DEVELOPMENT DESIGN SPECIFICATION

D13

LAND & STREET SCAPE 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 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

DEVELOPMENT DESIGN SPECIFICATION D13
LAND & STREET SCAPE DESIGN

GENERAL

D13.01 SCOPE

1. The work to be executed under this Specification consists of the design of the public and private landscape and environment.

D13.02 OBJECTIVES

1. The objectives of landscaping design are as follows:

Design Objectives

(a) To protect & improve the environment of the Local Government Area utilising Environmentally Sustainable Development principles. .

(b) To ensure that landscaped areas are suitable for their intended purpose, size and location.

(c) To protect & improve the environment, including;
- Aesthetic appeal
- Comfort, ie. Shade, shelter from wind
- Safety, eg. Traffic separation, crime prevention
- Sense of place
- Noise reduction
- Emission/dust filtration/depression
- Water quality (erosion & sedimentation reduction)
- Improved property values

(d) To ensure that the design of landscaped areas will provide for long-term sustainability, maintenance and aesthetics associated with the prevalent land uses.

(e) To ensure that any landscaping enhances the surrounding landuse.

(f) To aid the long-term sustainability of locally occurring native flora and fauna species.

(g) To stabilise and revegetate areas that are disturbed due to works involved with development.

2. In pursuit of these objectives, the following principles shall apply:

Design Principles

(a) Plant species shall be suitable for the intended purpose of the landscaping and in scale with the surrounding developments.

(b) Public maintenance level requirements WILL be minimised.

(c) All landscaped areas are to be physically separated from surrounding pedestrian areas, carparks, driveways and roads, to minimise potential hazards and liability.

(d) The landscaping shall not interfere with the existing or future land uses (ie. blocking sight distances for vehicular traffic).

(e) The landscaping shall not interfere with public utility infrastructure, such as NorthPower services.

(f) The landscaping is not to cause accelerated degradation to any existing or likely future structure or public infrastructure (ie. ingress of moisture into road pavements or root damage to sewer/stormwater pipes).

(g) Utilisation of Crime Prevention Through Environmental Design (C.P.T.E.D.) philosophies.

(h) Consideration of the use of koala food species in all appropriate applications.

Urban design principles including;

- Simple uncluttered designs
- Appropriate to location
- Quality products and materials
- Ecological Sustainable Development
- Sedimentation and Erosion Control Code
- Tree Preservation Order

D13.03 REFERENCE AND SOURCE DOCUMENTS

(a) Council Design & Construction Specifications (AUS-SPEC #1)

(b) Council Policy And Code Requirements

(c) Other

- N.S.W. POLICE ACADEMY, 1999, *SAFER BY DESIGN – A Practical Guide to Crime Prevention Through Environmental Design*
- R.T.A., 1998, *TECHNICAL DIRECTION 98/6 – Use of Traffic Calming Devices As Pedestrian Crossings.*
- AUSTROADS, *A Guide To Traffic Engineering Practice*

(d) Australian Standards

- AS2890 – Parking Facilities
- AS1158 – Public Lighting
- AS1428 – Disabled Access
- AS1742 – Uniform Traffic Control Devices

(e) Further Reading/Other References

- QLD Streets
- Amcord Urban

DESIGN & DOCUMENTATION

D13.04 PLANS & DOCUMENTATION

1. Plans are to be drawn on suitable regular sized paper such as A3, A2 or A1, and the ***Plans***

maximum scale is 1:500 (A1). However the size, scale and layout of the plans should easily communicate the construction requirements. Cluttered or difficult to read plans will not be accepted.

