



# DEVELOPMENT DESIGN SPECIFICATION

D14

# RESERVES AND PUBLIC OPEN SPACE DESIGN



### Amendment Record for this Specification Part

This Specification is Council's edition of the AUS-SPEC generic specification part and includes Council's primary amendments.

Details are provided below outlining the clauses amended from the Council edition of this AUS-SPEC Specification Part. The clause numbering and context of each clause are preserved. New clauses are added towards the rear of the specification part as special requirements clauses. Project specific additional script is shown in the specification as italic font.

The amendment code indicated below is 'A' for additional script 'M' for modification to script and 'O' for omission of script. An additional code 'P' is included when the amendment is project specific.

Amendment Sequence No.	Key Topic addressed in amendment	Clause No.	Amendment Code	Author Initials	Amendment Date
<i>EXAMPLE 1</i>	<i>Provision for acceptance of nonconformance with deduction in Payment</i>	<i>XYZ.00</i>	<i>AP</i>	<i>KP</i>	<i>2/6/97</i>



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## RESERVES AND PUBLIC OPEN SPACE DESIGN

### GENERAL

#### D14.01 SCOPE

1. This specification sets out requirements to be used in the design of reserves and public open space and the associated infrastructure for the City of Swan.
2. This specification shall be read in conjunction with Council's Development Design Specification, D13, Landscape Design, which outlines landscape design requirements for road reserves, bushland and other areas.

#### D14.02 OBJECTIVES

1. This specification sets standards and document requirements related to the provision of reserves and associated facilities to be managed in a cost effective manner and meet community expectations in respect to amenities, aesthetics and safety.

#### D14.03 REFERENCE AND SOURCE DOCUMENTS

##### (a) Council Specifications

WA-D1	-	Geometric Road Design
WA-D2	-	Pavement Design
WA-D4	-	Subsurface Drainage Design
WA-D5	-	Stormwater Drainage Design
WA-D6	-	Site Regrading
WA-D7	-	Erosion Control and Stormwater Management Catchment
WA-D8	-	Waterfront Development
WA-D9	-	Cycleway and Pathway Design
WA-D13	-	Landscape Design

##### (b) Standard Drawings

STD39-1s C	-	Standard Fencing Bollard
STD78-1s C	-	Link Mesh Fencing
STD24-1s C	-	Kerb Profiles
STD60-1s E	-	Kerb Ramps
STD77-1s C	-	Tree Well Liner

##### (c) Other

AUSTROADS	-	Traffic Engineering Practice Part 11 – Parking
City of Swan	-	Subdivisional Landscape Policies and Procedures
AS 1428.1 (1993)	-	Design for Access and Mobility

### D14.04 CONSULTATION

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- |  |                        |
|--|------------------------|
| 1. The City of Swan encourages designers to enter into a consultative partnership with the City at the earliest stages of the planning and design process.   | <b>Planning Stage</b>  |
| 2. In support of this commitment, the City will allocate, to each development proposal, a liaison officer who will prepare an information kit outlining the policies, limitations and objectives associated with the design, construction and ongoing maintenance of landscaped areas. | <b>Information Kit</b> |
| 3. It would be expected that Council's liaison officer would have input to the preliminary design of landscapes and be present at meetings associated with design and construction matters of the overall reserve area.  | <b>Liaison Officer</b> |

### D14.05 PLANNING CONCEPTS

- |   |                                 |
|---|---------------------------------|
| 1. As soon as practicable after the approval of the subdivision plan by the Western Australian Planning Commission, the designer should contact Council to discuss general issues and design concepts. In line with the consultative process outlined above, Council will forward the relevant information kit to the designer. | <b>Design Concepts</b>          |
| 2. Along with the preliminary concept plans, designers shall supply an overall development plan that clearly outlines the objectives for the reserve area and the strategies that need to be implemented to meet those objectives.  | <b>Objectives</b>               |
| 3. For landscape areas, designers shall support design objectives with visual goals and maintenance regimes for the ongoing development and management of the site.   | <b>Landscaping Visual Goals</b> |

