# **CIS Landscape Standard**

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### 1 PURPOSE

The CIS Landscaping Standard sets out the University of Sydney's minimum requirements for landscaping design and construction at the University of Sydney to develop landscape elements and fixtures that are both functional and aesthetic, and provide improved amenity. It ensures that landscaping elements are of high quality, durable, integrated with existing landscapes, cost effective to operate and maintain, and are derived from a limited palette of materials, finishes and colours currently found on campus.

Applicable requirements documented in Workplace Health and Safety legislation, Disability Discrimination legislation, State Environmental Planning legislation, Commonwealth and State legislation, National Construction Codes (NCC), the Building Code of Australia (BCA) and Australian and New Zealand Standards (AS/NZS) are the minimum and mandatory compliance requirements.

Where any ambiguity exists between this standard and the aforementioned mandatory requirements then:

- a. the highest performance requirements must apply
- b. applicable requirements must follow this order of precedence:
  - I. Workplace Health and Safety legislation
  - II. Disability Discrimination legislation
  - III. State Environmental Planning and Assessment legislation
  - IV. All other Commonwealth and State legislation
  - V. NCC and BCA
  - VI. AS/NZS
  - VII. This standard and other University standards

### 2 SCOPE

This standard covers minimum landscape requirements for projects and maintenance works. The scope covers the following landscape elements:

- a. Materials palette
- b. Hardscape elements
- c. Furniture elements
- d. Planting elements

The standard applies to planners, architects, project managers, consultants, contractors, sub-contractors, tenants, managing agents and others involved in the constructing and maintaining the University's landscapes.

### 3 GLOSSARY OF TERMS

Materials Palette	materials used in landscaping elements, concrete, sandstone, granite, asphalt (vehicle pavements only), steel (black, stainless steel, coreten finish)
Hardscape elements	paving, ramps, steps, edges, walls and fences
Furniture elements	seating, tables, bins, bollards, cycle racks, drinking fountains, tree protection
Planting elements	tree planting, heritage planting, contemporary planting, endemic planting

### 4 AUTHORITIES & RESPONSIBILITIES

The design standard is owned by CIS. It is approved and signed-off by the Director CIS and the Facilities Management Grounds Unit is responsible for reviewing and maintaining the standard and keeping it up-to-date. The standard must be reviewed and kept up-to-date at least biennially.

#### **5 TECHNICAL REQUIREMENTS**

#### 5.1 BASIC PRINCIPLES GUIDING THE DESIGN STANDARD

Main principles guiding the design and construction of landscapes at the University are:

- a. design cohesion, continuity of materials and design
- b. campus or precinct identity
- c. reduced maintenance costs
- d. sustainability of materials

The standard focuses on providing consistent and linking elements to connect disparate buildings and structures throughout the University. It emphasises consistency of landscape elements and a simplified palette to provide greater cohesion and link disparate University structures.

Hardscape design must satisfy the following general requirements:

- Historic sandstone and trachyte elements including paving, walls, steps & edges that must be conserved, restored or replaced to match existing.
- For works adjacent to existing hardscapes, match or compliment existing adjacent surfaces.
- Select elements to match the dominant existing building material.
- The location and context of the works must determine the appropriate detail or material selected from the standards.

Figure 1 provides the Paving Zone Masterplan for Camperdown and Darlington campuses.

#### 5.2 DESIGN ELEMENTS

Elements selected for use throughout the University are derived from a limited palette of materials, finishes and colours currently found on campus. Selection of landscape elements must ensure they:

- a. have a history and continuity of use on site
- b. have a heritage association where appropriate
- c. are selected from those already on site
- d. can be replicated and reproduced
- e. have a secured supply over time to ensure continuity
- f. meet relevant Australian standards and codes
- g. meet current accessibility standards
- h. have low maintenance costs

#### 5.2.1 HARDSCAPE ELEMENTS

Hardscape design must satisfy the following general requirements:

- Historic sandstone and trachyte elements including paving, walls, steps & edges that must be conserved, restored or replaced to match existing.
- For works adjacent to existing hardscapes, match or compliment existing adjacent surfaces.
- Select elements to match the dominant existing building material.
- The location and context of the works must determine the appropriate detail or material selected from the standards.