2. The design shall be completed with input from appropriately qualified horticultural professionals in order to ensure compliance with this specification and overall quality of the design. The plans shall bear the certification of the design consultant and shall be certified as complying with the appropriate design specifications. The certification shall be in the form detailed in the DQS specification and associated checklists. ***Designer's Qualifications & Certification***

3. The Designer shall consult with Council, the Developers Engineers and relevant authorities prior to and during the preparation of the design. ***Consultation***

4. The design plans shall show the location of all existing and proposed or future infrastructure, including but not limited to sewer, water, power and telecommunications. ***Infrastructure***

5. All necessary erosion and sediment control devices are to be shown on the plans in accordance with council's requirements for erosion and sediment control. ***Erosion and Sediment Control***

6. Proposed stockpile sites are to be nominated on the plans, access routes and sediment control devices are also to be noted. The design shall also incorporate remediation/revegetation of the stockpile site. ***Stockpiling***

7. All existing vegetation is to be shown on the plans, with the areas to be protected/retained differentiated from those to be disturbed ***Existing Vegetation***

8. The plans are to contain all major calculations, assumptions and conditions as necessary. Should it be impractical for this information to be shown on the plan, they are to be included in the design documentation to accompany the plans. ***Design Documentation***

GENERAL LANDSCAPING

D13.05 GARDEN BED PLANTINGS

1. Garden beds are to contain a minimum of 300mm of suitable organic soil mix. Geotextile fabric may be required where separation of the organic soil from the subgrade material is required due to root penetration. ***Organic Soil Mix***

2. A minimum of 100mm of mulch is to be provided to the surface of the garden bed upon planting, to restrict weed growth. The mulch material is to be hardwood wood chips or other approved material (eg. hardwood fines or leaf mulch). The thickness of the mulch shall be measured as the overall thickness of the consolidated material at the end of the maintenance period. ***Mulch***

3. The edges of the garden beds are to be formed/constructed using permanent low maintenance materials (eg. Brick & Mortar, hard butted pavers in concrete bedding, continuous concrete or similar). The edge must not have a reasonable risk of being a trip hazard. ***Edge Maintenance***

4. Garden beds with grades in excess of five percent (5%) shall have dividers (terracing) or bands of plants parallel to the contours, across the bed, to prevent scour of the mulch and soil. Ground covers may also be used in mass planting to prevent erosion or scour of a garden bed on grade. ***Scour***

5. Garden bed plantings must not obstruct sightlines. ***Sightlines***

6. Where the garden abuts a parking area (particularly reverse parking), there is to be ***Parking Areas***

some structural measure utilised to prevent damage to the garden beds and the vegetation.

D13.06 TREE PLANTINGS

1. All tree planting shall conform to the following minimum requirements; ***Tree Planting Requirements***

   (a) Be in accordance with Council's standard drawing.

   (b) Consist of suitable species as approved or nominated by council.

   (c) Be a minimum of 1.5m from the back of kerb (preferably just outside the property boundary), 4m from the nearest domestic water or sewer service and 10m from any streetlight (or other minimum distance as specified by the lighting authority). Where these setbacks cannot be achieved this should not preclude tree planting. Alternatively suitable species may be planted only if approved by council.

   (d) Where a tree is planted less than 4m from the back of the kerb, a root barrier is normally required behind the kerb along that area of the kerb that is less than 4m from the base of the tree.

2. Each tree is to be deeply mulched to a thickness of more than 100mm and supported by stakes in accordance with the Standard Drawing. Prior to release from maintenance each tree is to have the weeds removed and be remulched, so that the overall thickness of mulch is greater than 100mm (consolidated). Tree's shall be mulched to a minimum of one metre radius (1m) from the base of the tree. ***Mulching***

D13.07 DRAINAGE

1. Provision is to be made for all surface runoff from landscaped areas to be discharged to an existing council controlled storm water drainage system or registered interallotment drainage easement for which legal benefit can be demonstrated. ***Storm Water Drainage***

2. The landscaped areas are to be designed to prevent erosion and scour from surface runoff, and sedimentation occurring in adjoining areas. ***Erosion & Sediment Control***

3. Where landscaping is proposed on top of, or beside any road pavement, median strip, wall or other impervious structure (or in any situation where subsoil percolation may be trapped by impervious barriers) a subsoil drainage system is to be installed to protect the pavement from moisture ingress (and prevent seepage after rainfall events). ***Subsoil Drainage***