## GENERAL DEVELOPMENT CRITERIA

### D14.06 PUBLIC OPEN SPACE

- |  |                         |
|--|-------------------------|
| 1. The following general guidelines shall apply to the allocation of public open space and landscape areas within a subdivision.   |                         |
| 2. The location of public open space within any subdivision should be determined through consultation with Council and the Ministry of Planning.   | <b>Consultation</b>     |
| 3. The minimum size acceptable for public open space area is four thousand (4000) square metres.   | <b>Minimum POS size</b> |
| 4. Purpose allocated buffer and screen areas, dedicated enclosed recreation areas, drainage sumps and/or compensation basins will not be accepted as part of the ten percent (10%) public open space allocation required in the subdivision.       |                         |
| 5. Public open space should not be in the vicinity of high-voltage overhead power lines. All power within reserves and public open space should be underground unless approved otherwise by Council.   | <b>Power Lines</b>      |
| 6. Entry statements and landscaping to road reserves shall not be accepted as public open space.   | <b>Road Reserves</b>    |
| 7. Where public open space abuts a main road, adequate screening and security access barriers shall be installed for the safety of all users, particularly children without adversely impacting on the amenity or aesthetic design of the reserve. |                         |
-



**D14.07 EXISTING SITES**

1. Before commencement of any work on the reserve, the location of all existing underground and overhead services, cadastral boundary pegs, survey and bench marks, fences, vegetation and trees, buildings and structures shall be surveyed and plotted on a plan. This information is to be used to design and construct the works and avoid disruptions or damage to the services, pegs, marks, fences, vegetation and structures.

**Existing  
Infrastructure  
and Services**

2. All power cables on reserves shall be located underground unless otherwise approved by Council.

**Electrical  
Power**

**D14.08 EARTHWORKS**

1. Earthworks on reserves shall be undertaken in accordance with Design Standard WA-D6, to provide for the re-contouring of the existing surface to new levels matching the location of facilities in accordance with the approved development plan.

2. Earthworks on reserves shall provide for ovals, pitches, playing areas, spectator mounds, roads, carparks, building pads, tennis courts and netball courts.

3. Particular attention shall be given in the design of earthworks and re-contouring on reserves to suit the development objectives submitted with the concept designs.

4. Continued consultation shall be made with the Council to ensure that slopes and grades can be properly maintained after development and that ovals, pitches and playing areas are of an adequate size and shape for the nominated sport. Allowance shall be made for pitch, oval and playing area rotation and offsetting to aid good turf management.

5. Design, earthworks, grades and slopes for ovals, pitches and playing fields shall be in accordance with Table 1.0 Design Grades (Vegetated Areas).

6. Earthworks and grades for roads shall be in accordance with design standard D1 'Geometric Road Design'. Carparks, tennis courts and netball courts shall be in accordance with the requirements of those facilities as outlined in this specification.

**TABLE 1.0 - DESIGN GRADES (VEGETATED AREAS)**

Area	Finished Treatment	Use	Grade
Minimum earthworks	Partial clearing, natural vegetation and drought resistant grass. Non reticulated.	Passive	<b>Natural Surface</b>
Batter - earthwork	Native trees and shrubs and drought resistant grass. Not reticulated.	Passive	<b>Maximum 1:3</b>
Batter - earthwork	Reticulated Grass	Active and passive	<b>Standard 1:6. Maximum 1:5 with City approval</b>
Ovals and pitches	Reticulated Grass	Active and passive	<b>Maximum 1:100</b>

**D14.09 ROADS**

1. The location and layout of all roads on the reserve shall be in accordance with the approved development plan.

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- |  |                                   |
|--|-----------------------------------|
| 2. Design standards for kerbed and un-kerbed roads within reserves and public open space, including earthworks, grades, drainage, pavement thickness and surface type, shall be in accordance with the standards detailed within Council's Design Specifications WA-D1, WA-D2, WA-D4, WA-D5, WA-D6 and WA-D7.  | <b>Standard Design Guidelines</b> |
| 3. Designers must design carriageway widths to take into account peak flow rates during the normal use of the reserve facilities and generally the minimum carriageway width should be 6.0 metres for through traffic.   | <b>Carriageway Widths</b>         |
| 4. The location and connection of reserve access roads with existing or proposed subdivisional roads, shall generally be opposite the side boundary of adjoining properties or the side boundary of a corner lot on the other side of the road. The location of the access road onto an arterial road shall be by approval of Council. In all instances, traffic and pedestrian safety shall be the prime consideration. | <b>Access Location</b>            |
| 5. Roads shall be located no closer than 3 metres to a building or structure unless otherwise approved by Council.   |                                   |
| 6. Service conduits shall have 450mm clearance under the sub-grade of the road pavement.   | <b>Service Conduits</b>           |