**Table 1** below refers to detailed specifications of hardscape elements which are provided in attachments to this standard. Specifications in the attachments must be implemented in landscape design and construction.

General Landscape element	Elements Type	Attachment Reference
Hardscape Paving Element	<ul> <li>P1 - In-situ concrete</li> <li>P2 - Granite flags</li> <li>P3 - Granite road cobble thresholds</li> <li>P4 - Granite pedestrian cobbles pavements</li> <li>P4 - Sandstone flags for heritage pedestrian areas</li> <li>P6 - Decomposed Granite</li> <li>P7 - Asphaltic concrete road surfaces</li> <li>P8 - Pedestrian ramps</li> </ul>	Attachment 1 Hardscape Paving Element
Hardscape Step Element	<ul> <li>S1 – Trachyte stone steps</li> <li>S2 – Sandstone steps</li> <li>S3 – Concrete steps</li> <li>S4 – Granite steps</li> </ul>	Attachment 2 Hardscape Step Element
Hardscape Edge Element	E1 – Flush metal edging E2 – Raised metal edging E3 – Untreated steel E4 – Sandstone edging	Attachment 3 Hardscape Edge Element
Hardscape Wall Element	W1 – Sandstone walls W2 - Custom	Attachment 4 Hardscape Wall Element
Hardscape Fence Element	<ul> <li>F1 – Heritage palisade fences</li> <li>F2 – Steel palisade fences</li> <li>F3 – Contemporary steel palisade fences</li> </ul>	Attachment 5 Hardscape Fence Element

#### Table 1 Hardscape Elements



#### Figure 1 Paving Zone Masterplan

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#### 5.2.2 FURNITURE ELEMENTS

Furniture design must satisfy the following general requirements:

- a. Continuity of design choice, standardised colour and form.
- b. University standard only, generally no custom design.
- c. Limited introduction of custom seating to discrete "individual spaces" e.g. courtyards or precinct hub / buildings.
- d. Simple classic design.
- e. Provide accessible furniture e.g. seating, tables and drinking fountains
- f. Heritage style seat and bollards only in heritage areas or courtyards.
- g. Group furniture elements rather than having them as isolated elements.
- h. Final material & element selection to be approved by Grounds Manager.
- i. All signage to be to University standard, no custom design
- j. All lighting to be to University standard, no custom design, standardised colour palette black.

**Table 2** below refers to detailed specifications of furniture elements which are provided in attachments to this standard. Specifications in the attachments must be implemented in landscape design and construction.

General Landscape element	Elements Type	Attachment Reference
Furniture Seat Element	S1 – Standard seat	Attachment 6 Furniture Seat
	S2 – Standard Bench	
	S3 – Heritage Seat	
	S4 – Custom seating	
Furniture Table Element	T1 – Standard table	Attachment 7 Furniture Table Element
Furniture Bin Element	L1 – Standard litter bin	Attachment 8 Furniture Bin Element
Furniture Bollard Element	B1 – Standard bollard	Attachment 9 Furniture Bollard Element
	B2 – Heritage style	
Furniture Cycle Rack Element	C1 – University standard rack	Attachment 10 Furniture Cycle
	C2 – Standard narrow	
	C3 - Corkscrew	
Furniture Drinking Fountain Element	DF1 – Accessible drinking water fountain	Attachment 11 Furniture Drinking Fountain Element
Furniture Tree Surround Element	T1 – Tree surround	Attachment 12 Tree surround Element

#### **Table 2 Furniture Elements**

#### 5.2.3 PLANT ELEMENTS

Tree planting design must satisfy the following general requirements:

- a. Continuity of form & structure.
- b. Context with existing planting.
- c. Clear, unified planting structure.
- d. Strong structural form, hedging and architectural foliage.
- e. Combined use of exotic plants and native species.
- f. Strong massed planting with large numbers from a limited species range.
- g. Species selected that are suitable for the available solar access, both present and future.
- h. Species suited to location & micro-climate.
- i. Shade trees selection which recognize the impact on both open spaces they overshadow and likewise the passive solar requirements of adjacent buildings.
- j. Advanced plants & large stock sizes utilized where possible.
- k. Low water requirement / drought resistant species.
- I. Resistance to pests and diseases.
- m. Low maintenance requirements. Requirement for dead heading, hedging, pruning or pollarding etc. should be minimised.

