meter Reading' or phone 08 9236 0351)

4.10.2 The following is a summary of inspections which are required to be carried out during the Maintenance Period, with completed inspection checklists provided to the City at handover:

- ☑ Playground Inspections, carried out as per the proposed inspection schedule provided at Practical Completion (refer to section 4.8.2)
- ☑ BBQ electrical inspections, carried out every 6 months (refer to section 4.9.5)
- ☑ RCD push button testing, carried out every 6 months (refer to section 4.9.6)

5. HANDOVER

5.1 Requirements for Handover

General

5.1.1 Unless specifically approved otherwise, the City of Kwinana will not accept handover of individual assets separately from the corresponding landscape area. All of the Landscape assets, including irrigation, of a designated area shall be handed-over together.

5.1.2 The developer is required to submit a City of Kwinana Practical Completion and Handover Application Package a minimum of 30 days prior to intended handover inspection. The application package outlines submission requirements.

5.1.3 A handover inspection must be undertaken, at which time the City shall compile a list of defects. Generally the inspection concerns the following:

- Ensuring all assets are present, in good condition and fully functional
- Ensuring the conditions are met in the Irrigation Development Guidelines which includes a main line pressure test.

5.1.4 Reinspection of defects (where applicable) is generally required prior to handover acceptance.

5.1.5 Following defect free inspection, the City of Kwinana will issue a certificate of handover acceptance and maintenance responsibility is then transferred to the City.

5.1.6 A playground safety audit is required to be conducted by an independent auditor at the Developers cost prior to handover. Any remediation work required as a consequence of the audit (as deemed by the City of Kwinana) shall be undertaken by the Developer and approved by the City.

5.1.7 An Arborist inspection is required to be undertaken buy a qualified Arborist for all trees close to and overhanging playground and activity areas. A report is to be prepared and provided to the City. Any remediation work required as a consequence of the audit (as deemed by the City of Kwinana) shall be undertaken by the Developer and approved by the City.

Handover of Bores and Groundwater Licenses

5.1.1 Refer to Irrigation Development Guidelines (available on City of Kwinana website).

5.2 Handover Checklist

5.2.1 The following is a summary of documents which are to be provided to the City at time of handover:

- ☑ Completed Handover Application Package
- ☑ Playground Safety Audit
- ☑ Arborist inspection report undertaken prior to handover for all trees overhanging play and activity areas (refer to section 4.5.3)
- ☑ Report on soil, water and tissue analysis for determining ongoing fertiliser and nutrient requirements for turf (refer to section 4.3.3)
- ☑ Completed Playground Inspection checklists, carried out as per the proposed inspection schedule provided at Practical Completion (refer to section 4.8.2)
- ☑ Completed BBQ Electrical Testing Forms (refer to section 4.9.5)
- ☑ Log of RCD push button testing (refer to section 4.9.6)
- ☑ Warranties and guarantees for equipment, furniture and materials
- ☑ Updates to as constructed drawings (Ospec, dwg and PDF) for changes which occurred during the developer maintenance period

Section B

Landscape Design

6. POS CLASSIFICATION AND STANDARDS

6.1.1 POS Classification is to be in accordance with Liveable Neighbourhoods and the Classification Framework for Public Open Space (Department of Sport and Recreation). The classification system is intended to provide guidance on the level of provision, service and maintenance requirements in relation to open space. Using this classification framework, public open spaces are classified under two key elements; namely function and catchment:

6.2 Function

Sport Spaces - Provide a setting for formal structured sport (active) activities.

6.2.1 Sport spaces enable formal structured sport activities, such as team competitions, physical skill development and training. Sport spaces are designed to accommodate the playing surface and infrastructure requirements of specific sports. People attend with the express purpose of engaging in organised sporting activity, training, competition or viewing as a spectator.

Recreation Spaces - Provide a setting for informal recreational (passive) and social activities.

6.2.2 Recreation spaces enhance physical and mental health through activity that provides relaxation, amusement or stimulation. Recreation spaces can be accessed by people to play, socialise, exercise, celebrate or participate in other activities, and include spaces such as corridor links, parklands and amenity areas and civic spaces.

Nature Spaces – POS for Protecting and enhancing spaces with ecological and biodiversity values.

6.2.3 POS managed to protect and enhance environments with ecological and biodiversity values, such as bushland, coastal, wetlands and riparian habitats, and geological and natural features. These spaces provide opportunity for low-impact nature-based recreational activities, such as picnicking, bird watching, walking, cycling or exploring.

6.3 Catchment

	Local Open Space	Neighbourhood Open Space	District Open Space	Regional Open Space
Description	Small parklands that service the recreation needs of the immediate residential population.	Serve as the recreational and social focus of a community. Residents are attracted by the variety of features and facilities, and opportunities to socialise. Spaces can also protect specific conservation values.	Primarily provides for organised formal sport, recreation and conservation protection, for the surrounding neighbourhoods.	Accommodate significant and important recreation, organised sport, conservation and environmental features.
Access	Less than 400m or 5 minute walk.	Up to 800m or 10 minute walk.	Up to 2km or five minute drive, serves several neighbourhoods.	Majority of users are likely to drive, Serves one or more geographical regions.
Size	0.4 to 1ha	1 to 5ha	Generally 5 to 20ha	Dependent on function, generally greater than 20ha.
Location / Design	• Located within a five minute walk from surrounding residences. • Provide recreation opportunities closest to home, primarily for young children. • Exhibit good, safe pedestrian and cycling connections, which maximise accessibility and connectivity. • Support good passive surveillance. • Are responsive to natural site features. • Assist in preserving local biodiversity. • May have a small playground, seating and a small kick-about space.	• Central to surrounding neighbourhoods. • Exhibit good, safe pedestrian and cycling connections to maximise accessibility. • Support good passive surveillance. • Be responsive to natural site features. • Build on sense of place. • Can be co-located with schools to create a community hub and form part of an overall pedestrian and cycling network to connect key destination points. • Are large enough to enable different activities and uses to occur simultaneously.	•Located central to the catchment to maximise accessibility. •Located on district distributor roads with good passive surveillance. • Serviced by public transport networks. • Accommodate the recommended dimensions and supporting amenity for formal sport and recreation. • Co-located with a school or other community facilities to create a community hub. • Provide a significant visual break in the urban environment, particularly along major thoroughfares.	• Location is usually determined by resource availability and opportunities to utilise and/or protect the space. • Well connected to major road and public transport networks. • Allocated outside the structure planning process by the Western Australian Planning Commission in consultation with local government. • Lighting, field and clubhouse facilities reflect competition standard

	Local Open Space	Neighbourhood Open Space	District Open Space	Regional Open Space
Potential Uses	• Small scale informal and unorganised sports and associated amenities such as outdoor table tennis, soccer goals • Kickabout space • Children's play • Walking and cycling • Relaxation and connecting with nature	• Informal and unorganised sports and associated amenities such as basketball half courts, tennis hitting walls, AFL goals and soccer goals, frisbee golf • Small skate or BMX facilities • All ages play • Bushland/wetland conservation • Walking and cycling • Relaxation and connecting with nature • Picnicking	• Formal, organised sports • Informal and unorganised sports and associated amenities such as basketball half courts, tennis hitting walls, AFL goals and soccer goals, frisbee golf • Off-lead Dog Exercise and dog parks • Outdoor Exercise • All ages and children's play • Youth Recreation (such as skate parks, BMX etc) • Community event space • Bushland/wetland conservation • Walking and cycling • Relaxation and connecting with nature • Picnicking	• Areas allocated as ROS have the capacity to accommodate required field dimensions for junior and adult sport, and appropriate supporting amenity. • ROS should be large enough to accommodate various concurrent uses, including organised sports, children's play, picnics, bush walking, and protection of environmental features. • ROS is highly likely to attract visitors from outside any one local government area.

6.4 POS Provision and Embellishment

6.4.1 The level of acceptable embellishment within a POS is related to the function and catchment of the POS. The embellishment matrix below communicates what is to be provided in each classification of POS.

6.4.2 Appendix A – POS Standard Provision Table provides a more detailed description of the minimum and maximum provision permitted in each classification of POS. Negotiations with the City prior to submission of landscape plans will be required If the developer seeks to include a higher level of embellishment than the maximum standard.

Function	Sport		Recreation				Nature			
Catchment	Regional	District	Regional	District	Neighbour-hood	Local	Regional	District	Neighbour-hood	Local
Embellishments										
On street parking	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
On site parking lot	Y	Y	Y	Y	N	N	Y	Y	N	N
Ablution	Y	Y	Y	Y	N	N	Y	Y	N	N
Play equipment	Y	Y	Y	Y	Y	O	Y	N	N	N
Exercise Equipment	O	O	O	O	O	O	O	O	O	N
Shade sail	Y	Y	Y	Y	O	O	O	O	N	N
Shelter	O	O	Y	Y	Y	O	Y	Y	O	O
Public Art	O	O	O	O	O	O	O	O	O	O
Lighting	Y	Y	Y	O	O	N	O	O	O	N
Accessible paths	Y	Y	Y	Y	Y	Y	Y	Y	Y	O
Nature walk trails	O	O	O	O	O	O	Y	Y	Y	O
Accessible seating	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Accessible picnic setting	Y	Y	Y	Y	Y	O	Y	Y	O	O
BBQ	Y	Y	Y	Y	O	N	Y	Y	O	N
Drink fountain	Y	Y	Y	Y	O	N	O	Y	N	N
Bins	Y	Y	Y	Y	Y	O	Y	Y	Y	O
Sport equipment	Y	Y	O	O	O	O	N	N	N	N
Fencing	O	O	O	O	O	O	Y	Y	Y	Y
Bollards	Y	Y	O	O	O	O	N	N	N	N
Gates	Y	Y	Y	Y	O	O	Y	Y	Y	Y
Pedestrian chicanes	O	O	O	O	O	O	Y	Y	Y	Y
Irrigation	Y	Y	Y	Y	Y	O	O	N	N	N
Turf (active/passive)	Y	Y	Y	Y	Y	O	O	N	N	N
Garden bed and trees	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Natural bushland	O	O	O	O	O	O	Y	Y	Y	Y
Natural wetlands	O	O	O	O	O	O	O	O	O	O

Y - required for this classification of POS
O - optional for this classification of POS
N - not desirable for this classification of POS

7. DESIGN FOR ACCESS AND INCLUSION

7.1 Legislation and Standards

Disability Discrimination Act 1992 (DDA)

7.1.1 The Disability Discrimination Act 1992 is Commonwealth legislation which deems discrimination against someone because of their disability as unlawful. Disability discrimination occurs when someone with a disability is treated less fairly then someone without a disability.

7.1.2 The DDA makes it unlawful for public places to be inaccessible to people with a disability. Equitable and dignified access must be provided to public parks, footpaths and walkways, as they are included in the definition of 'public places' under the DDA. A complaint can be made against organisations under the DDA if they do not provide access and comply with the requirements of the law under the DDA.

Australian Standard (AS 1428.1) – Design for Access and Mobility

7.1.3 AS 1428.1 prescribes the requirements for accessible paths of travel, and a range of other facilities and installations which are often found in parks and outdoor recreation areas. Given the comprehensive definitions and requirements of the DDA, these standards are to be used as guide when designing POS and outdoor recreation areas in the City of Kwinana to ensure that all landscaped areas in the City are accessible.

Disability Access and Inclusion Plan (DAIP)

7.1.4 The Western Australian Disability Services Act requires all Local Governments to develop and implement a Disability Access and Inclusion Plan (DAIP) to ensure that people with a disability have equal access to its facilities and services. One of the key outcomes of the DAIP is 'people with disability have the same opportunities as other people to access the buildings and other facilities of the City of Kwinana'. As this includes parks and outdoor recreation areas, it is imperative that landscaped areas are designed to meet this outcome. The City of Kwinana DAIP is available on the City of Kwinana website.

Accessibility vs. Inclusivity

7.1.5 Accessibility is associated with compliance and mobility standards and generally refers to the physical ability of a person in regards to access to a place or thing. Inclusive spaces consider needs beyond physical access and invites people of all ages, abilities and cultures to experience a space together, without one group feeling excluded. Inclusive play spaces are open to people of all ages and abilities and provide a wide variety of play spaces, which everyone can enjoy together.

7.2 Design Considerations for Access and Inclusion

General Access and Safety Considerations

7.2.1 Landscape designs will be assessed in relation to access and inclusion. Creating accessible and inclusive spaces is a requirement within the City of Kwinana. The design of a public outdoor area must be inclusive of the needs, and provide equitable opportunity, for all people in the community.

7.2.2 Design for access and inclusion is to consider all disabilities including but not limited to those relating to mobility, sight, hearing, motor ability, dexterity, balance and mental ability.

7.2.3 Key activity areas and play spaces are to be open and clearly observable from surrounding streets and properties.

7.2.4 Key activity areas and play spaces are to be suitably protected from adjacent risks, eg deep waterbodies and busy roads.

Continuous Accessible Paths of Travel

7.2.5 Continuous accessible paths of travel, compliant with AS 1428, are to link key elements and facilities provided in POS, such as car bays, playgrounds, furniture, shelters and viewing decks, and are to connect into the surrounding path network.

7.2.6 Paths are to be concrete or paved. Soft materials such as sawdust, gravel and mulch are not acceptable as they are not suitable for providing universal access.

7.2.7 Stairs, ramps, boardwalks and walkways are to be compliant with AS 1428.1.

7.2.8 All paths within POS are to be minimum width of 1500mm, with higher use paths to be a minimum of 2000mm wide.

7.2.9 Footpaths are to link to broader path network and allow for universal accessibility via pram ramps installed to the City's standard details (available on website).