4. In areas of clay or other poorly drained soils, subsoil drainage shall be provided.

5. The subsoil drainage system shall be designed in accordance with the D4 specification.

6. Energy Dissipating Structures are to be used in accordance with council's requirements and the D5 specification, to prevent erosion or scour. ***Energy Dissipaters***

7. Gross pollutant traps or similar devices are to be used where required by council and the D5 specification to remove rubbish and some sediment from stormwater prior to release into undisturbed areas, landscaped features (constructed wetlands, ponds, etc.) or natural watercourses. ***Gross Pollutant Traps***

8. The system is to be designed in accordance with the D4, D5 and D7 specifications. All construction shall be in accordance with the relevant construction specification (C273). ***Drainage System Design***

D13.08 FURNITURE

1. All furniture shall conform to a council approved plan or an adopted area masterplan. ***Masterplan***

2. All street/park furniture must be constructed from tough, wear resistant materials that will require minimal maintenance and be vandal resistant. ***Materials***

3. All furniture must be securely fastened or locked to prevent unauthorised tampering or removal.

4. Furniture should be provided at anticipated activity points or in strategic locations (eg. Seats near waiting areas or bus stops, bins near food outlets or ATM's etc) ***Strategic Locations***

5. Furniture shall be designed and placed according to good urban design principles including;
   - Maintain simple uncluttered spaces
   - Do not impede pedestrian traffic
   - Colours & style consistent with environment
   - Combine use of facilities where possible (ie. placement of signs on existing light posts)

D13.09 STRUCTURES

1. Structures (such as bus shelters etc.) should be positioned to offer protection to users from the environment and other possible dangers (such as wayward vehicles at bus stops or projectiles near sportsgrounds etc). This protection should not interfere with the potential warning mechanisms such as sight distance.

2. The location and design of structures shall consider environmental effects such as solar aspect and prevailing winds.

3. All structures must provide for all disabled access requirements. ***Disabled Access***

D13.10 IRRIGATION

1. Specific council approval is to be obtained before the design of such as system is undertaken. ***Council Approval***

2. Where the species of plant selected for the landscape design requires regular watering, above that which can be expected to naturally occur as rainfall, an irrigation system is to be used. Any irrigation system is to be designed and constructed to Council's satisfaction. ***Irrigation System***

3. The system shall have a separate metered water supply connected to the mains. ***Water Meter***

4. The system shall provide supplementary hose cocks for additional watering during unusually dry periods. ***Hose Cocks***

D13.11 EXISTING VEGETATION

1. Existing vegetation should be preserved where possible. Approval must be sought ***Preservation***

under the Tree Preservation Order (or any other planning instrument) for the removal of trees and other vegetation.

2. Additional plantings shall compliment the existing vegetation. ***Additional Plantings***

3. The design must include all measures to protect the long term viability of the existing vegetation.

D13.12 FENCING

1. Pedestrian or barrier fencing shall be in accordance with Standard Drawings SD800 & SD801. ***Standard Drawings***

2. Where no pedestrian support is required a post and chain fence is preferred (eg. around or through gardens). Where support is required to prevent accidental pedestrian access or ensure general safety the fence must be post and rail type (eg. Around headwalls etc.). Galvanised tubular steel post and rail type fencing will be provided where it is required to ensure the safety of pedestrians, in accordance with. ***General Fence Types***

3. Fences provided to restrict vehicular access shall be similar to post and rail type. The posts are to have holes bored near the top to facilitate the placement of a 40mm Dia. hot dip galvanised steel pipe to be bolted securely between the two posts. ***Special Application Fencing***

4. Where the fence is to restrict pedestrian access and public view it shall be constructed fully from colourbond steel or treated pine timber to a minimum of 1.5m height. Where the view is to be preserved the fence may be constructed of heavy duty pool type fencing to a suitable height.

5. Should noise barrier fencing be required, then it shall be design and constructed to the appropriate standard, with materials that compliment the surrounding environment.