The schedules are intended to act as a guide and form the basis of planting throughout the University. Species can be selected from the various schedules and additional species may be selected with the aim of fulfilling the principles outlined to achieve a contiguous University character.

The list of trees includes some of the major species planted on the campus. Tree planting throughout the University should be guided by:

- a. Planting Zone character
- b. Visual impact
- c. Size of mature canopy
- d. Growth habit
- e. Root zone constraints
- f. Environmental contribution
- g. Heritage contribution
- h. Function

The figure below provides the Planting Zone Masterplan for Camperdown and Darlington Campuses.

**Attachment 13** provides detailed specifications of plant elements which must be implemented in landscape design and construction.

#### 6 COMMISSIONING

All landscaping works must be inspected and approved by the CIS Grounds Unit Manager at the completion of the project in order to obtain practical completion.

#### 7 DOCUMENTATION & RECORDS

Project architects and contractors must provide landscape architecture plans and specifications with a schedule of all hardscape, furniture and planting elements and proposed materials palettes for review and approval by CIS Planning and the Facilities Grounds Unit Manager.

At practical completion, landscaping works must be inspected and approved by the CIS Grounds Unit Manager on the Campus Assist online Defects Register.



#### Figure 2 Planting Zone Masterplan

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### 8 OPERATIONS

Not applicable

### 9 AUTHORISATION OF VARIATIONS

Project managers, consultants, contractors, commissioning agents and facilities maintenance personnel must ensure compliance with these requirements is achieved.

Variations to this standard must only be considered where:

- a. the University Standard's requirement cannot physically or technically be achieved.
- b. the alternative solution delivers demonstrated and proven superior performance for the same capital and life cycle cost or better.

Consultants and contractors must identify and justify requirements of the standard that do not apply to the project or which need to be varied and these must be approved by the issuer of this standard. Formal requests for all variations to this Standard must be submitted using the **CIS Request Dispensation from Standard Form (CIS-ENG-F001)**. The issuer of this standard or their delegated authority must review and consider requirements of stakeholders from clients, projects and facilities management before deciding whether to approve variations. Their formal sign-off is required for acceptance of any non-compliances and departures from this standard's requirements.

#### **10 QUALITY CONTROL**

#### 10.1 DESIGN STANDARD COMPLIANCE

Compliance with requirements of this standard must be checked throughout the design, construction and practical completion phases of projects by:

- a. The CIS project consultant
- b. The issuer of this standard or their delegate

Competent CIS representatives must check compliance with this standard during design reviews and formal site inspections. Any non-compliances with requirements of this standard must be documented in the Non-conformance Report Form, **CIS-SYS-F001** and provided to the CIS Project Manager for issue to contractors and their consultants. Project Managers must maintain a register of non-conformances and manage close out of outstanding non-conformances. Contractors and their consultants issued with non conformances must take appropriate corrective or preventive actions. Proposed corrective or preventive actions and close out of non-conformances must first be formally approved by issuer of the standard or their delegate.

#### **10.2 DESIGN STANDARD CERTIFICATION**

Contractors and their consultants must certify compliance to the design standard by completing and submitting the CIS Project Design Certification Form, **CIS-PROJ-F001** to the CIS Project Manager at each of the following project phases:

- a. Design and Documentation
- b. Tender
- c. Construction

Notwithstanding CIS' internal quality control processes, contractors and their consultants must implement their own robust quality assurance and control procedures to ensure compliance with requirements of this standard.

### **11 REFERENCES**

N/A

### 12 NOTES

N/A

### **13 DOCUMENT AMENDMENT HISTORY**

Revision	Amendment	Commencing

### **14 ATTACHMENTS**

Hardscape Paving Element
Hardscape Step Element
Hardscape Edge Element
Hardscape Wall Element
Hardscape Fence Element
Furniture Seat Element
Furniture Table Element
Furniture Bin Element
Furniture Bollard Element
Furniture Cycle Rack Element
Furniture Drinking Fountain Element
Tree Surround Element
Plant Element Element

## Attachment 1 Hardscape Paving Element



P1 In-situ concrete paving with saw cuts.

Description: Light exposed aggregate in-situ concrete with saw cuts in square pattern.