Park Furniture

7.2.10 All park furniture, including benches, picnic tables and drinking fountains are to be universally accessible models. They are to be situated on a hard concrete or paved surface. Soft materials, such as mulch, gravel or sawdust are not acceptable. An appropriate circulation space is to be provided around the furniture, to allow for easy access for people using mobility aids.

7.2.11 All park furniture is to be accessible from a continuous accessible path of travel, with enough clearance space adjacent to the seat to park a pram, wheelchair or mobility device without blocking the servicing path.

7.2.12 The majority of seating is to have back and arm rests.

7.2.13 Formal and informal seating should be provided at regular intervals and in appropriate locations, such as under shade, near activity areas and playgrounds.

Playground Access

7.2.1 Easy universal access to and from play spaces is important. Points of entry and exit from the play space are to be easy to locate from inside and outside the play space. The entry and exit points are to be universally accessible, without stairs, and connected to a continuous accessible path of travel.

7.2.2 There is to be a clear and universally accessible continuous path of travel which circulates throughout the play space and connects into access and exit points.

7.2.3 There is to be a clear path network hierarchy throughout the play space, so that it is easy to navigate and distinguish between the main circulatory path and secondary play paths. The main circulatory path is to be clearly identifiable, a consistent width and surface finish and connect to the majority of play elements.

7.2.4 There is to be appropriate colour contrast between paths and play surfaces. This helps to ensure there is safe passage for people of all abilities to access and move between play areas and equipment.

7.2.5 There are to be areas within the play space for carers to interact and supervise. The play space is to be designed so that carers are able to easily access children, both within the play space and within equipment, should it be required.

7.2.6 There are clear lines of sigh throughout the playground, and from adjacent viewing areas, to allow for supervision.

Play Experience and Equipment

7.2.1 Providing an inclusive environment, and access to various play opportunities, is important to ensure that children with disability can participate and feel included in play with children without disability.

7.2.2 The space is to provide a variety of play opportunities for a wide variety of ages and abilities, including multi-user equipment pieces.

7.2.3 Play opportunities are to be accessed from a variety of heights.

7.2.4 The main or central play piece is to be accessible to users of all ages and abilities and offer meaningful play experiences which are inclusive, ie no one is excluded from play because of their abilities.

7.2.5 There are to be some quiet areas within the play space for rest, relaxation and passive play.

7.2.6 Accessible equipment is not to be segregated and is to be woven throughout the play space to create an inclusive environment.

7.2.7 The needs of those with vision impairment are to be considered, especially at change of levels. Colour contrast and texture can be used to distinguish level changes.

Play surfacing

7.2.8 There is to be a flush edge, or ramp, from access paths to the play surface at key transition points.

7.2.9 Ensure that accessible and inclusive play opportunities are accessible by a suitable surface, ie rubber soft fall or a path if there are no fall height restrictions. Play mulch or sand do not provide universal accessibility. Ensure that exit routes from equipment are also constructed from an accessible surface.

7.2.10 There is to be ample circulation space around equipment and outside of fall zones to provide safe movement.

Wayfinding and signage

7.2.11 Signage is to be easy to read, using text at an appropriate scale, simple graphics and contrasting colours. It is to be located at a height which is easy to read for all users. Symbols should be used instead of text where possible.

7.2.12 Directional signage is to be installed along trails, with maps included, where appropriate.

7.3 Resources to help with Inclusive Design

7.3.1 Manton, J, 2012, *How to Develop More Accessible Playgrounds,* Melbourne, Victoria, Institute of Access Training Australia

7.3.2 NSW Government, 2019, *Everyone Can Play – A Guideline to Create Inclusive Playspaces*. Sydney, Department of Planning and Environment. Available online: https://everyonecanplay.nsw.gov.au/

8. IRRIGATION

8.1.1 Please refer to the City of Kwinana Irrigation Development Guidelines.

9. SOFTSCAPES

9.1 Turf

Species and Location

9.1.1 Pennisetum cladestinium (Kikuyu – 'Village Green') is the preferred species for Open Spaces, including sporting fields, and is to be installed as roll on turf.

9.1.2 All turf shall be sourced from a reputable turf farm. The City reserves the right to request proof and/or certification of materials.

9.1.3 The planting material must be sourced from a certified sting nematode free turf farm.

9.1.4 The planting material must be free of weeds, pests and fungal diseases.

9.1.5 Areas of turf are to be bounded by a garden kerb, path or other approved hardscape.

9.1.6 Gradients within turfed areas shall not exceed 1:6.

9.1.7 Designs shall provide for areas to be accessible by a 1.8m ride on mower and to allow for a turning circle of 3m radius around any trees, structures or furniture.

Maintenance Access

9.1.8 See section 15 – Maintenance Access.

9.2 Planted Areas

Soil Preparation

9.2.1 Any designed area to be planted is to have a clean and workable soil depth of not less than 300mm and should be free of all vegetative matter (other than compost or manure), rubble and toxins.

9.2.2 Soil in any new planted area is to be enriched with a compost and soil improver blend or a proprietary landscape mix at the recommended rates and cultivated into the soil profile, such as Terracottem or approved equivalent.

9.2.3 Additional soil additives may include, but not be limited to, compost, animal manures, and soil wetting agents.

Mulch

9.2.4 Chunky Pine Bark Mulch is to be used for high visibility areas.

9.2.5 Recycled mulch and tree pruning chips are acceptable for low visibility dry gardens.

9.2.6 Mulch material to be free of weeds, disease, seeds, waste or rubble, and chemical residue and is to comply with AS 4454-2012 Composts, mulches and Soil Conditioners.

9.2.7 Mulch is be initially installed at a thickness of 100mm and topped up as required.

9.2.8 Mulch not to be applied closer than 50mm to plant stems or trunks.

9.2.9 Mulch is to be applied to meet the base of the garden kerbing or surround hardscape.

9.2.10 All debris, including weeds, to be cleared or treated prior to applying mulch.

Plant Species - General

9.2.11 All proposed tree and plant species are to be approved by the City of Kwinana.

9.2.12 New plants are to be of an acceptable standard with healthy foliage and root systems consistent with the particular species.

9.2.13 Priority is to be given to local native species when selecting planting palettes.

Species Selection for Verges, Medians and Roundabouts

9.2.14 Planting design and species are not to impede lines of sight for pedestrians and vehicles. Plants which are to be planted in the road reserve are to grow to a maximum height of 750mm and require low levels of maintenance. Medium to large shrubs are generally not permitted to be planted in the road reserve, unless used for screening in appropriate locations.

9.2.15 High maintenance plants and designs, such as those requiring hedging or topiary, are not permitted.

9.2.16 A minimum 500mm mulch only strip is to be applied adjacent to road kerbing to allow for maintenance access. A minimum 1200mm strip will be required for road with a speed higher than 60km / hr.

9.2.17 Planting is to be installed at a density of 3 plants / m2.

Species Selection for POS

9.2.18 The majority of species selected for planting in POS are to be local native species, preferably selected with consideration to the Vegetation Complex of the site.

9.2.19 A variety of pot sizes can be used, with 140mm pots preferred for high visibility, amenity planting areas and tube stock for larger, medium visibility areas.

9.2.20 Planting is to be installed at a density of 3 plants / m2, however consideration is to be given to the mature form and size of plants to ensure that visual surveillance is allowed for and aesthetics are maintained, eg planting mixes should contain a large number of small shrubs, groundcovers and grasses, a smaller number of medium and large shrubs and fewer trees.

9.2.21 Large areas of planting are to be biodiverse and utilise a large number of different species, while small garden beds are utilise a small number of species (eg. maximum number of species for a 3m2 garden bed is to be two or three)

9.2.22 Garden beds are to be a minimum area of 3m2.

Species selection for Revegetation

9.2.23 Local native species specific to the Vegetation Complex of the site are to be selected for revegetation planting, with consideration given to establishing an understory, midstory and canopy as found within the Vegetation Complex.

9.2.24 Planting is to be installed at a minimum density of 3 plants / m2.

9.2.25 Establishing high biodiversity is to be a priority when selecting planting palettes.

Dry Planting

9.2.26 The City has a strong preference for planted areas to be non-irrigated.

9.2.27 Dry planting is be installed just prior to, or at the beginning of winter, generally between May and the end of June.

9.2.28 All plants are to have TerraCottem soil conditioner, or approved equivalent product, applied and thoroughly mixed into growing media at time of planting at manufacturer recommended rates.

9.2.29 Tubestock is to be used for all dry planting.

Planting Procedure

9.2.30 Planting to be undertaken according to relevant standards and in a horticulturally approved manner including, but not restricted to, soil preparation, soil additives, planting depth, backfilling, fertilising, watering and staking.

9.2.31 New plantings, except for dry planted areas, are to be deep watered a minimum of 3 days per week, dependant on water restrictions and authorised exemptions, in summer. Watering frequency is to be adjusted in winter and irrigation may be turned off over the winter months subject to plant performance.

Gradients

9.2.32 Gradients must not exceed 1:4 within garden bed areas. A gradient of 1:3 will be permitted if required under exceptional circumstances.

9.3 Trees

Planting Requirements

9.3.1 The developer is required to install a minimum of one street tree per lot on the verge adjacent to each property, as per Local Planning Policy No.2 Streetscapes. All street trees are required to be installed, watered and maintained by the developer for a minimum of two years and handed over to the City as per the City's Practical Completion and Handover Process. The street trees can be hand watered or a temporary irrigation system installed.

9.3.2 Street tree planting plans are to be submitted for all subdivision stages, following the requirements for detailed design approval submission.

9.3.3 Street trees are to be centrally planted on the verge, however where lot frontages are 15m or less, the tree will be required to be planted to one side of the verge to allow suitable space for crossovers.

Tree Retention

9.3.4 The retention of mature trees is to comply with the City's Local Planning Policy No 1. Landscape Feature and Tree Retention.

9.3.5 The location and species of all mature trees which are to be retained are to be identified on landscape plans.

9.3.6 Arboricultural reports will be required to be provided for all mature trees which are to be retained in close proximity to playgrounds and high use areas, to ensure that works will not adversely impact on these trees and cause an increased risk to those using the POS.

9.3.7 Existing trees to be retained shall be protected on construction sites in accordance with AS4970 – 2009 Protection of Trees on Development Sites.

Species Selection - Streetscapes

9.3.8 All proposed tree species are to be approved by the City of Kwinana and selected in accordance with City of Kwinana Tree Selection Guide, refer to Appendix C. The use of local native species that complement the character of the site is preferred, though the use of exotic species with low on-going maintenance and water requirements is permitted. Species that have been identified as weeds will not be approved.

Species Selection – POS

9.3.9 All proposed tree species are to be approved by the City of Kwinana and selected in accordance with City of Kwinana Tree Selection Guide, refer to Appendix C. The use of large local native species in POS is preferred. Exotic trees are to be used sparingly and only as feature trees, or as transplants to provide shade for playgrounds.

Spacing, Clearances and Planting

9.3.10 Trees are preferred in 45L, 100L and 200L bag sizes. Trees planted as part of large scale revegetation are to be tube stock.

9.3.11 Trees shall be planted a minimum 1m from any hard paved surface or edge.

9.3.12 Trees in streetscapes are to planted in accordance with the Utility Providers Code of Practice and Local Planning Policy No.2 Streetscapes.

9.3.13 Where the tree overhangs the road, the canopy will be raised to a minimum height of 5 meters so vehicular traffic can pass safely beneath without damaging the tree.

9.3.14 Trees in turf shall be located a minimum of 2m from all objects and mowing kerbs to allow for ride on mowing clearance.

9.3.15 New trees will be staked using two or three stakes of a suitable length and thickness and using a suitable tie material. Stakes shall be located parallel to the prevailing wind direction on site and shall not pierce the root ball.

9.3.16 All ties will be installed using the 'figure eight' method and will be done in such a way as to provide the best support with minimal damage to the stem or trunk.

9.3.17 Mulch >75-100mm is to be applied to the base of all juvenile trees.

9.3.18 Chunky pine bark mulch is to be used in high visibility areas while recycled green waste may be used in low visibility areas.

9.3.19 Tree rings or similar are encouraged to be used for verge tree planting to aid in watering, in lieu of mulch. Minimum tree ring dimeter is 600mm.

9.3.20 Trees are preferred to be located in garden beds instead of turf areas. Trees in turf are to be kept to a minimum.

Root Barriers

9.3.21 Trees located within paved surfaces, or which are deemed to pose a risk for future root damage, are to be installed with root barriers. Root barriers are to extend a minimum of 800mm below surface level, with the top of the barrier finishing in line with the top of surrounding hard surface or mulch layer.

Tree Grates

9.3.22 Tree grates are only to be installed in high traffic urban areas, such as commercial areas or similar.

9.3.23 Unless otherwise approved, tree grates shall be constructed of steel and suitably sealed from the elements by way of galvanising, painting or powder-coating. All tree grates are to be installed flush with surrounding surfaces so as to not create a trip hazard.

10. WATER SENSITIVE URBAN DESIGN

10.1 General

10.1.1 All designs are to be in accordance with the approved Water Management Plans.

10.1.2 Stormwater drainage infrastructure shall be located and designed so that it is integrated within the streetscape or POS.

10.1.3 All furniture, sport equipment and play spaces are to be located outside of flood inundation areas. Paths, turf and garden beds are to be located above the 20% ARI inundation level.

10.1.4 Suitable vehicular maintenance access is required to stormwater drainage outlet pits and Gross Pollutant Traps (GPT).

10.2 Stormwater Rain Gardens / Bio-filtration Systems

10.2.1 Refer to City of Kwinana standard drawing STD-D10_B – Rain Garden Details, available on the City of Kwinana website.