6. All CCA treated timbers that are to be embedded into the ground (including cast in concrete) are to be at least grade H4. Only the uncut end shall be embedded into the ground, all cut surfaces must be appropriately retreated onsite after cutting. Where possible single uncut lengths are to be used. ***CCA Treated Timber***

D13.13 SIGNAGE

1. All signage is to be simple and effective in conveying the required message. The signage is not to cause confusion or conflict with adjoining land users.

2. The sign format is to be consistent with Council Codes, Masterplans or approved urban design. Where possible existing infrastructure, such as lightpoles, shall be used for mounting, with the approval of the relevant authority.

D13.14 PLANT/TREE SPECIES

1. Plant species shall be perennial/long lived. Consideration shall be given to native locally occurring species in all areas, but particularly near bushland and rural areas. ***Selection***

2. Landscaping/revegetation within, adjoining or near to bushland areas shall only consist of native locally occurring species. ***Native Species***

Design Details

3. The species shall be indicated on the design plans, along with the pot size for planting. Council shall review the plans and approve or specify alternate plantings as appropriate.

4. Where plantings are near service infrastructure the species are to comply with the requirements of the service authority/provider. ***Service Infrastructure***

5. Suitable & unsuitable species for use in urban street planting can be obtained from council. ***Suitable Species***

D13.15 FILLING/EXCAVATING NEAR EXISTING TREES

6. Filling near established trees shall be avoided wherever possible. Construction cost will not constitute acceptable criteria to justify filling around existing trees. ***Acceptance Criteria***

7. Where it is necessary to fill over the root area (generally within 4m of the trunk) of existing trees the fill is to be limited to a maximum of 200mm. All fill material within the root area shall be granular and free draining. The filling is to undertaken in equal stages over a period of at least one year. Alternatively the tree is to be removed and replaced with a more suitable species planted at finished surface level. ***Filling***

8. The surface from the edge of the root zone is to be battered to the surrounding finished surface level at a safe stable angle. ***Batters***

9. Consultation with Council or other qualified horticulturalist/arborist shall occur prior to any proposal that involves filling around existing trees. ***Professional Consultation***

D13.16 MATERIALS – GENERAL

1. Generally all materials specified shall be of consistent quality that conforms to all required standards. ***Quality of Supply***

2. The materials shall be durable in nature and capable of withstanding the environmental and service conditions. ***Durability***

3. The materials shall not be difficult to repair or replace.

LANDSCAPING OF DRAINS & BATTERS

D13.17 DRAINS

1. Any landscaping shall not reduce or impede the hydraulic capacity of the drain at any time. ***Hydraulic Capacity***

2. Turfing or landscaping of drainage flow paths shall withstand the flow velocities for all ranges of stormwater flows without scour or erosion. Structural reinforcement is to be incorporated in the design where expected flow velocities may cause scour or erosion. ***Scour Protection***

   Drainage flow paths affected by the 1 in 100 Year A.R.I. storm event are to be turfed immediately after construction.

3. Where a grassed swale/open drain is subject to regular flows, a low flow pipe shall be provided, or alternatively the invert of the drain is to be concrete lined so that minimal ***Low Flow Drains***

maintenance of the surface is required, as approved by council.

D13.18 BATTERS

1. All disturbed areas are to be revegetated immediately utilising an approved treatment. Acceptable Treatments include;

   - Hydromulching - in accordance with C273. Where the grade is greater than 1 in 4, erosion control netting shall be placed prior to hydromulching. ***Hydromulch***

   - Direct Seeding – with a seed mix as stated on the approved plans. Where the grade is greater than 1 in 4 erosion control netting shall be placed in conjunction with the seeding. ***Hand Seeding***

   - Turfing – with turf species as approved by council. Strips shall be laid parallel to the contours. Where the grade is in excess of 1 in 3 the turf is to be pinned. ***Landscape Surface***

   - Tube Stock/Potted Plants – as per the approved landscape design plans. Erosion control matting shall be placed for all slopes greater than 1 in 4. ***Landscape Surface***

2. Prior to the placement of any of the above treatments, topsoil shall be placed to a minimum thickness of 100mm where turf is used, and 200mm in all other applications. The topsoil used is to conform to the C273. ***Topsoil***