Technical Specification:

#### Materials:

Concrete: minimum 25Mpa, grey cement, sand Aggregate: 10mm crushed river gravel Reinforcing: minimum SL52, 50mm cover top & bottom (depending on traffic loading, to engineers specification)

Installation:

Base Course: compacted sub-grade to engineers specification Slab thickness: minimum 100mm, or to engineers specification

#### Finish:

Light exposed aggregate finish:

- Screed/light wash immediately after pouring then trowel finish and leave until hard.
- Spray with water and break cement slurry with fine broom finish.
- Wash off cement dislodged by broom finish.
- Acid wash after 3-4 days with 1 part acid: 8 parts water.

Saw cuts:

- 6mm width 20mm depth sawn grooves to centres indicated on the drawing (Typically 1000 centres (+/- 100mm where required to meet path widths).
- Lines to be straight set perpendicular to kerbs/building lines with sharp arrises. The finished pattern on straight runs to resemble a square precast concrete unit pavement laid in stack bond pattern.

Expansion joints: minimum 5m spacing to suit saw cuts.

Pit Covers: Provide recessed pit lids with concrete infill, saw cuts to match adjacent paving. Note: Contractor shall provide sediment control to ensure no slurry/sediment is discharged into stormwater system.

Benchmark:

Location of standard / sample or example on site - Western Avenue.

Approval:

Install sample panel for approval of Grounds Manager.

Set out markers indicating location, orientation and extent of saw cuts for approval of Grounds Manager prior to sawing.

#### P2 Granite Flags

Description: Chinese Granite Flagstone Paving with alternating bands or single colour.



Technical Specification:

#### Materials:

Chinese Granite – Tombstone Grade G654-FG Fine Grain/Small Flower – Flame / exfoliated wearing surface. G654-CG Course Grain/Big Flower - Bush Hammered wearing surface.

Size variation: 900x400x60 (Nominal) 750x400x60 (Nominal) 600x400x60 (Nominal)

Distribution / Ratio: Depending on location

Supplier: Sam the Paving Man, United Stone or equal.

Installation:

Subgrade: compacted sub-grade to engineers specification & detail

Subbase: reinforced concrete slab or compacted road base, to engineer's specification & detail Preparation: Remove all loose material from the prepared base. Evenly premix sand and cement prior to spreading.

Bedding Material: 4 parts Nepean River Sand to 1 part Portland Cement, Nominal thickness after full compaction, 30-40mm. Screed bedding material over prepared base in a uniform manner. Maintain bedding material at a uniform compacted density.

Mortar Slurry: Spread slurry of neat cement poured over bedding mix immediately prior to laying to a nominal thickness of 5mm.

Jointing Material: 1 part course washed Nepean River Sand to 1 part Portland Cement with black oxide and crushed Picrite integrated in the 10mm surface layer. Joint spacing 3-5mm

Pattern: Paving units are to be laid on the compacted and screeded bedding to the nominated pattern, alternate courses of G654-FG and G654-CG or single colour.

Service lid abutments:

Standard perpend offset of 120 min. may reduce to 30 min around service lids.

Provide a full cut across the 400 flag of no less than 150mm to at least one side of the service lid.

House out the remaining portion of the flag to fit neatly around the service lid.

All joint spacings around service lids to match the standard perpend joint at 3-5mm.

Benchmark:

Location of standard / sample or example on site - Eastern Avenue.

Approval:

Provide sample of flags for approval of Grounds Manager. Install sample panel for approval of Grounds Manager.

#### P3 Granite Cobble: Road Thresholds

Description: Chinese Granite Cobblestones for vehicle thresholds

Roads thresholds only, not suited to pedestrian pavements



#### Technical Specification:

Materials:Chinese Granite Cobblestones.G654-FG Fine Grain/Small FlowerG654-CG Course Grain/Big Flower30%G654-FGSplit wearing surface, split edges.40%G654-CGSplit wearing surface, split edges.30%G654-CGflame / exfoliated wearing surface, split edges.

Size: 100x100x60 (Nominal)

Supplier:

Sam the Paving Man, United Stone or equal.

Installation:

Subgrade: compacted sub-grade to engineers specification & detail.

Subbase: reinforced concrete slab or compacted road base, to engineers specification & detail.