10.2.2 The design of biofilters is flexible and they can be designed to fit into different locations, such as verges, tree pits, medians, POS and carparks.

Species Selection and Planting Design

10.2.3 If rain gardens are located within the road reserve, species selection will need to ensure that pedestrian and vehicle sight lines will not be impacted on.

10.2.4 Planted areas must contain species that are able to tolerate inundation and are appropriate for desired pollutant / nutrient removal.

10.2.5 Fine gravel mulch with a diameter of less than 6mm is permitted to be installed to rain gardens, however is not required if plants are densely planted. Gravel mulch is to be between 50 and 75mm thick.

10.2.6 A minimum of five different species, planted at a rate to ensure coverage of the biofilter within one year, are to be installed to bio-filtration systems. If the biofilter is small in area (generally less than 6m2), then this can be reduced to three different species. Species are to be suitable for bio-filters and are to be selected from the *Vegetation guidelines for Stormwater Bio-filters in the South West of Western Australia,* published by Monash University.

Plant selection must be tailored to the location, purpose and site conditions of the biofilter. The following table provides principles for selecting species for biofilters:

Key Plant Selection Principle	Rationale and Design Criteria
Include a diversity of species	• Diversity in species ensures the biofilter is resilient and adaptable to a range of climatic conditions and able to achieve a range of treatment objectives, as well as providing visual interest. Diversity also helps ensure that plant coverage will remain if one species fails.
Select plants that can tolerate inundation as well as dry periods	• If the biofilter is not irrigated for summer watering, species must be drought tolerant as well as able to tolerate inundation. • Irrigated biofilters and basins can include species which are less drought tolerant and can be supported by summer watering.
Locate and select species suited to the form of the biofilter / basin	• While the priority is to install plants which are suited to inundation and remove nutrients in the base of the biofilter, groundcovers and more decorative native species may be utilised to stabilise slopes of biofilters / basins.
Plant a mixture of plant types with multiple layers of vegetation, including sedges/ groundcovers, shrubs and trees	• Plant a mix of clumping and spreading sedges and rushes, as well as small shrubs and groundcovers where appropriate. • If nitrogen removal is a priority, avoid planting high numbers of shrubs and trees (thicker rooted species) as root systems dominated by thicker roots are not as effective as fine rooted systems for nitrogen removal. • Creating multiple canopy levels provides shade and protection for understory species during dry periods.
Plant Densely	• Dense planting helps prevent erosion and weed encroachment, as well as providing a high root biomass for nutrient and pollutant removal. • Plant at a density which will cover the biofilter surface within one year. • Density Guidelines: Clumping sedge and rushes – 6 to 9 plants/m2 Spreading sedges and rushes – 4 to 6 plants/m2 Small shrubs – 1 plant per 2m2 Trees – 1 tree per 6m2* *Consideration will need to be given to the size of the tree in relation to the size of the biofilter, as well as how roots may impact on the biofilter structure *Deciduous trees are not suitable for inclusion in biofilters as leaves can add to nutrient loading

Table adapted from Vegetation Guidelines for Stormwater Biofilters in the South West of Western Australia, published by Monash University

10.2.7 The following tables provide example planting palettes for biofilters:

Location: Verge / median, not irrigated, dry conditions
Priority: Nutrient removal (at least 50% of species selected are to be effective or suspected effective at nutrient removal)

Species	Habitat	Inundation tolerance	Drought tolerant	Nutrient removal performance	Plant density	Plant location
Carex apressa	Sedge - clumping	Regular, temporary, dry	Yes	High	6 to 9 plants/m2	Base
Juncus pallidus	Rush - clumping	Temporary, dry	Yes	High	6 to 9 plants/m2	Base
Conostylis candicans	Herb	Temporary, dry	Yes	Unknown	6 to 9 plants/m2	Base
Juncus pauciflorus	Rush - clumping	Regular, temporary, dry	Yes	Suspected effective	6 to 9 plants/m2	Base
Beaufortia elegans	Shrub	Temporary, dry	Yes	Unknown	1 plant per 2m2	Base
Melaleuca lanceolata	Tree	Regular, temporary, dry	Yes	Suspected effective	1 tree per 6m2	Base
Eremophila glabra	Groundcover	Temporary, dry	Yes	Unknown	3 plants per m2	Slope - stabilisation
Hemiandra pungens	Groundcover	Temporary, dry	Yes	Unknown	3 plants per m2	Slope - stabilisation

Location: Verge / median, summer irrigation **Priority:** Nutrient removal (at least 50% of species selected are to be effective or suspected effective at nutrient removal)						
Species	**Habitat**	**Inundation tolerance**	**Drought tolerant**	**Nutrient removal performance**	**Plant density**	**Plant location**
Carex apressa	Sedge - clumping	Regular, temporary, dry	Yes	High	6 to 9 plants/m2	Base
Juncus pallidus	Rush - clumping	Temporary, dry	Yes	High	6 to 9 plants/m2	Base
Conostylis aculeata	Herb	Regular, temporary, dry	Yes	Unknown	6 to 9 plants/m2	Base
Baumea preissii	Rush - spreading	Regular, temporary	No	High	4 to 6 plants/m2	Base
Melaleuca incana nana	Shrub	Temporary	No	High	1 plant per 2m2	Base
Melaleuca raphiophylla	Tree	Regular, temporary, dry	No	Suspected effective	1 tree per 6m2	Base
Eremophila glabra	Groundcover	Temporary, dry	Yes	Unknown	3 plants per m2	Slope - stabilisation
Hemiandra pungens	Groundcover	Temporary, dry	Yes	Unknown	3 plants per m2	Slope - stabilisation

Location: Verge / median, high groundwater **Priority:** Nutrient removal (at least 50% of species selected are to be effective or suspected effective at nutrient removal)						
Species	**Habitat**	**Inundation tolerance**	**Drought tolerant**	**Nutrient removal performance**	**Plant density**	**Plant location**
Carex apressa	Sedge - clumping	Regular, temporary, dry	Yes	High	6 to 9 plants/m2	Base
Juncus kraussii	Rush - clumping	Regular, temporary	No	High in wet environments	6 to 9 plants/m2	Base
Conostylis aculeata	Herb	Regular, temporary, dry	Yes	Unknown	6 to 9 plants/m2	Base
Baumea preissii	Rush - spreading	Regular, temporary	No	High	4 to 6 plants/m2	Base
Melaleuca seriata	Shrub	Regular, temporary, dry	Yes	Suspected effective	1 plant per 2m2	Base
Melaleuca raphiophylla	Tree	Regular, temporary, dry	No	Suspected effective	1 tree per 6m2	Base
Eremophila glabra	Groundcover	Temporary, dry	Yes	Unknown	3 plants per m2	Slope - stabilisation
Hemiandra pungens	Groundcover	Temporary, dry	Yes	Unknown	3 plants per m2	Slope - stabilisation

Plants selected from Vegetation Guidelines for Stormwater Biofilters in the South West of Western Australia, published by Monash University

10.2.8 The following table details the requirements to be met for media selected for use in stormwater biofilters:

Property	Specification to be met
Filter Media The main role of the filter media in a bioretention system is to remove pollutants and support vegetation.	
Depth	Between 400 and 600mm thick.
Material	Either an engineered material – a washed, well-graded sand – or naturally occurring sand, possibly a mixture
Saturated hydraulic conductivity	Between 100mm/hr and 300mm/hr
Clay and silt content	<3% (w/w)
Grading of particles	Smooth grading – all particle size classes should be represented across sieve sizes from the 0.05mm to the 3.4mm sieve
pH	5.5–7.5
Electrical conductivity	<1.2dS/m
Organic matter content	≤5%
Nutrient content	Total nitrogen content <1000mg/kg Available phosphate (Colwell) <80mg/kg
Transition Layer The transition layer separates the filter media from the existing sand (or drainage layer if a collection pipe is included in the rain garden design) and prevents migration of the filter media downwards.	
Depth	100mm thick
Material	Clean well-graded sand e.g. A2 filter sand (0-9.5mm)
Hydraulic conductivity	Must be higher than the hydraulic conductivity of the overlying filter media
Fine particle content	< 2%
Particle size distribution	Bridging criteria – the smallest 15% of sand particles must bridge with the largest 15% of filter media particles
Drainage Layer (only required if stormwater is not infiltrating directly into surrounding soils) Free draining layer containing pipe if required.	
Depth	200-300mm, minimum 50 mm cover over underdrainage pipe
Material	Clean, fine aggregate - 2-7 mm washed screenings
Hydraulic conductivity	Must be higher than the hydraulic conductivity of the overlying transition layer
Perforations in underdrain	Perforations must be small enough relative to the drainage layer material

Table adapted from Stormwater Biofiltration Systems – Summary Report, published by Cooperative Research Centre for Water Sensitive Cities

10.2.9 To ensure that bio-filtration systems are not damaged by sediment build up during housing construction, either of the following two methods are to be applied:

- The bio-filtration system is to be completed prior to housing construction within the catchment area and protected until construction is complete.
- Filtration media and planting is to be installed once housing construction within the catchment area is complete.

If a protection method has not been applied, the filter media and planting will be required to be replaced at the developers cost in rain gardens which are damaged by sediment build up during construction.

10.3 Basins / Stormwater Detention Areas

Species Selection and Planting Design

10.3.1 Basins and stormwater detention areas are usually located in POS, are larger than raingardens or biofilters and designed to contain larger storm events. They do not usually contain biofiltration media.

10.3.2 Due to their larger size, planted basins and detention areas can support biodiverse planting and can be designed to look like natural areas.

Planted areas must contain species that are able to tolerate inundation and dry periods, and should be selected from the *Vegetation guidelines for Stormwater Bio-filters in the South West of Western Australia,* published by Monash University. Plant selection must be tailored to the location, purpose and site conditions of the basin.

10.3.3 Gravel with a diameter of less than 12mm is permitted to be installed to basins, however is not required if plants are densely planted.

10.3.4 Any landscaped drainage areas must comply with the same gradients for garden beds (no steeper than1:4) and turf areas (no steeper than1:6).

10.4 Living Streams

10.4.1 The grade of stream banks are to be no steeper than 1:6.

10.4.2 The grade of base flow area (maximum depth of 300mm) is permitted to be 1:3.

10.4.3 Localised grading is permitted around existing trees to allow for retention.

10.4.4 Local native species specific to the Vegetation Complex of the site are to be selected for revegetation planting, with consideration given to those which are suitable for a living stream environment and can cope with inundation.

10.4.5 Rocks are to be used to aerate water and for bank stabilisation.

10.5 Additional Resources

- Vegetation Guidelines for Stormwater Biofilters in the South West of Western Australia, published by Monash University. Available: https://watersensitivecities.org.au/wp-content/uploads/2016/07/381_Biofilter_vegetation_guidelines_for_southwestWA.pdf

11. HARDSCAPES

11.1 Paths, Hardscapes and Paving

Dimensions

11.1.1 Hardscape areas and pedestrian paths in POS shall be a minimum width of 1500mm, with higher use paths to be a minimum of 2000mm wide.

11.1.2 Paths in streetscapes are approved through the civil design approval process.

11.1.3 In situ concrete hardscape accessible by vehicles shall be reinforced and a minimum of 150mm thick.

11.1.4 Paths to be constructed to City of Kwinana standard drawing STD-R07_H - Typical Concrete Footpath (available on City of Kwinana website).

11.1.5 Pram ramps to be constructed to City of Kwinana standard drawing STD-R04_G-Standard Pedestrian Ramp (available on City of Kwinana website).

Materials

11.1.6 The following materials are acceptable for use as paved surfaces:

- In situ concrete
- Unit paving (clay, concrete, stone etc.) with edge restraint haunching
- Red asphalt with concrete edging

Compacted and stabilised granular materials (road base, gravel, sawdust, limestone, etc.) will generally not be accepted; except where the developer can demonstrate that the use of such material will complement a specific POS site and use of the material does not impact on accessibility requirements.

11.1.7 Loose gravels are not permitted to be installed in POS or streetscapes, except where required for drainage purposes.

11.1.8 Surfaces are to be non-slip and comply with Australian Standards.

Sub-Surface Preparation

11.1.9 Sub surface is to be suitably prepared and compacted.

Grades

11.1.10 Paving is to be designed and installed to comply with the Australian Standard AS1428:2009 ‘Design for access and mobility’. Exceptions will be made for paths running along the back of a kerb and though retained vegetation.

11.1.11 Tactile paving shall be installed in accordance with Australian Standard AS1428.4.1:2009 ‘Design for access and mobility – Tactile indicators’

11.1.12 All paved surfaces are to be graded to drain to turf and planting areas.

11.2 Garden Kerbing

Profile and Dimensions

11.2.1 Garden bed kerbing profiles will typically be either 150mm (w) x 200mm (d) or 150mm x 150mm.

Materials and Method

11.2.2 All garden bed kerbing, unless otherwise requested or approved, is to be grey in colour, 32mpa at 28 days and installed utilising suitable extrusion kerbing equipment operated by a competent and qualified operator.

11.2.3 Refer to Landscape Standard Details Drawing (available on City of Kwinana website).

11.3 Car Parks within POS

11.3.1 POS is to be served by surrounding on street car bays. Carparks within POS will only be permitted in exceptional circumstances where surrounding on street bays are not deemed to be sufficient.

11.3.2 All car parks will be approved as per the civil design approval process and be in accordance with all relevant Engineering Standard Drawings (available on City website).

11.3.3 All carparks and on street car bays are to be connected to the POS via a continuous accessible path of travel.

11.4 Walls

Design, Dimensions and Materials

11.4.1 Proposed materials to be used shall be durable and hard-wearing, suitable for exposure to outdoor conditions with low on-going maintenance costs.