### D14.10 CARPARKS

- |   |                           |
|---|---------------------------|
| 1. The location, number and layout of carparks and parking bays shall be provided in accordance with the approved development plan.   |                           |
| 2. Parking layout design shall be generally in accordance with AUSTRROADS Guidelines Traffic Engineering Practice Part 11 – Parking. Provision for people with disabilities shall be made in accordance with Australian Standard AS 1428.0-1993 | <b>AUSTRROADS</b>         |
| 3. In special circumstances other designs may be acceptable with Council approval.  | <b>Alternative Layout</b> |
| 4. All kerbing shall be laid in accordance with the design profiles outlined in Council's Standard Drawing Number STD24-1s'c' attached to and forming part of this specification.   |                           |
| 5. Service conduits shall have 450mm clear cover under the subgrade of the carpark pavement.  | <b>Services</b>           |
| 6. The maximum longitudinal grade shall not be greater than 6% unless otherwise approved by Council.  | <b>Gradients</b>          |
| 7. Fencing shall not be installed within 2m to the kerb of a carpark. A kerb line shall not be closer than 2m to a property boundary, fence or sump and 3m to a structure or building unless otherwise approved by Council.                     | <b>Fencing</b>            |
| 8. The pavement depth and surface finish shall be similar to those standards for a 6.0m wide road as detailed in the Specification for Geometric Road Design.   |                           |
| 9. Alternative pavement types and stormwater disposal methods may be used with Council approval.  |                           |

## TENNIS COURTS

### D14.11 COURT LAYOUT

- |   |  |
|---|--|
| 1. Tennis courts shall be located and laid out on the Reserve in accordance with the approved development plan. |  |
|---|--|

2. Clearances to adjoining courts and fences, measured from the outside of the external white line, shall be: **Clearances**

- Side clearance to fence, kerb or light pole - 3.05m
- Side clearance to adjoining court - 3.05m
- End clearance to fence, kerb or light pole - 5.5m

3. Subject to Council approval, the pavement shall be composed of the materials and to the thickness as detailed below: **Pavement**

- Subgrade - compacted, well drained sandy soil
- Base course - 150mm compacted rock base
- Seal course - 25mm compacted asphalt concrete  
Mix as per table below.
- Playing surface - synthetic acrylic applied to manufacturer's specification

<b>ASPHALTIC CONCRETE – DENSE GRADED MIX</b>	
Nominal Size	7mm
Bitumen Content	4.5% to 6.5%
Stability	5 Kn
Compaction	50 Blow Marshall Mix
Flow	2.0mm to 4.0mm
Air Voids	3% to 7%
<b>AS1152 Sieve Size mm</b>	<b>% Passing By Weight</b>
9.55mm	100%
6.7mm	80 - 100
4.75mm	60 - 80
2.36mm	45 - 65
1.18mm	33 - 50
0.6mm	23 - 38
0.3mm	13 – 26
0.15mm	7 - 16
0.075mm	4 – 10
If the gradings offered differ from the above, the tenderer will submit alternative gradings.	

4. Playing surface gradient shall be a maximum of 1:100 and a minimum of 1:200, either as a side or lengthways slope, the whole court area forming a flat plane, side to side and corner to corner. **Surface Gradient**

5. Courts shall not be sloped away from the centre line or net line. The courts shall be oriented in the north-south direction with a maximum rotation of 30 degrees either way if site conditions restrict.

6. A playing complex comprising of 4 courts or less shall have a perimeter of concrete kerbing to maintain an edge and support the pavement. The kerbing shall have interlocking ends and be installed flush with the finished playing surface of the courts. The kerbing and court surface shall stand 50mm proud of the trimmed finished ground or natural surface level surrounding the court. **Kerbing**

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7. A playing complex comprising more than four courts and constructed as a one-off or staged facility may also have drainage control by using extruded concrete kerbing to direct water to gullies and a stormwater system. Where extruded concrete kerbing is used, flush kerbing is not required.

8. Stormwater drainage run-off shall be accommodated by soakage into the surrounding ground or by spoon drain and soak well if directed off court by an extruded concrete kerb. Soak wells shall be no closer than 2 metre to the courts.

9. Criteria for stormwater run-off shall be to the requirements of the Design Specification D1 and D5.

**Stormwater  
Drainage**

10. The synthetic acrylic playing surface and line marking shall have a minimum 3 year unconditional warranty on materials, colour, surface texture and workmanship and be approved by the WA Lawn Tennis Association for B and C grade competition play.

**Synthetic  
Surface**

### D14.12 COURT FURNITURE

1. Court furniture shall be provided to conform to the dimensions shown on Figure 1. The net shall be black polyethylene UV stabilised fabric.