3. Any drainage runoff upstream of the batter must be diverted around the batter by catch drains. ***Catch/Diversion Drains***

LANDSCAPING OF VERGES, MEDIANS, FOOTWAYS & OPENSPACE

D13.19 VERGES, MEDIANS, FOOTWAYS & OPENSPACE

4. Landscaping of verges shall not restrict the sight distance requirements for the design speed of the road (including approaches to intersections, driveways and pedestrian crossings). ***Sight Distances***

5. The landscaping shall complement the existing environment, hence reducing the potential for the distraction of drivers. ***Driver Distraction***

6. A subsoil drainage system must be provided to prevent excessive moisture from entering the road pavement, where required by D13.0. ***Subsoil Drainage***

7. Plant species for use in medians shall be low maintenance to reduce traffic impacts and maintain traffic safety during routine maintenance activities (including watering, pruning etc.) ***Maintenance***

8. No Trees or other rigid features shall be placed within the potential vehicle impact danger (clear) zone without satisfactory provision of safety measures. ***Vehicle Impact***

9. Provisions shall be made at regular intervals for a paved pedestrian standing area, for use whilst crossing the road (where pedestrian access is not physically restricted). Other pedestrian safety features such as handrailing and bollards can be incorporated into the road design in accordance with AS1742 – Uniform Traffic Control Devices and the respective road design specifications. ***Pedestrian Access/Safety***

10. Low obstacles should be avoided where possible. Joints in paving surfaces shall be

flush with minimal horizontal and vertical gaps, to minimise pedestrian injury.

11. The boundary of the footway should be clearly defined.

12. The soil or mulch used in the landscaping of a median shall be physically retained from erosion onto the trafficable road surface — ***Erosion Control***

KEY PRINCIPLE CONCEPTS OF CRIME PREVENTION THROUGH ENVIRONMENTAL DESIGN (C.P.T.E.D.)

D13.20 PEDESTRIAN ISSUES

1. Provide and define safe pedestrian routes that are clearly indicated, signposted (where required) and well illuminated. Disabled access should be maintained, refer to Austroads Part 13 for requirements. — ***Pedestrians***

D13.21 SURVEILENCE

2. The aspects of natural surveillance shall be utilised where possible. — ***Natural Surveillance***

3. Areas of potential offender concealment (hidden recesses, narrow walkways, dark corners etc.) shall be minimised. — ***Concealment Locations***

4. Landscaping shall allow clear unobstructed views of surrounding public, semi public and semi private areas. — ***Clear Sight Lines***

5. The planting of trees with dense top to bottom foliage shall be avoided to minimise potential concealment areas. Vegetation shall not obscure the potential surveillance from nearby buildings/streets whilst maintaining privacy. In general vegetation shall be clear between one and two metres above ground level to preserve sight distances. — ***Concealment Locations***

6. Public facilities and amenities, such as toilets and playground areas shall be clearly designated and placed in locations that are easily observable by residents, guardians and landusers. The design of public facilities in secluded areas where supervision and access control may be low, or behind buildings or facing laneways shall be avoided. — ***Playgrounds***

7. Offstreet carparking facilities shall be located in areas visible from nearby occupied buildings. — ***Parking***

8. Driveways shall provide for unobstructed views of any passing pedestrians and motor vehicles.

9. All parking facilities are to be designed in accordance with Australian Standard AS2890.1-1993 and Council's Code.

D13.22 LIGHTING

1. Development should cater for the day and night safety and security of the public, and be completed in accordance with the Australian Standard for Public Lighting (AS 1158). — ***Public Lighting***

2. Consideration shall be given to enhancing the night time appeal and potential use of public facilities through the provision of appropriate lighting. Where night time use is required or in areas of high risk, lighting shall be provided.

3. Lighting associated with any public facility shall not interfere with other nearby land users, such as motorists or residents (glare etc.).

Glare

SPECIAL REQUIREMENTS

D13.23 RESERVED

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