11.4.2 A non-sacrificial anti-graffiti coating must be installed to exposed areas of walls.

Building License Requirements

11.4.3 A building licence is required to be obtained for all walls over 500mm.

11.4.4 Accessible retaining walls with a height of 1m and greater require a balustrade as per Australian Standard 1428.1.

11.5 Stairs

Design, Dimensions and Materials

11.5.1 Proposed materials to be used shall be durable and hard-wearing, suitable for exposure to outdoor conditions with low on-going maintenance costs. Timber stair cases are not permitted.

11.5.2 Stairs are to be designed in accordance with Australian Standard 1428.1.

11.5.3 Tactile indicators in concrete or asphalt are to be fibre reinforced polymer cast in place, or applied to the surface with mechanical and adhesive fixings as supplied by Access Tile or Guardian Tactile Systems (or approved equivalent).

Tactile indicators in paving are to be concrete tile inserts.

Tactile colours are to be as follows:

- Black if located within pram ramps or on concrete surfaces
- Cream if located on asphalt surfaces.
- Contrasting colour if located within brick paved surfaces.

Building License Requirements

11.5.4 A building licence is required to be obtained for stairs over 500mm in height.

12. FURNITURE

12.1.1 The City may require certain models of furniture to be installed to some areas to ensure consistency with preceding landscape development. Please contact the City at concept design stage to confirm.

12.2 Bins

Design, Dimensions and Materials

12.2.1 Two bins are to be provided at bin locations, one for Recycling and one for General Waste.

12.2.2 Bin enclosures are to be located close to picnic areas and close to the outer edge of the park for ease of access when emptying.

12.2.3 Litter bin enclosures must be capable of housing a standard 240 litre bin and have a lockable access door. All bin enclosures are to have an elevated cover lid to prevent rainwater entering the bin.

12.2.4 The bin enclosure is to be vandal proof, with a secure anchoring system, require minimal on-going maintenance and have and anti-graffiti coating applied.

12.2.5 The front panel of the bin enclosure is to be solid so that a vinyl decal can be applied. Timber slats are not a permitted material for bin enclosures. Modwood, recycled plastic or similar may be used instead (for back and side panels).

12.2.6 The developer is responsible for installing vinyl decals on the bin station to demarcate general waste and recycling. The design for the decals is available on the website, within the Engineering Specifications section. Decals are to be placed as shown in image below.

Maintenance

12.2.7 Refer to section 4.9.

12.3 Barbecues

Design, Dimensions and Materials

12.3.1 Barbecues are to be a push-button operated electric model with a side bench. The preferred model is the DA Christie Modular Electric Barbeque (or approved equivalent) with modular side bench.

12.3.2 Barbeques may be freestanding or integrated into an approved surround structure.

12.3.3 Barbeques are to be co-located with a picnic setting, bin unit, shelter and preferably close to a water fountain. Barbeques are to be located outside of the shelter.

12.3.4 All barbeques are to be installed on a suitable concrete hardstand.

Maintenance

12.3.1 Refer to section 4.9.

12.4 Seats, Benches and Picnic Tables

Design, Dimensions and Materials

12.4.1 All furniture shall be constructed from durable and hard-wearing materials suitable for exposure to outdoor conditions.

12.4.2 Timber battens are not permitted, however modwood or recycled plastic is acceptable.

12.4.3 Furniture is to withstand vandalism, be secured using strong anchoring systems and require minimal ongoing maintenance.

12.4.4 Seated benches are to be of a minimum 3 seat size, while picnic tables are to be a minimum 6 seater size. The majority of seating is to have a back rest and arm rests.

12.4.5 All furniture is to be surface bolt down fixture to concrete pad.

Location and Accessibility

12.4.6 Furniture models are to be accessible. All furniture shall be set in a hard-stand area and integrated with universally accessible pathways. Furniture is to be situated to ensure there is unimpeded access and sufficient space for circulation surrounding the furniture, especially for those relying on mobility devices.

12.4.7 Picnic tables are to be an accessible model with inset supports to allow for wheelchair access at each end.

12.5 Drink Fountains

Design, Dimensions and Materials

12.5.1 Drink fountains shall be constructed from durable and hard-wearing materials suitable for exposure to outdoor conditions.

Location and Accessibility

12.5.2 Drinking fountains are to be an accessible model, set in a hard-stand area and integrated with universally accessible pathways. The drink fountain is to be situated to ensure there is unimpeded access and sufficient space for circulation surrounding the furniture, especially for those relying on mobility devices.

13. PLAYGROUNDS AND SPORTS EQUIPMENT

13.1 Playgrounds

Design and Location

13.1.1 Playgrounds are to be designed in accordance with all relevant Australian Standards. Please note that compliance with Australian Standards does not guarantee approval by the City, as risk, aesthetics and ongoing maintenance requirements will also be evaluated when assessing proposals.

13.1.2 A Playground Design Audit may be required to be submitted prior to approval being granted if the City deems necessary.

13.1.3 A Playground Safety Audit is required to be conducted by a qualified independent auditor, at the Developers cost, after the installation of the play equipment but prior to the practical completion inspection and the park opening to the public. Any remediation work required as a consequence of the audit (as deemed by the City) shall be undertaken by the Developer and approved by the City. A Playground Safety Audit is also required to be provided at handover.

13.1.4 Playgrounds are to be set back a minimum of 15m from roads. A fence may be required if determined that the road presents a risk to users.

13.1.5 Shade is to be considered when locating playgrounds. Where large existing trees are present on site, consideration should be given to locating the play space nearby to utilise the shade, subject to the level of risk the tree presents. If a play space is proposed to be located beneath mature trees, an Arboricultural Report and risk assessment will be required to be submitted with detailed design plans. If the playground is approved to be placed under retained trees, then the developer will be required to engage an Arborist to undertake inspections of the trees once a year and at time of handover, unless the Arborist report recommends inspections at a higher frequency.

13.1.6 Where existing shade is not available, shade sails are required to be installed in playgrounds within Neighbourhood and District POS. Shade sails are optional in Local POS, with preference given to locating the playground under existing trees.

13.1.7 A building licence will be required to be obtained from the City's Building Department for all custom play structures prior to construction.

13.1.8 Ongoing maintenance access requirements are to be considered when designing playgrounds and selecting equipment. Ensure that all internal areas of equipment are easily accessible by maintenance workers and space is provided for elevated work platforms should maintenance access be required to external areas of tall structures.

13.1.9 Ensure that all areas of play equipment are accessible to adults to ensure that children can be accessed if required.

Access and Inclusion

13.1.10 See section 7 – Design for Access and Inclusion.

Materials

13.1.11 Off the shelf equipment, with guaranteed supply to spare parts and maintenance support, is preferred to custom designed equipment. Custom designed equipment will only be supported when it can be demonstrated that it will require low maintenance and spare parts are readily available.

13.1.12 Materials proposed for use in play equipment shall be durable and hard-wearing, suitable for exposure to outdoor conditions with low on-going maintenance costs and requirements.

13.1.13 All structural components are to be steel.

13.1.14 All rope used in playgrounds is to be steel core.

13.1.15 Timber features which are difficult to access and require ongoing maintenance are not permitted. Modwood or similar is permitted.

13.1.16 All decking is to be modwood, composite or similar.

Maintenance

13.1.17 Refer to section 4.8.

13.2 Soft Fall

Materials

13.2.1 A certified soft fall surface shall be used within all play equipment fall zones in Accordance with Australian Standards and may include:

- Wet-pour rubber soft fall installed to manufactures specifications.
- Washed white play sand, minimum 400mm thickness
- Play mulch, minimum 400mm thickness. To be pine chip type, shredded pine is not acceptable.

13.2.2 The use of soft fall materials are to be limited to use within fall zone areas only.

13.2.3 There is to be no change of level, or soft fall material, within fall zones.

13.2.4 Colour changes within rubber soft fall areas are to be minimised to reduce the number of joins.

13.2.5 Sand is not be installed adjacent to rubber soft fall. Play mulch is permitted to be installed instead.

13.2.6 Accessibility requirements are to be considered when designing soft fall areas, refer to section 7.2.

13.2.7 Trees are not to be planted into rubber soft fall. Trees planted within sand and mulch soft fall areas are to have a minimum 500mm deep root barrier installed to prevent roots encroaching into the soft fall material.

Edging

13.2.8 All play sand and play mulch must be suitably contained with a hard edge, such as limestone block edging, logs, concrete kerbing or adjacent paved surfaces.

13.2.9 For acceptable rubber soft fall edging, refer to Landscape Standard Details (available on City of Kwinana website).

13.3 Sports Equipment

Design and Location

13.3.1 Sports equipment is required to be located with consideration for surrounding residences and site context. For example, a basketball ring is not permitted to be located in a small POS in close proximity to surrounding houses.

13.3.2 Goal posts and basketball rings are to be positioned to ensure that there is ample space for activity and that stray balls are not directed towards adjacent residences, shelters, structures or areas of risk, such as roads and drainage basins.

13.3.3 In small POS surrounded by busy roads or close residences, fencing will be required to ensure that balls are contained within designated playing areas.

13.3.4 A building licence is required to be obtained from the City prior to installation for structures, such as basketball rings and football goal posts. Basketball and netball rings are to be freestanding and are not to be attached to structures such as walls or shelters.

Sports surfacing

13.3.5 Synthetic sports surfacing, such as Plexipave, acrylic surfacing or similar is not permitted to be installed to informal courts. Such material will only be permitted to be used for district sporting courts or courts where organised, formal sports will be played.

13.3.6 Informal multiuse, basketball and netball courts are to be concrete, minimum 100mm thick, with line marking applied. The concrete is to be finished so that it is anti-slip.

14. STRUCTURES

14.1 Shelters

14.1.1 A building licence will be required to be obtained from the City's Building Department for all shelters prior to construction.

14.1.2 Materials proposed for use in structures shall be durable and hard-wearing, suitable for exposure to outdoor conditions with low on-going maintenance costs and requirements.

14.1.3 All structural components are to be steel or aluminium. Shelters are not to be constructed from timber.

14.1.4 Timber features which are difficult to access and require ongoing maintenance are not permitted on shelters.

14.2 Bridges, Boardwalks and Decks

14.2.1 A building licence will be required to be obtained from the City's Building Department for all bridges, boardwalks and deck areas prior to construction

14.2.2 All structural components are to be steel.

14.2.3 Bridges and boardwalks are to be designed in accordance with Australian Standard 1428.1.

14.2.4 Suitable edge restraints are required on all bridges, boardwalks and decks in accordance with Australian Standard 1428.1 to protect wheel chairs, prams and bikes.

14.2.5 All areas of decking are to be modwood, composite or similar.

14.3 Shade Sails

14.3.1 Where existing shade is not available, shade sails are required to be installed in playgrounds within Neighbourhood and District POS. Shade sails are optional in Local POS, with preference given to locating the playground under existing trees.

14.3.2 Shae sail poles are to be located so that access is available for removing and reinstalling shade sails.

14.3.3 Shade sail poles are not to exceed 6m in height.

14.3.4 A building licence is required to be obtained for all shade sails.

14.4 Lighting

Location

14.4.1 Lighting is not permitted to be installed in Local POS. Small areas of lighting may be permitted within Neighbourhood POS to light picnic areas to allow for time controlled extended use past sunset.

14.4.2 Lighting may also be permitted to light well used thoroughfares through POS which are likely to be used after sunset in lieu of surrounding footpaths within the road reserve.

14.4.3 Lighting is not permitted to be installed to playgrounds or informal sports courts.

Design, Dimensions and Materials

14.4.4 Only fittings specifically designed for outdoor conditions shall be used.

14.4.5 Energy efficient lighting such as solar and LED fittings are to be used for all POS lighting.

14.4.6 In-ground up-lighting is not be installed.

14.4.7 Pedestrian lighting shall be designed in accordance with Australian Standard - Lighting for roads and public spaces - Pedestrian area (Category P) lighting - Performance and design requirements' (AS/NZS 1158.3.1 – 2005) where applicable.

14.4.8 Sports lighting shall be in accordance with Australian Standard AS2560:2003 'Sports Lighting'.

Wiring and Electrical

14.4.9 A 'PE' cell and timer control system is to be installed for all lighting. All control gear is to be easily accessible within the POS for access by maintenance staff.

14.4.10 Electrical Safety Certification is to be provided to the City at Practical Completion.

14.4.11 RCD push button testing is to be undertaken by the developer during the developer maintenance period as per AS 3000, with the log of inspections provided to the City at Handover.

14.5 Signage and Entry Statements

14.5.1 Estate advertising signage and entry statements are approved through the City's Planning Department and require a Development Application. Please refer to Policy Advertising and Directional Signage in Thoroughfares and on Local Government Property, available on the City of Kwinana website.

14.5.2 Entry statements are not to be located within POS or the road reserve.

14.5.3 The City encourages the installation of feature artwork in lieu of entry statements.

14.5.4 Any interpretive signage proposed within POS is to be developed in consultation with the City. The City may have a standard specification for signage in certain areas, and consultation with specific community groups may be required.

14.6 Artwork

14.6.1 All artwork proposals are to be prepared by a suitably qualified artist, who meets any of the following criteria:

a) has obtained a Bachelor Degree or Diploma in visual arts or any similar field or who is undertaking studies towards these qualifications;

b) has a track record of exhibiting and/or selling their own original artwork;

c) has had their own original artwork purchased by major public collections;

d) who earns more than 50% of their income from arts related activities such as teaching art and selling their own artwork;

e) who has secured work or consultancies in the arts field on the basis of professional expertise; or

f) who has expertise in creating the form of public art proposed.