### D14.13 COURT FENCING

1. Perimeter fencing shall be black PVC coated chain link fabric mesh of the nominal dimensions 3050mm x 95mm x 2.5mm. The fencing shall have a finished height of 3.1m with a single strand of barbed wire on the top edge.

**Perimeter  
Fencing**

2. Intermediate fencing between courts on complexes with more than 4 courts shall be 2.4 metres high using black PVC coated chain link fabric mesh to match the external fence.

**Intermediate  
Fencing**

3. Fencing should be designed to accommodate windbreak material that may be required at high standard competition venues.

4. Pedestrian access gates 1.5m wide shall be provided at the locations shown on the drawings.

**Pedestrian  
Gates**

5. Two adjacent 1.5m wide full height gates shall be provided for vehicle access at the location shown on drawings.

**Vehicular  
Access**

### D14.14 COURT LIGHTING

1. The design of the court lighting should be based on the recommendations of AS2560 Pt 1 and Pt 2.1 (1982).

**Australian  
Standard**

2. Luminaries shall have metal halide high pressure discharge lamps and generally have sealed aluminium or corrosion resistant low maintenance housings. Luminaries to be of the environmental type which emit no light above the horizontal plane.

**Luminaire  
Type**

3. Poles shall be hot dipped galvanised and base plate mounted. Poles and footings shall be designed and constructed in accordance with the Australian Standard AS 1250 as amended. Pole design shall include provision for luminary sail area.

**Poles**

4. Cabinets shall be provided to contain the main supply meter and main fuses, court switches and luminary fuses at each pole.

**Cabinets**

5. Cables, conduits and all appurtenance necessary to connect the lighting system to the electricity supply shall be designed in accordance with Australian Standard AS 3000

**Electrical**

(1981) (SAA Wiring Rules) as amended and the requirements of Western Power. All conduits shall have 300mm clear cover under the subgrade of the tennis court pavement.

## **NETBALL COURTS**

### **D14.15 COURT LAYOUT**

1. Netball courts shall be located and laid out in accordance with the approved development plan.

2. The standard dimension of the netball courts shall be 30.5 metres long by 15.25 metres wide, measured to the outside of a 50mm wide white line. Dimensions of the court and internal line marking shall be in accordance with Australian Standards.

3. Clearances to adjoining courts and edge of court surrounds, measured from and to the outside edge of the white line shall be:

Side clearance to edge of court	-	3.05m
Side clearance to adjoining court	-	3.7m
End clearance to edge of court	-	3.05m
End clearance to adjoining court	-	3.05m

4. The pavement shall be composed of the materials and to the thickness as detailed:

Subgrade	-	compacted well drained sandy soil
Sub-base course	-	150mm compacted limestone rubble
Base course	-	50mm compacted fine crushed rock
Seal and Playing Surface	-	20mm compacted asphalt concrete, Mix 2 Size 7, diorite

5. The playing surface surrounds shall be at a gradient of a maximum of 1:100 and a minimum of 1:200. The surface shall be sloped to minimise rainfall run-off to the outside courts in a multi-court complex and if a two way grading is used, at least one grade shall be 1:100. All other dimensions shall be in accordance with the recommended guidelines.

**Surface Gradient**

6. The courts shall be oriented to match existing courts and facilities on the reserve.

7. The court shall have a perimeter kerbing of extruded concrete flush kerbing to support and contain the pavement. The surrounding ground shall be trimmed off level with the flush kerbing.

**Perimeter Kerbing**

8. Rainfall run-off shall be accommodated by soakage into the surrounding ground or, where the court is surrounded by other than flush kerbing, a stormwater drainage system designed and constructed in accordance with Council's specifications for the Design and Construction of Roads and Stormwater Drainage.

**Stormwater Drainage**

### **D14.16 COURT FURNITURE**

1. The goal posts, brackets, sleeves, rings and other fittings shall be provided in accordance with accepted standards for netball.

**D14.17 COURT LINE MARKING**

1. Line marking shall be provided using an approved road marking paint. Line width shall be 50mm.

## RETAINING WALLS

The location and layout of retaining wall shall be in accordance with the approved development plan.