14.6.2 Proposals are to have relevance to site, sense of place and community. Artwork is not to be based on business logos, subdivision marketing themes, wording or symbols.

14.6.3 Developers are encouraged to discuss proposals with the City early in the development process to ensure that the concept will be supported by the City prior to an artist being engaged.

14.6.4 Public artwork proposals will be reviewed by the City's Public Art Review Panel in regards to the qualifications of the artist and the suitability of the proposal in relation to relevance to site, sense of place and community.

14.6.5 Artwork is to be robust and low-maintenance and not pose a risk to public safety.

14.6.6 An Artwork Management Plan is required to be provided to the City at Practical Completion.

14.6.7 The Developer is responsible for all artwork repair, replacement and maintenance until handover.

15. MAINTENANCE ACCESS

15.1 Vehicular Access

15.1.1 For all ovals, vehicular access for parks maintenance trucks shall be provided via a minimum 3m wide reinforced concrete crossover with lockable removable bollards or lockable gates.

15.1.2 Footpath / paving / dual use crossings are suitable for recreational POS and shall be 150mm thick reinforced concrete.

15.1.3 Suitable vehicular maintenance access is required to all picnic and playground areas for repairs, replacements and soft fall maintenance.

15.1.4 Suitable vehicular maintenance access is required to stormwater drainage outlet pits and Gross Pollutant Traps (GPT).

15.2 Bollards

15.2.1 Bollards are only to be installed in turf areas adjacent to flush kerbing or where undesired vehicle access is likely to occur.

15.2.2 Bollards in high visibility areas to be composite flexipole bollards, or approved equivalent, and installed as per the manufacturer recommendations.

15.2.3 In medium and low visibility areas, treated pine bollards, with a turned top, are suitable.

15.2.4 RR5 or RR6 to be used and installed at a minimum depth of 600mm below surrounding soil level.

15.2.5 Removable bollards are to be installed where vehicle access is required.

15.3 Fencing and Gates

15.3.1 Fencing is to be installed to environmental reserves and to POS where unwanted vehicle access is likely to occur and bollards are not sufficient. The types of fencing the City permits are:

- Sports fencing – sports grounds
- Conservation fencing – environmental reserves and wetlands
- Urban post and rail – can be used for high profile recreational parks or ovals where dirt bike access is an ongoing issue

15.3.2 A pedestrian chicane is to be constructed adjacent reserve gates to allow pedestrian access to natural areas where permitted.

15.3.3 Fencing and gates are to be constructed to City of Kwinana Standard Fencing Drawing, available on City of Kwinana website.

16. WETLANDS AND RETAINED BUSHLAND

16.1.1 The approvals process and management of wetland and natural areas is managed by the City's Senior Environmental Planner.

17. REFERENCES

City of Kwinana (2020), *Parks Maintenance Standards 2020,* City of Kwinana, PO Box 21, Kwinana, Western Australia

Department of Sport and Recreation, 2012, *Classification Framework for Public Open Space*, Perth, WA, Government of Western Australia

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18. LIST OF APPENDICES

Appendix A	POS Standard Provision Table
Appendix B	Practical Completion and Handover Application Package – Landscape and Irrigation
Appendix C	Tree Selection Guide
Appendix D	BBQ Electrical Testing Form

City of Kwinana
www.kwinana.wa.gov.au

Corner Gilmore Ave and Sulphur Rd, Kwinana WA 6167
PO Box 21 Kwinana WA 6966
t: 08 9439 0200
f: 08 9439 0222
e: admin@kwinana.wa.gov.au

City of Kwinana POS Standard Provision Table

July 2020

POS Classification					Embellishments												
Function	Catchment	Size	Description	Potential Uses	Parking	Ablution	Play Equipment	Shade Sails	Exercise Equipment	Shelter	Picnic Table	Benches and Seating	BBQ	Drink Fountain	Bins	Sports Equipment	Lighting	Other elements required
Recreation / Sport	**District**	Generally 5 to 20ha	Primarily provides for organised formal sport, and will likely include substantial recreation space and some nature space. It is large enough to accommodate a variety of concurrent uses and attracts visitors from surrounding communities. . May also serve conservation functions and include retained bushland and wetlands. May be co-located with a school or other community facility to create a community hub.	• Formal, organised sports • Informal and unorganised sports and associated amenities such as basketball half courts, tennis hitting walls, AFL goals and soccer goals, frisbee golf • Off-lead Dog Exercise and dog parks • Outdoor Exercise • All ages and children's play • Youth Recreation (such as skate parks, BMX etc) • Community Event Space • Bushland/wetland conservation • Walking and cycling • Relaxation and connecting with nature • Picnicking	Minimum 6 on street car bays required, plus on site car park (size dependent on services provided)	Required, number of toilets dependent on services provided	Play equipment to value of $300,000 (excluding soft fall and nature play items)	To be provided where no natural shade is available	Optional	Minimum 2 shelters, maximum 6 shelters	Minimum 2 picnic tables, maximum 6 picnic tables	Minimum 10 seats, maximum 20 seats	Minimum 1 BBQ, maximum 3 BBQ's	Minimum 1 drink fountain, maximum 3 drink fountains	Minimum 2 bin stations, maximum 4 bin stations	Optional	Optional	• Playing field, sports lighting, sports courts and cricket nets as per DCP • Landscaping (with native revegetation, water wise planting and tree planting) • Internal accessible pathways connecting to surrounding area
Recreation	**Neighbourhood**	1 to 5ha	Serve as the recreational and social needs of a community. Residents are attracted by the variety of features and facilities, which offer many recreational opportunities. Spaces can also include bushland retention and protect specific conservation values.	• Informal and unorganised sports and associated amenities such as basketball half courts, tennis hitting walls, AFL goals and soccer goals, frisbee golf • Small skate or BMX facility (maximum $50,000) • All ages and children's play • Bushland/wetland conservation • Walking and cycling • Relaxation and connecting with nature • Picnicking	Minimum 6 on street car bays required	Not permitted	Play equipment to value of $150,000 (excluding soft fall and nature play items)	To be provided where no natural shade is available	Optional	Minimum 1 shelter, maximum 2 shelters	Minimum 2 picnic tables, maximum 4 picnic tables	Minimum 2 seats, maximum 6 seats	Optional - Maximum 2 BBQ's	Optional - Maximum 1 drink fountain	Minimum 1 bin station, maximum 2 bin stations	Optional	Optional	• Irrigated turf for informal kickabout • Landscaping (with native revegetation, water wise planting and tree planting) • Internal accessible pathways connecting to surrounding area
Recreation	**Local**	0.4 to 1ha	Small parklands that service the small-scale recreation needs of the immediate residential population.	• Small scale informal and unorganised sports and associated amenities such as outdoor table tennis, soccer goals • Kickabout space • Children's play • Walking and cycling • Relaxation and connecting with nature	Minimum 3 on street car bays required	Not permitted	Optional if another playground is located within 400m - play equipment to value of $75,000 (excluding soft fall and nature play items)	Optional, but natural shade preferred	Optional	Optional - Maximum 1 shelter	Optional - maximum 2 picnic tables	Minimum 2 seats, maximum 4 seats	Not permitted	Not permitted	Optional - maximum 1 bin station	Optional	Not permitted	• Small areas of irrigated turf for informal kickabout • Landscaping (with native revegetation, water wise planting and tree planting) • Internal accessible pathways connecting to surrounding area

POS Classification					Embellishments												
Function	Catchment	Size	Description	Potential Uses	Parking	Ablution	Play Equipment	Shade Sails	Exercise Equipment	Shelter	Picnic Table	Benches and Seating	BBQ	Drink Fountain	Bins	Sports Equipment	Lighting	Other elements required
Nature	**District**	Generally 5 to 20ha	Spaces managed to protect and enhance environments with ecological and biodiversity values, such as bushland, coastal areas, wetlands and riparian habitats, and geological and natural features. Sites are managed to enable recreational access while protecting local ecological and biodiversity values.	• Provide opportunity for low-impact nature-based recreational activities, such as picnicking, bird watching, walking, cycling or exploring • Likely to include interpretative signage and/or artwork • May be co-located with sports/recreation POS to provide an activated interface with natural areas •Will usually require a Management Plan which provides direction on rehabilitation, permitted uses and ongoing management	Minimum 6 on street car bays required, plus on site car park (size dependent on services provided)	Required	Not permitted (unless co-located with recreation POS)	Not permitted (unless co-located with recreation POS)	Optional	Minimum 1 shelter, maximum 3 shelters	Minimum 2 picnic tables, maximum 6 picnic table	Minimum 10 seats, maximum 20 seats	Minimum 1 BBQ, maximum 3 BBQ's	1 drink fountain	Minimum 2 bin station, maximum 4 bin stations	Not permitted	Optional	
Nature	**Neighbourhood**	1 to 5ha			Minimum 6 on street car bays required	Not permitted	Not permitted (unless co-located with recreation POS)	Not permitted (unless co-located with recreation POS)	Optional	Optional - maximum 2 shelters	Optional - maximum 4 picnic tables	Minimum 2 seats, maximum 6 seats	Optional - Maximum 1 BBQ	Not permitted	Minimum 1 bin station, maximum 2 bin stations	Not permitted	Optional	
Nature	**Local**	0.4 to 1ha			Minimum 3 on street car bays required	Not permitted	Not permitted (unless co-located with recreation POS)	Not permitted	Not permitted	Optional - Maximum 1 shelter	Optional - maximum 2 picnic tables	Minimum 2 seats, maximum 4 seats	Not permitted	Not permitted	Optional - Maximum 1 bin station required	Not permitted	Not permitted	

Practical Completion &
Hand-Over Application Package 2020

Landscape Works

Application Details

POS/Streetscape Name: _____

Location: _____

Applicant Organisation Name: _____

Client Organisation Name: _____

Submit: 'Attention Manager Works' to admin@kwinana.wa.gov.au or PO Box 21, Kwinana WA 6966

Document Control

Rev No.	Date	Revision Details	Author	Reviewer	Approved
1	20/11/12	Initial Document	TM	DB	DB
2	20/5/13	Conversion to PDF form & minor updates	TM	DB	DB
3	26/11/20	Updates	DE	CK	NS

Contents

Introduction

This Practical Completion & Hand-Over Application Package outlines the process and requirements for the transfer of landscape assets to the City of Kwinana.

All assets are to be designed, supplied, installed and maintained as per the City of Kwinana Landscape Development Guidelines 2020.

Handover Process

Design Approval

⇩

Construction Works & Works Inspections

⇩

Practical Completion Application (Step 1)

⇩

Practical Completion Site Inspection (Step 2)

⇩

Defect Rectification

⇩

City Acceptance of Practical Completion (Step 3)

⇩

Developer Maintenance Period & Maintenance Inspections (Step 4)

⇩

Handover Application (Step 5)

⇩

Handover Site Inspection (Step 6)

⇩

Defect Rectification

⇩

City Acceptance of Handover (Step 7)

Application Checklist

Landscape Asset Practical Completion and Handover Process Checklist	
Design	
☐	Designed as per City of Kwinana Landscape Development Guidelines 2020
☐	Design approval issued by City of Kwinana
Construction	
☐	All plant, equipment & materials supplied & installed as per approved design and in accordance with the City of Kwinana Landscape Development Guidelines 2020
☐	Irrigation pipe-work backfill inspection undertaken & approved by City of Kwinana Representative
Step 1 - Practical Completion Application	
☐	Completed Practical Completion Application Package and quantity data supplied
☐	Schedule of costs for POS furniture, play equipment
☐	As constructed irrigation drawings in DWG and PDF format supplied
☐	As constructed landscape drawings in DWG and PDF format supplied
☐	Aspec data supplied
☐	Final Playground Safety Audit supplied if applicable
☐	Proposed Playground Inspection Schedule supplied if applicable
☐	Electrical certification for all electrical items supplied if applicable
☐	Recent arborist reports supplied if applicable
☐	Artwork Management Plan supplied if applicable
☐	Proposed date for Practical Completion Site Inspection (minimum 14 days notice)
Step 2 - Practical Completion Inspection	
☐	Inspection undertaken by City Representative & notification of defects issued
☐	Defects rectified & City notified
Step 3 - Acceptance of Practical Completion	
☐	City re-inspection of defects and acceptance of Practical Completion issued
Step 4 – Developer Maintenance Period	
☐	Maintenance undertaken as per City of Kwinana Landscape Development Guidelines 2020
☐	Monthly reporting of irrigation bore meter readings to City Representative (to be undertaken in the first week of each month)

☐	Arborist inspection reports undertaken during the Developer maintenance period for all trees overhanging play and activity areas, submitted to City
☐	Turf soil analysis at end of year one, submitted to City
☐	Playground Inspections undertaken, carried out as per the proposed inspection schedule provided at Practical Completion. Completed inspections to be provided to City at time of handover
☐	BBQ electrical safety inspections, using the BBQ Electrical Testing Form, carried out every 6 months. Completed forms are to be provided to the City at handover
☐	RCD testing, carried out every 6 months. The log of inspections is to be provided to the City at handover.
Step 5 - Handover Application	
☐	Completed Handover Application Package supplied
☐	All specified as constructed documentation submitted with Practical Completion Application or updated drawings attached
☐	All required maintenance data supplied
☐	All warranties and guarantees supplied
☐	Arborist inspection report undertaken prior to handover for all trees overhanging play and activity areas
☐	Playground Safety Audit supplied if applicable
☐	Completed Playground Inspection checklists, carried out as per the proposed inspection schedule provided at Practical Completion
☐	Completed BBQ Electrical Testing Forms supplied
☐	Log of RCD testing supplied
☐	Turf soil analysis at end of year two, submitted to City
☐	Proposed date for Handover Site Inspection (minimum 30 days notice)
Step 6 - Handover Inspection	
☐	Inspection appointment confirmed with City Representative 7 days prior
☐	Inspection undertaken by City Representative & notification of defects issued
☐	Defects rectified & City notified
Step 7 - Acceptance of Handover	
☐	City re-inspection of defects and acceptance of Handover (official notification issued within 7 days of defect free inspection)

Use of Application Package

Applicants are to complete and submit **all** sections of this Package up to and including the process stage at which they are applying for.

Practical Completion

STEP 1

Practical Completion Application - Landscape

Landscape Details

POS/Streetscape Name: _____

Location: _____

A. Applicant Details

Organisation Name: _____

Contact Name: _____

Contact Title: _____

Contact Phone: _____

Contact Email: _____

Postal Address: _____

B. Asset Details

Note: Construction cost schedule also to be provided. Contractor details can be removed from schedule

Note: If Practical Completion is being sought for both streetscapes and a POS at the same time, asset quantity data is to be separated into each corresponding table below

As Constructed Asset Quantities - STREETSCAPES			
Item	**Asset**	**Unit**	**Quantity**
1	Total area	m^2	
2	Irrigated area	m^2	
3	Non-irrigated area	m^2	
4	Turf area	m^2	
5	Irrigated garden bed area	m^2	
6	Dry-bed / bush-land area	m^2	
7	Path area (including exposed aggregate)	m^2	
8	Hardstand area (including exposed aggregate)	m^2	
9	Paved area	m^2	
10	Total garden bed kerbing length	Lm	
11	Number of plants planted	No.	
12	Number of trees planted	No.	

As Constructed Asset Quantities - POS			
Item	**Asset**	**Unit**	**Quantity**
1	Total area	m^2	
2	Irrigated area	m^2	
3	Non-irrigated area	m^2	
4	Turf area	m^2	
5	Irrigated garden bed area	m^2	
6	Dry-bed / bush-land area	m^2	
7	Path area (including exposed aggregate)	m^2	
8	Hardstand area (including exposed aggregate)	m^2	
9	Paved area	m^2	
10	Total garden bed kerbing length	Lm	
11	Number of plants planted	No.	
12	Number of trees planted	No.	

C. Irrigation (Bore) Details

Bore ID: _____

Bore Location: _____

Installation Contractor Name: _____

Maintenance Contractor Name: _____

Maintenance Contractor Contact: _____

Date of Bore Commission: _____

Water License Number: _____

Water License Allocation: _____(KL/Annum)

Iron Bacteria Filtration System: ◉ Yes ○ No

As Constructed Drawings Attached/Submitted: ◉ Yes ○ No

D. Irrigation (Reticulation) Details

Installation Contractor Name: _____

Date of Pipe-Work Backfill Inspection: _____(Inspection by City)

Maintenance Contractor Name: _____

Maintenance Contractor Contact: _____

As Constructed Drawings Attached/Submitted: ○ Yes ◉ No

E. Landscape Details

Installation Primary Contractor Name: _____

Installation Primary Contractor Contact: _____

Maintenance Contractor Name: _____

Maintenance Contractor Contact: _____

As Constructed Drawings Attached/Submitted: ◉ Yes ○ No

F. Practical Completion Site Inspection

Proposed Inspection Date: _____(min. 14 days notice)

Proposed Inspection Time: _____

Proposed Meeting Location: _____

Applicant Inspection Contact Name: _____

Phone: _____

Email: _____

Note: Unless otherwise arranged by the applicant irrigation shall be operated at landscape inspection.

STEP 2

Practical Completion Site Inspection - Landscape

To be completed by City of Kwinana Representative at site inspection.

A. Inspection Details

POS/Streetscape Name: _____

Location: _____

Date: _____

Time: _____

B. City Representative Details

Primary Inspector: _____

Irrigation Supervisor: _____

Other Staff Present: _____

_____

_____

_____

C. Applicant Representative Details

Name: _____

Name: _____

Name: _____

Name: _____

Name: _____

Name: _____

Checklist Key

S = Satisfactory	- Approved for acceptance
IC = Incomplete	- Works required to complete
UA = Unacceptable	- Works required to rectify non-compliance, defects or damage

PRACTICAL COMPLETION SITE INSPECTION CHECKLIST (Completed by City of Kwinana)					
Item	**Asset**	**S**	**IC**	**UA**	**Comments**
1. Irrigation (Bore)					
1.1	As per drawings & guidelines	☐	☐	☐	
1.2	Plant, equipment & electrical	☐	☐	☐	
1.3	Pressure test	☐	☐	☐	
1.4	Filter compound (where app.)	☐	☐	☐	
2. Irrigation (Reticulation)					
2.1	As per drawings & guidelines	☐	☐	☐	
2.2	Mainline pressure test	☐	☐	☐	
2.3	All sprinklers present & operational	☐	☐	☐	
3. Turf					
3.1	As per drawings & guidelines	☐	☐	☐	
3.2	Healthy condition	☐	☐	☐	
3.3	Weed free	☐	☐	☐	
3.4	No gradient exceeds 1:6	☐	☐	☐	
3.5	Mower clearances	☐	☐	☐	
4. Garden Beds					
4.1	As per drawings & guidelines	☐	☐	☐	
4.2	Weed free	☐	☐	☐	
4.3	75-100mm mulch	☐	☐	☐	
4.4	Complete, even mulch cover	☐	☐	☐	
5. Plants					
5.1	As per drawings & guidelines	☐	☐	☐	
5.2	Healthy condition	☐	☐	☐	
5.3	Spacing & clearances	☐	☐	☐	
6. Trees					

6.1	As per drawings & guidelines	☐	☐	☐	
6.2	Healthy condition	☐	☐	☐	
6.3	Spacing & clearances	☐	☐	☐	
6.4	Bole mulch 75-100mm	☐	☐	☐	
6.5	Weed & grass free bole	☐	☐	☐	
6.6	Remnant tree deadwood	☐	☐	☐	
7. Paths, Hardstands & Paving					
7.1	As per drawings & guidelines	☐	☐	☐	
7.2	Damage & defect free	☐	☐	☐	
7.3	Joint spacing (concrete)	☐	☐	☐	
8. Kerbing					
8.1	As per drawings & guidelines	☐	☐	☐	
8.2	Damage & defect free	☐	☐	☐	
8.3	Joint spacing	☐	☐	☐	
8.4	Alignment & tolerance	☐	☐	☐	
9. Signage and Artwork					
9.1	As per drawings & guidelines	☐	☐	☐	
9.2	Damage & defect free	☐	☐	☐	
10. Bins					
10.1	As per drawings & guidelines	☐	☐	☐	
10.2	Damage & defect free	☐	☐	☐	
11. BBQs					
11.1	As per drawings & guidelines	☐	☐	☐	
11.2	Damage & defect free	☐	☐	☐	
11.3	Operational	☐	☐	☐	
12. Playground, Soft-fall & Shade Sails					
12.1	As per drawings & guidelines	☐	☐	☐	

12.2	Damage & defect free	☐	☐	☐	
12.3	AS. compliant	☐	☐	☐	
13. Furniture (Seats, Benches, Picnic Tables)					
13.1	As per drawings & guidelines	☐	☐	☐	
13.2	Damage & defect free	☐	☐	☐	
13.3	Paint/oil/seal (where app.)	☐	☐	☐	
14. Sports Equipment					
14.1	As per drawings & guidelines	☐	☐	☐	
14.2	Damage & defect free	☐	☐	☐	
15. Car Parks					
15.1	As per drawings & guidelines	☐	☐	☐	
15.2	Damage & defect free	☐	☐	☐	
15.3	Line marking	☐	☐	☐	
16. Gates					
16.1	As per drawings & guidelines	☐	☐	☐	
16.2	Damage & defect free	☐	☐	☐	
17. Fencing					
17.1	As per drawings & guidelines	☐	☐	☐	
17.2	Damage & defect free	☐	☐	☐	
18. Bollards					
18.1	As per drawings & guidelines	☐	☐	☐	
18.2	Damage & defect free	☐	☐	☐	
18.3	Plumb & alignment	☐	☐	☐	
19. Lighting					
19.1	As per drawings & guidelines	☐	☐	☐	
19.2	Damage & defect free	☐	☐	☐	
19.3	Operational	☐	☐	☐	

20. Water Fountain (Drink)					
20.1	As per drawings & guidelines	☐	☐	☐	
20.2	Damage & defect free	☐	☐	☐	
20.3	Operational	☐	☐	☐	
21. Water Feature / Water Body					
21.1	As per drawings & guidelines	☐	☐	☐	
21.2	Damage & defect free	☐	☐	☐	
21.3	Weed, algae & litter free	☐	☐	☐	
21.4	Clear water appearance	☐	☐	☐	
21.5	Fountain/aerator operational	☐	☐	☐	
22. WSUD Drainage Assets					
22.1	As per drawings & guidelines	☐	☐	☐	
22.2	Damage & defect free	☐	☐	☐	
22.3	Rock pitching compliance	☐	☐	☐	
22.4	Drainage pits cleaned out and lids locked	☐	☐	☐	
23. Structures (Gazebos, Info Shelters, Boardwalks, etc)					
23.1	As per drawings & guidelines	☐	☐	☐	
23.2	Damage & defect free	☐	☐	☐	
23.4	Paint/oil/seal (where app.)	☐	☐	☐	
24. Retaining Walls & Stairs					
24.1	As per drawings & guidelines	☐	☐	☐	
24.2	Damage & defect free	☐	☐	☐	
25. Adjacent roads and Footpaths					
25.1	Clean and tidy	☐	☐	☐	
25.2	Free from damage	☐	☐	☐	

NOTE: Buildings (ablutions, halls, pavilions, etc) within public open space are to be inspected and handed over separately to landscape assets.

Additional Comments:

PRACTICAL COMPLETION DOCUMENTATION CHECKLIST (Completed by City of Kwinana)					
Item	**Document**	**S**	**IC**	**NA**	**Comments and Document Number**
1.1	Completed PC application package, including all required asset quantity data and construction cost schedule	☐	☐	☐	
1.2	As constructed irrigation drawings in DWG and PDF format supplied	☐	☐	☐	
1.3	As constructed landscape drawings in DWG and PDF format supplied	☐	☐	☐	
1.4	ASpec / Ospec data supplied	☐	☐	☐	
1.5	Final Playground Safety Audit supplied	☐	☐	☐	
1.6	Proposed Playground Inspection Schedule supplied	☐	☐	☐	
1.7	Electrical certification for all electrical items supplied	☐	☐	☐	
1.8	Recent arborist reports supplied	☐	☐	☐	
1.9	Artwork Management Plan supplied	☐	☐	☐	

STEP 3

Acceptance of Practical Completion

Re-inspection to be undertaken by City Representative following notification from the Applicant that defects have been rectified.

A. Landscape Details

POS/Streetscape Name: _____

Location: _____

B. Re-Inspection Details

Date of original PC Inspection: _____

Date of Re-Inspection: _____

Inspector Name & Title: _____

Defect Checklist			
Item	**Asset**	**Defect Description**	**Rectified**
1			☐
2			☐
3			☐
4			☐
5			☐
6			☐
7			☐
8			☐
9			☐
10			☐

C. Acceptance of Practical Completion

Date of Acceptance: _____

Proposed Handover Date: _____(24 Months)

Note – City will issue a Practical Completion Acceptance Certificate once all defects have been rectified.

STEP 4

Developer Maintenance Period

Unless otherwise agreed upon, 24 months shall be the minimum developer maintenance period for all landscape assets, including streetscapes and street trees. During this period responsibilities are as follows:

Developer

A. All maintenance to be undertaken by the Developer as per the as per City of Kwinana Landscape Development Guidelines 2020, including:

- All mowing operations
- All horticultural operations
- All irrigation operations
- All infrastructure and furniture maintenance, repairs and inspections
- Playground maintenance, repairs and inspections
- Waste removal
- BBQ cleaning and inspections
- Watering of landscape areas and street trees

B. Monthly reporting of irrigation bore meter reading/s to the City of Kwinana (to be undertaken in the first week of each month) via email to depot.admin@kwinana.wa.gov.au (title 'Attention Irrigation Supervisor - Bore Meter Reading' or phone 08 9236 0351.

C. Soil, water and tissue analysis at end of year one, submitted via email to depot.admin@kwinana.wa.gov.au (title 'Attention Technical Officer Parks Operations – Soil, water and tissue analysis')

D. Arborist inspection reports undertaken during the Developer maintenance period for all trees overhanging play and activity areas, submitted via email to depot.admin@kwinana.wa.gov.au (title 'Attention Technical Officer Parks Operations – arborist report')

E. Playground Inspection checklists, carried out as per the proposed inspection schedule provided at Practical Completion

F. BBQ electrical safety inspections, carried out every 6 months, using the BBQ Electrical Testing Form (refer to Appendix D in Landscape Development Guidelines). Completed forms are to be provided to the City at handover.

G. RCD testing, carried out on all RCD's every 6 months. The log of inspections is to be provided to the City at handover.

City of Kwinana

A. Quarterly inspections of maintenance practices and asset conditions within all irrigated public open space areas once Practical Completion has taken place.

B. Notification to Developer of non-compliant maintenance, damaged assets or any hazards identified.

C. Bore maintenance where the bore has been handed over prior to the handover of remaining irrigation stages.

Hand-Over

STEP 5

Hand-Over Application - Landscape

Applicants to answer all applicable questions. Non-applicable questions (relating to assets that are not being handed-over) to be marked 'NA'.