### D14.18 MASS RETAINING WALL

- |    |   |                                       |
|----|---|---------------------------------------|
| 1. | The general design rule for mass (gravity) retaining walls based on either limestone blocks or free stones is base width = 0.6 x height. The height is the overall height of the retaining wall including embedment and distance above retained surface level. This rule is based on a minimum density of limestone of 1800kg/m <sup>3</sup> with a minimum embedment of 300mm. | <b><i>Rule of Mass</i></b>            |
| 2. | All retaining walls that are constructed as part of the subdivisional development shall have a structural engineer's certification.   | <b><i>Engineer's Certificate</i></b>  |
| 3. | All retaining walls shall be subject to application for building licence.   | <b><i>Building Licence</i></b>        |
| 4. | If the wall is constructed of free stones and is higher than 1.5m, the front face shall have a 1:1 slope.   | <b><i>Free Stone Construction</i></b> |
| 5. | The wall shall be located so that it is not surcharged by other loads such as vehicles or structures and shall have a clearance from roads or buildings equal to its total height. The retaining wall shall not surcharge other retaining walls or structures unless designed to do so.   | <b><i>Surcharge</i></b>               |
| 6. | Fences on top of retaining walls are permissible and may be either 1.2m high top and bottom rail chain link or swimming pool type safety fence.   | <b><i>Fences</i></b>                  |
| 7. | Retaining walls shall not be constructed over service lines without prior approval.   | <b><i>Service Lines</i></b>           |
| 8. | Structural retaining walls shall be designed by a structural engineer. The construction of these walls shall be in accordance with specification provided by the structural engineer.   | <b><i>Structural Walls</i></b>        |

## DRAWING STANDARDS

### D14.19 GENERAL

- |    |  |                                   |
|----|--|-----------------------------------|
| 1. | Drawings shall be provided to detail the design, location and construction of facilities in accordance with the approved development plan.   |                                   |
| 2. | Drawings detailing the design shall show all existing contours or spot levels, services, survey pegs and marks, fences, trees and vegetation and structures and buildings and all new or proposed contours or spot levels, earthwork embankments, playing surfaces, landscaping features, roads, carparks, tennis courts and netball courts. | <b><i>Drawing Detail</i></b>      |
| 3. | Drawings shall in general be prepared in accordance with Australian Standard AS 1100 Pt 101 (1992) and Pt 401 (1984).  | <b><i>Australian Standard</i></b> |
| 4. | Drawings may be microfilmed following the practical completion of a project therefore line thickness and density shall be to micrographics standards. The minimum line thickness shall be 0.25mm. Bar scales shall be provided on all drawings for all scales on those drawings.   | <b><i>Micrographics</i></b>       |

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5. The datum used shall be the Australian Height Datum. **AHD**
6. Upon completion of electrical installation and lighting of reserve facilities, as constructed cable details, conduit alignments and cabinet locations (if different from design) shall be provided to Council. **As constructed**

### **D14.20 DRAWING SPECIFICATION**

1. Drawings for earthworks and re-contouring, roads, carparks, tennis courts and netball courts shall be provided to the scales and required details below.



<b>RESERVES AND PUBLIC OPEN SPACE</b>		
<b>Drawing</b>	<b>Scales</b>	<b>Detail (minimum requirement)</b>
Locality plan	Minimum horizontally 1:5000	Existing roads, lots, reserves and locality areas, new construction details. Index of drawings.
Overall plan	Minimum horizontally 1:1000	Cadastral boundaries, existing level contours, fences, vegetation, structures, services and reticulation. New works, all dimensions, widths and construction details. Cross-sections, pavement depths, court layouts and lighting details.
Longitudinal and profiles	Minimum 1:1000 horizontally and 1:100 vertically	All existing natural surface levels and existing detail. New profiles, grades, crossfalls, kerbs and intersection and junction details.
Cross sections	Minimum 1:200 horizontally and 1:100 vertically	All existing natural surface levels and detail. New works, widths, depths and construction details.
Intersections and Junctions	Minimum 1:250 horizontally	Cadastral boundaries, footpath, footways, cycleways, new and existing kerb and channelisation and drainage details.
Contour Plans	Minimum 1:1000 horizontally	All existing cadastral boundaries, pegs, marks and fences and existing levels and contours. New contours and regrading levels, oval and pitch areas, pad levels, carparks and roads.
Details	To standard engineering drawing scales	As required by Council
Courts	Minimum 1:250 horizontally	All dimensions of court layout, line marking and side clearances
Electrical and Lighting	Minimum 1:250 horizontally	All dimensions of court areas, fencing, conduits, cabinets and pole locations.
Retaining Walls	Minimum 1:250 horizontally	All dimensions and heights of walls including fencing, typical cross-sections and construction details.