Unless otherwise arranged by the applicant, any and all applicable irrigation shall be demonstrated as fully operational at time of landscape practical completion inspection.

A. Landscape Details

POS/Streetscape Name: _____

Location: _____

B. Applicant Details

Organisation Name: _____

Contact Name: _____

Contact Title: _____

Contact Phone: _____

Contact Email: _____

Postal Address: _____

C. Asset Details

All Asset Quantity Data Submitted at PC: ◉ Yes ○ No ○ Attached

All warranties & guarantees attached: ◉ Yes ○ No ○ NA

Details of any subsequently installed assets attached: ◉ Yes ○ No ○ NA

D. Irrigation (Bore) Details

Bore ID: _____

Bore Location: _____

Date of Practical Completion Acceptance: _____

Water License Number: _____

Water License Allocation: _____ (KL/Annum)

Water License Transfer: NA In Progress Complete

Date of Bore Commission: _____

Date of Bore Redevelopment: _____

Current Maintenance Contractor Name: _____

Maintenance Contractor Contact: _____

Last 12 months Total Bore Maintenance Expenditure: $_____

Iron Bacteria Filtration System: Yes No

As Constructed Drawings Submitted at PC: Yes No Attached

E. Irrigation (Reticulation) Details

Date of Practical Completion Acceptance:_____

Current Maintenance Contractor Name: _____

Maintenance Contractor Contact: _____

Last 12 months Total Maintenance Expenditure: $_____

As Constructed Drawings Submitted at PC: Yes No Attached

F. Landscape Details

Date of Practical Completion Acceptance:_____

Current Maintenance Contractor Name: _____

Maintenance Contractor Contact: _____

Last 12 months Total Maintenance Expenditure: $_____

As Constructed Drawings Submitted at PC: Yes No Attached

G. Hand-Over Site Inspection

Proposed Inspection Date: _____(min. 30 days notice)

Proposed Inspection Time: _____

Proposed Meeting Location: _____

Applicant Inspection Contact Name: _____

Phone: _____

Email: _____

Applicant to confirm inspection appointment with City of Kwinana 7 days prior to proposed inspection.

STEP 6

Hand-Over Site Inspection Checklist - Landscape

To be completed by City of Kwinana Representative at site inspection.

A. Inspection Details

POS/Streetscape Name: _____

Location: _____

Date: _____

Time: _____

B. City Representative Details

Primary Inspector Name & Title: _____

Irrigation Supervisor: _____

Building Supervisor: _____

Other Staff Present: _____

_____

_____

C. Applicant Representative Details

Name: _____

Name: _____

Name: _____

Checklist Key

S = Satisfactory	- Approved for acceptance
IC = Incomplete	- Works required to complete
UA = Unacceptable	- Works required to rectify non-compliance, defects or damage

HANDOVER SITE INSPECTION CHECKLIST					
Item	**Asset**	**S**	**IC**	**UA**	**Comments**
1. Irrigation (Bore)					
1.1	Plant, equipment & electrical	☐	☐	☐	
1.2	Pressure test	☐	☐	☐	
1.3	Filter compound (where app.)	☐	☐	☐	
2. Irrigation (Reticulation)					
2.1	Mainline pressure test	☐	☐	☐	
2.2	All sprinklers present & operational	☐	☐	☐	
3. Turf					
3.1	Healthy condition	☐	☐	☐	
3.2	Weed free	☐	☐	☐	
3.3	Pest & disease free	☐	☐	☐	
3.4	Litter free	☐	☐	☐	
4. Garden Beds					
4.1	Weed free	☐	☐	☐	
4.2	Litter free	☐	☐	☐	
4.3	Pest free	☐	☐	☐	
4.4	75-100mm mulch	☐	☐	☐	
4.5	Complete, even mulch cover	☐	☐	☐	
5. Plants					
5.1	Healthy condition	☐	☐	☐	
5.2	Pest & disease free	☐	☐	☐	
5.3	Pruned & clearances	☐	☐	☐	
6. Trees					
6.1	Healthy condition	☐	☐	☐	
6.2	Pest & disease free	☐	☐	☐	
6.3	Bole mulch 75-100mm	☐	☐	☐	
6.4	Weed & grass free bole	☐	☐	☐	

6.5	Clearances	☐	☐	☐	
6.6	Remnant tree deadwood	☐	☐	☐	
7. Paths, Hardstands & Paving					
7.1	Damage & defect free	☐	☐	☐	
7.2	Stain free	☐	☐	☐	
8. Kerbing					
8.2	Damage & defect free	☐	☐	☐	
9. Signage					
9.2	Damage & defect free	☐	☐	☐	
10. Bins					
10.1	Keyed to City 'B' key	☐	☐	☐	
10.2	Damage & defect free	☐	☐	☐	
11. BBQs					
11.1	Keyed to City 'B' key	☐	☐	☐	
11.2	Damage & defect free	☐	☐	☐	
11.3	Operational	☐	☐	☐	
11.4	Clean	☐	☐	☐	
12. Playground, Soft-fall & Shade Sails					
12.1	Damage & defect free	☐	☐	☐	
13. Furniture (Seats, Benches, Picnic Tables)					
13.1	Damage & defect free	☐	☐	☐	
13.2	Paint/oil/seal (where app.)	☐	☐	☐	
14. Sports Equipment					
14.1	Damage & defect free	☐	☐	☐	
15. Car Park					
15.1	Damage & defect free	☐	☐	☐	
15.2	Line marking	☐	☐	☐	
16. Gates					
16.1	Keyed to City key	☐	☐	☐	
16.2	Damage & defect free	☐	☐	☐	
17. Fencing					

17.1	Damage & defect free	☐	☐	☐	
17.2	Plumb & alignment	☐	☐	☐	
18. Bollards					
18.1	Removable keyed to City key	☐	☐	☐	
18.2	Damage & defect free	☐	☐	☐	
18.3	Plumb & alignment	☐	☐	☐	
19. Lighting					
19.1	Damage & defect free	☐	☐	☐	
19.2	Operational	☐	☐	☐	
20. Water Fountain (Drink)					
20.1	Damage & defect free	☐	☐	☐	
20.2	Operational	☐	☐	☐	
21. Water Feature / Water Body					
21.1	Damage & defect free	☐	☐	☐	
21.2	Weed, algae & litter free	☐	☐	☐	
21.3	Clear water appearance	☐	☐	☐	
21.4	Fountain/aerator operational	☐	☐	☐	
22. Drainage & Sumps					
22.1	Damage & defect free	☐	☐	☐	
22.2	Litter & debris free	☐	☐	☐	
23. Structures (Gazebos, Info Shelters, Boardwalks, etc)					
23.1	Damage & defect free	☐	☐	☐	
23.2	Paint/oil/seal (where app.)	☐	☐	☐	
24. Retaining Walls					
24.1	Damage & defect free	☐	☐	☐	

NOTE: Buildings (ablutions, halls, pavilions, etc) within public open space are to be inspected and handed over separately to landscape assets.

Additional Comments:

HANDOVER DOCUMENTATION CHECKLIST (Completed by City of Kwinana)					
Item	**Document**	**S**	**IC**	**UA**	**Comments and Document Number**
1.1	Completed handover package supplied	☐	☐	☐	
1.2	All specified as constructed documentation submitted with Practical Completion Application or updated drawings in DWG and PDF format supplied	☐	☐	☐	
1.3	All warranties and guarantees supplied	☐	☐	☐	
1.4	All required maintenance data supplied	☐	☐	☐	
1.5	Playground Safety Audit supplied	☐	☐	☐	
1.6	Completed Playground Inspection checklists, carried out as per the proposed inspection schedule provided at Practical Completion	☐	☐	☐	
1.7	Completed BBQ Electrical Testing Forms supplied	☐	☐	☐	
1.8	Recent arborist reports supplied	☐	☐	☐	
1.9	Log of RCD testing supplied	☐	☐	☐	
1.10	Soil, water and tissue analysis at end of year two, submitted to City	☐	☐	☐	

STEP 7

Acceptance of Hand-Over - Landscape

Re-inspection to be undertaken by City Representative following notification from Hand-Over Applicant that defects have been rectified.

Acceptance of handover to be dated the day of defect free inspection.

A. Landscape Details

POS/Streetscape Name: _____

Location: _____

Date of PC Acceptance: _____

B. Re-Inspection Details

Date of Original Handover Inspection: _____

Date of Re-Inspection: _____

Inspector Name & Title: _____

Defect Checklist			
Item	**Asset**	**Defect Description**	**Rectified**
1			☐
2			☐
3			☐
4			☐
5			☐
6			☐
7			☐
8			☐
9			☐
10			☐

C. Acceptance of Hand-Over

Date of Acceptance: _____

Note – City will issue a Handover Acceptance Certificate

END OF DOCUMENT

0

City of Kwinana Tree Selection Matrix

Rev 1 August 2021 D20/67238[v2]

Introduction

The aim of the Tree Selection Matrix is to assist with the selction of tree species for planting within the City of Kwinana. Please note that the matrix does not guarantee approval from the City for tree selction, as all tree planting plans will be assessed in regards to context, existing site conditions and design intent.

Planting Notes

* Indicates min 600mm deep root barrier required

All street trees are to planted in accordance with the Utility Providers Code of Practice for WA

Tree are to be planted a miniumum of 1m from paths

Street tree planting is to be biodiverse to insure against mass street tree loss / failure, with no single species making up more than 15% of street tree plantings within a subdivision. Mixing of species, or introduction of feature trees within a street, is encouraged. There is to be a mix of exotic and native species selected, however the preference is for the majority of street tree plantings to be native species, with exotic used as feature trees and to distinguish main avenues.

Refer to City of Kwinana Landscape Development Guidelines for detailed information on tree planting requirments

Tree Location

Residential Verge Widths

Less than 3m	These species are suitable for verges with a width of less than than 3m from kerb to property boundary
Between 3 and 4m	These species are suitable for verges of a width between 3 and 4m from kerb to property boundary
Between 4 and 6m	These species are suiable for verges with a width between 4 and 6m from kerb to property boundary
Over 6m	These species are suitable for verges with a width over 6m from kerb to property boundary
Suitable under powelines	These species are suitable for planting under residential overhead powerlines
Streetscape feature tree only	These species are not suitable for use as mass planted street trees and are only permitted to be used as feature trees

POS and Non residential verges

POS Prioirity Species	These species are to be first preference, and form the majority of tree species, when selecting species for POS as they are local to Kwinana and often unstuitable for mass street tree planting
Verge width below 4m	These species are to be selected when planting to non residential verges below 4m wide, such as those adjacent to arterial roads, drainage reserves, bushland areas, schools and POS (excludes commercial areas)
Verge width over 4m	These species are to be selected when planting to non residential verges over 4m wide, such as those adjacent to arterial roads, drainage reserves, bushland areas, schools and POS (excludes commercial areas)

Specific Location Criteria

Verge bioretention area	These species are suitable for bioretention areas / rain gardens located in verges
Median bioretention area	These species are suitable for bioretention areas / swales in medians
Median 2-3m wide	These species are suitable for medians between 2 and 3m wide. Note consideration required for traffic conditions and frangilibility of tree on high speed and volume roads
Median over 3m wide	These species are suitable for medians between 2 and 3m wide. Note consideration required for traffic conditions and frangilibility of tree on high speed and volume roads
Drainage basin	These species are suitable for use in drainage basins and can cope with periods of inundation
Coastal Areas	These species are suiitable for planting west of Rockingham / Patterson Road
Roundabouts	These sepcies are suitable as feature trees in roundabouts

Species Information							Tree Location									Specific Location Criteria							Comments
							Residential Verges						POS and non residential verges											
Botanical name	Common name	Height (m)	Canopy spread (m)	Origin	Local to Kwinana	Evergreen /deciduous	Less than 3m	Between 3 and 4m	Between 4 and 6m	Over 6m	Suitable under powerlines	streetscape feature tree only	POS Priority Species	Verge width below 4m	Verge wdth over 4m	Verge Bioretention	Median Bioretention	Median 2-3m wide	Median Over 3m Wide	Drainage Basin	Coastal Area	Rundabouts	
Agonis flexuosa	WA Peppermint	8-10m	6-8m	WA		Evergreen			√	√					√	√			√	√	√	√	Agonis flexuosa can grow large trunks, only suitable for verges wider than 4m
Allocasuarina fraseriana	WA Sheoak	10m	6m	WA	√	Evergreen									√					√	√		Commonly used in natural areas near the coast. Roots often sucker and are invasive, therefore is not suitable as a residential street tree.
Angophora costata	Smooth Barked Apple	15m	10m	NSA		Evergreen				√												√	
Araucaria heterophylla	Norfolk Island Pine	30m	15m	NSW		Evergreen						√									√	√	Large tree only suitable for very wide medians and roundabouts, use only as a feature tree

Species Information							Tree Location									Specific Location Criteria							Comments
							Residential Verges						POS and non residential verges										
Botanical name	Common name	Height (m)	Canopy spread (m)	Origin	Local to Kwinana	Evergreen /deciduous	Less than 3m	Between 3 and 4m	Between 4 and 6m	Over 6m	Suitable under powerlines	streetscape feature tree only	POS Priority Species	Verge width below 4m	Verge wdth over 4m	Verge Bioretention	Median Bioretention	Median 2-3m wide	Median Over 3m Wide	Drainage Basin	Coastal Area	Rundabouts	
Banksia attenuata	Candle or Slender Banksia	10m	8m	WA	√	Evergreen							√	√	√			√	√				Not suitable as a mass planted street due to form and slow growth, however can can be used as clustered plantings in informal medians, and verges adjacent natural areas
Banksia grandis	Bull Banksia	12m	5m	WA	√	Evergreen							√	√	√			√	√				Not suitable as a mass planted street due to form and slow growth, however can can be used as clustered plantings in informal medians, and verges adjacent natural areas
Banksia ilicifolia *(prev. Dryandra ilicifolia)*	Holly-Leaf Banksia	10m	8m	WA		Evergreen									√			√	√		√		Not suitable as a mass planted street due to form and slow growth, however can can be used as clustered plantings in informal medians, and verges adjacent natural areas
Banksia littoralis	Swamp Banksia	10m	5m	WA	√	Evergreen							√			√	√			√	√		
Banksia menziesii	Firewood Banksia	7m	8m	WA	√	Evergreen							√	√	√			√	√		√		Not suitable as a mass planted street due to form and slow growth, however can can be used as clustered plantings in informal medians, and verges adjacent natural areas
Banksia prionotes	Saw-toothed Banksia	5-10m	3-5m	WA	√	Evergreen							√	√	√			√	√		√		Not suitable as a mass planted street due to form and slow growth, however can can be used as clustered plantings in informal medians, and verges adjacent natural areas
Bauhinia blakeana	Hong Kong Orchid Tree	6m	6m	ASIA		Semi - deciduous	√	√	√		√												Species may need extra water to establish, not reccomended as mass planted street tree
Brachychiton acerifolia	Illawarra Flame Tree	12m	6m	Eastern States		Semi - deciduous				√		√							√*			√	Brachychiton have not proven to be a reliable species when grown in the City
Brachychiton acerifolia x populneus	Bella-donna	8m	4m	Eastern States		Semi - deciduous			√			√							√*			√	Brachychiton have not proven to be a reliable species when grown in the City
Brachychiton populneus	Kurrajong	10m	6m	Eastern States		Semi - deciduous				√													
Callistemon 'Kings Park Special'	Kings Park Special	5m	4m	WA		Evergreen	√	√	√		√			√				√			√		Grows well in the City
Callistemon viminalis	Weeping Bottlebrush	8m	4m	Eastern States		Evergreen	√	√	√					√							√		
Callitris preissii	Rottnest Island Pine	12m	6m	WA	√	Evergreen								√	√						√		Suitable for remnant vegetation areas, and where screening is required.
Casuarina equisetifolia	Horsetail Sheoak	9m	6m	Asia Nth Aust		Evergreen									√						√		Roots ususally sucker and are also invasive, therefore is not suitable as a street tree.
Corymbia callophylla	Marri	15-20m	10m	WA	√	Evergreen				√			√		√				√			√	Use sparingly adjacent well used paths due to large nuts
Corymbia ficifolia	Red Flowering Gum	6-8m	4-6m	WA		Evergreen			√												√		Use sparlingly adjacent well used paths due to large nuts
Corymbia maculata	Spotted Gum	20m	10m	NSW		Evergreen				√					√			√*	√*		√	√	Potential weed, avoid planting near natural areas.
Cupaniopsis anacardioides	Tuckeroo	8m	6m	Eastern States		Evergreen		√	√									√*					

Species Information							Tree Location									Specific Location Criteria						Comments
							Residential Verges						POS and non residential verges									
Botanical name	Common name	Height (m)	Canopy spread (m)	Origin	Local to Kwinana	Evergreen /deciduous	Less than 3m	Between 3 and 4m	Between 4 and 6m	Over 6m	Suitable under powerlines	streetscape feature tree only	POS Priority Species	Verge width below 4m	Verge wdth over 4m	Verge Bioretention	Median Bioretention	Median 2-3m wide	Median Over 3m Wide	Drainage Basin	Coastal Area	Rundabouts	
Delonix regia	Poinciana	12m	10m	Mada-gascar		Deciduous				√		√							√*			√	Not widely used in Kwinana, success is unknown. Additional establishment watering required.
Erythrina sykesii	Coral Tree	15m	12m	Eastern States		Deciduous				√*		√							√*			√	Thorny branches mean this tree is not suitable within playground areas
Eucalyptus accedens	Smooth bark wandoo	20m	10m	WA		Evergreen						√			√							√	
Eucalyptus wandoo	White Gum	20m	10m	WA		Evergreen						√			√							√	
Eucalyptus caesia	Silver Princess	10m	5m	WA		Evergreen						√		√	√				√			√	Species is not preferred as a mass planted street tree due to its form, howvever can be used as a feature tree within the streetscape to add interest
Eucalyptus cladocalyx x nana	Dwarf Bushy Sugar Gum	8m	4m	Eastern States		Evergreen			√												√		
Eucalyptus decipiens	Limestone Marlock, Redheart Moit	6m	3-5m	WA	√	Evergreen							√	√	√								
Eucalyptus erythrocorys	Illyarrie	7m	5m	WA		Evergreen								√	√								Not suitable adjacent to footpaths due to large fruit being potential trip hazard.
Eucalyptus forrestiana	Fuchsia Gum	4m	4m	WA		Evergreen	√				√												Mallee form. Formative pruning required.
Eucalyptus gomphocephala	Tuart	20m	10m	WA	√	Evergreen				√			√		√				√*		√	√	Fast growing tree which tolerates coastal limestone soils
Eucalyptus leucoxylon ssp. megolacarpa	White Iron Bark	10m	7m	Eastern States		Evergreen			√						√				√		√		
Eucalyptus marginata	Jarrah	20m	10m	WA	√	Evergreen				√			√		√								
Eucalyptus nicholii	Willow Leaf Peppermint	12m	12m	Eastern States		Evergreen				√													
Eucalyptus patens	Blackbutt	15-20m	8-10m	WA		Evergreen									√								
Eucalyptus rudis	Flooded Gum	15m	10m	WA	√	Evergreen							√		√					√		√	
Eucalyptus sideroxylon 'Rosea'	Red Ironbark gum	15-20m	10m	Eastern States		Evergreen				√									√			√	
Eucalyptus spathulata	Swamp Mallet	8m	6m	WA		Evergreen		√	√														Mallee form, needs formative pruning.
Eucalyptus synandra	Jingymia Mallee	4m	2m	WA		Evergreen	√																Mallee form, needs formative pruning.
Eucalyptus todtiana	Pricklybark, Coastal Blackbutt	10m	8m	WA	√	Evergreen							√		√								
Eucalyptus torquata	Coral Gum, Coolgardie Gum	6m	5m	WA		Evergreen	√	√	√		√			√	√								
Eucalyptus victrix	Coolibah	8m	4m	WA		Evergreen		√	√					√	√								Attractive small tree with white trunk.
Eucalyptus utilis (prev Eucalyptus platypus)	Coastal Moort	8m	5m	WA		Evergreen								√	√						√		
Eucalyptus woodwardii	Lemon Flowered Gum	12m	8m	WA		Evergreen									√								
Ficus macrophylla	Moreton Bay Fig	15-35m	15-25m	Eastern States		Evergreen																	Very large tree only suitable to be used sparlingly as a feature tree in large POS areas

Species Information							Tree Location									Specific Location Criteria							Comments
							Residential Verges						POS and non residential verges										
Botanical name	Common name	Height (m)	Canopy spread (m)	Origin	Local to Kwinana	Evergreen /deciduous	Less than 3m	Between 3 and 4m	Between 4 and 6m	Over 6m	Suitable under powerlines	streetscape feature tree only	POS Priority Species	Verge width below 4m	Verge wdth over 4m	Verge Bioretention	Median Bioretention	Median 2-3m wide	Median Over 3m Wide	Drainage Basin	Coastal Area	Rundabouts	
Fraxinus raywoodii	Claret Ash	12m	6m	Exotic		Deciduous				√									√				
Hakea laurina	Pin Cushion Hakea	6m	4m	WA		Evergreen	√	√						√	√								Ideal screening tree. Requires formative pruning when used as a street tree
Jacaranda mimosifolia	Jacaranda	15m	10m	Brazil		Deciduous				√									√			√	
Lagerstroemia indica	Crepe Myrtle	6m	4m	China		Deciduous	√	√			√												
Liquidambar styraciflua	Liquid Ambar Sweet Gum	15m	7m	USA		Deciduous				√									√*			√	Not suitable for planting adjacent paths due to large spikey seed pods
Liquidambar styraciflua'Rotundiloba'	Liquid Ambar Sweet Gum	12m	7m	USA		Deciduous				√								√*	√*			√	Variety produces very few seed pods compared to standard species and so is preferable as a street tree
Lophostemon confertus	Queensland Brush Box	15m	12m	Eastern States		Evergreen				√													Used extensivly throughout Perth as a street tree. Should not be used for new street tree planting but can be used for infill planting to maintain existing avenues.
Macadamia integrifolia	Macadamia	6m	4m	OLD		Deciduous		√				√											Not suitable for planting adjacent paths due to round nuts which can be a trip hazard
Magnolia grandiflora 'Exmouth'	Magnolia	8m	5m	Asia		Evergreen						√											
Magnolia grandiflora 'Little Gem'	Magnolia	6m	3m	Asia		Evergreen	√																
Melaleuca lanceolata	Rottnest Island Tea Tree	6m	5m	WA		Evergreen	√	√				`		√	√	√	√			√	√		Multi stemmed in natural habitat, only suitable as street tree if single stem specimens are selected with formative pruning in early years.
Melaleuca leucadendra	Weeping Paperbark, Cajeput Tree	10m	6m	Nth Aust		Evergreen			√								√	√*	√*				Copes well with inundaton and wet soils.
Melaleuca linariifolia	Flax Leafed Paperbark, Snow in Summer	8m	6m	Eastern States		Evergreen		√	√								√		√			√	
Melaleuca preissiana	Modong, Stout Paperbark	6-10m	3-5m	WA		Evergreen		√	√					√	√	√	√			√	√		Copes well with inundaton and wet soils. Will need additional watering to succeed as street tree
Melaleuca quinquenervia	Broad Leaf Paperbark	10m	8m	QLD		Evergreen				√							√*	√*	√*		√	√	Invasive roots Ensure root barriers are used where required
Melaleuca rhaphiophylla	Moonah, Swamp Paperbark	7-10m	4-6m	WA		Evergreen								√	√	√	√			√	√		
Melaleuca viridiflora	Broad Leaf Paperbark	8m	5m	North Aus		Evergreen		√	√							√	√	√			√	√	
Metrosideros excelsa	NZ Christmas Tree	8m	6m	NZ		Evergreen								√							√		

Species Information							Tree Location									Specific Location Criteria							Comments
							Residential Verges						POS and non residential verges											
Botanical name	Common name	Height (m)	Canopy spread (m)	Origin	Local to Kwinana	Evergreen /deciduous	Less than 3m	Between 3 and 4m	Between 4 and 6m	Over 6m	Suitable under powerlines	streetscape feature tree only	POS Priority Species	Verge width below 4m	Verge wdth over 4m	Verge Bioretention	Median Bioretention	Median 2-3m wide	Median Over 3m Wide	Drainage Basin	Coastal Area	Rundabouts	
Olea europaea	Olive	7m	5m	Europe		Evergreen						√											Rated as a potential weed, do not plant near natural areas. Not suitable as mass planted street tree. Can be used sparingly in POS
Pistacia chinensis	Chinese Pistachio	8m	6m	Asia		Deciduous		√	√														
Platanus x acerfolia	London Plane	20m	10m	Europe		Deciduous				√*		√*							√*			√	Causes allergic reactions to some. Not suitable as mass planted street tree due to extensive leaf and seed pod drop
Pyrus calleryana	Edgewood' 'Aristocrat'	10m	5m	Asia		Deciduous		√	√									√	√				
Pyrus calleryana	Capital Pear	8m	3m	Asia		Deciduous	√																
Pyrus ussuriensis	Manchurian Pear	8-10m	6m	Asia		Deciduous		√	√	√								√	√				
Pyrus nivalis	Snow Pear	8m	5m	Asia		Deciduous		√	√									√	√				
Triadica sebifera (prev. *Septum sebiferum*)	Chinese Tallow	10m	6m	China		Deciduous		√	√														
Ulmus parvifolia	Chinese Elm	12m	10m	Asia		Deciduous						√							√			√	

BBQ Electrical Testing Form

CLIENT:			
POS NAME AND SITE ADDRESS:			
BBQ No:			
BBQ SERIAL No:	**BRAND:**		
DATE OF INSPECTION:			
Compliance safety tests and check		**Check successful**	
Visual Inspection of complete BBQ for any damage		Yes ☐	No ☐
Check operation of Start/Stop button/Indicator Light/Buzzer		Yes ☐	No ☐
Check fascia and instruction labels		Yes ☐	No ☐
Check BBQ plate to ensure it is securely fastened and anti-rotation bracket		Yes ☐	No ☐
Visual inspection of cabling, element and control box		Yes ☐	No ☐
Check operation of Safety Switch (RCD) Push Button Test		Yes ☐	No ☐
Check BBQ Turns on, cycles for 30 minutes and then turns off		Yes ☐	No ☐
Photos Taken		Yes ☐	No ☐
(Christie BBQ's) Check BBQ reaches sterilisation temperature (104^{O}C) for 3 min Temp Reached:		^{O}C	
Check BBQ reaches a target temperature of 250^{O}C after ~ 7 min Temp Reached:		^{O}C	
Check earth connection and resistance between Plate and main earth (Less than 0.5 ohms):		Ω	
Defects found:			
Proposed remediation action required		**Date Completed**	
JOB COMPLETED YES ☐ NO ☐		**IS FOLLOWUP REQUIRED? YES ☐ NO ☐**	
TECHNICIANS NAME:	**SIGNATURE:**	**DATE:**	