Preparation: Remove all loose material from the prepared base. Evenly premix sand and cement prior to spreading.

Bedding Material: 4 parts Nepean River Sand to 1 part Portland Cement, nominal thickness after full compaction, 30-40mm. Screed bedding material over prepared base in a uniform manner. Maintain bedding material at a uniform compacted density.

Mortar Slurry: Spread slurry of neat cement poured over bedding mix immediately prior to laying to a nominal thickness of 5mm.

Jointing Material: 1 part course washed Nepean River Sand to 1 part Portland Cement with black oxide and crushed Picrite integrated in the 10mm surface layer.

Pattern: Paving units are to be laid on the compacted and screeded bedding to the nominated pattern.

The distance between joints at any two adjacent rows must be no less than 20mm apart. A half cobble is permitted to help maintain stretcher pattern. A half cobble can be used no more than one time every 6 metres along any given row.

Benchmark:

Location of standard / sample or example on site - Eastern Avenue.

Approval:

Provide sample of cobbles for approval of Grounds Manager. Install sample panel for approval of Grounds Manager. P4 Granite Cobbles: Pedestrian Pavements

> Description: Chinese Granite cobblestones with flame / exfoliated surface for pedestrian pavements.



Technical Specification:

#### Materials:

Chinese Granite Cobblestones. 100%, G654-CG Course Grain/Big Flower, flame / exfoliated wearing surface, split edges.

Size: 100x100x60 (Nominal)

Supplier: Sam the Paving Man, United Stone or equal.

Installation:

Subgrade: compacted sub-grade to engineers specification & detail.

Subbase: reinforced concrete slab or compacted road base, to engineers specification & detail.

Preparation: Remove all loose material from the prepared base. Evenly premix sand and cement prior to spreading.

Bedding Material: 4 parts Nepean River Sand to 1 part Portland Cement, nominal thickness after full compaction, 30-40mm. Screed bedding material over prepared base in a uniform manner. Maintain bedding material at a uniform compacted density.

Mortar Slurry: Spread slurry of neat cement poured over bedding mix immediately prior to laying to a nominal thickness of 5mm.

Jointing Material: 1 part course washed Nepean River Sand to 1 part Portland Cement with black oxide and crushed Picrite integrated in the 10mm surface layer.

Pattern: Paving units are to be laid on the compacted and screeded bedding to the nominated pattern. The distance between joints at any two adjacent rows must be no less than 20mm apart. A half cobble is permitted to help maintain stretcher pattern. A half cobble can be used no more than one time every 6 metres along any given row.

Benchmark:

Location of standard / sample or example on site - Eastern Avenue.

Approval:

Provide sample of cobbles for approval of Grounds Manager. Install sample panel for approval of Grounds Manager.

#### P5 Sandstone Flags

Description: Sandstone Flagging to heritage pedestrian areas



Technical Specification:

#### Materials:

Local (Sydney Basin) sandstone similar to "Somersby" sandstone Medium grained buff coloured sandstone without prominent banding. Sandstone shall be new and of durability class A. Stone to be free of defects and without clearly defined, easily split bedding planes.

Size:

Flagging sizes range widely and are generally laid in random ashlar pattern.

Flagging is generally rectangular in size, 300-600mm width x 450-1200mm length x 75mm thick (Nominal)

Match adjacent heritage flagging dimensions where appropriate.

Finish:

Fine Gang sawn finish, free from radial saw marks.

Supplier: Gosford Quarries or equal.

Installation:

Subgrade: compacted sub-grade to engineers specification & detail

Subbase: reinforced concrete slab or compacted road base, to engineers specification & detail

Bedding Material: 6 parts Nepean River Sand: 1 part Lime: 1 part Portland Cement.

Nominal thickness after full compaction: 30-40mm

Alternative Bedding Material: mortar bed as specified by engineer.

Jointing Material: 6 parts Nepean River Sand: 1 part Lime: 1 part Portland Cement with oxide to obtain a colour matching the colour of the sandstone. Joint spacing depending on location. Match to adjacent paving.

Joint Finish: Finish mortar pointing to a dense smooth flush surface.

Benchmark:

Location of standard / sample or example on site – Great Hall equal access ramp.

Approval:

Provide sample of sandstone for approval of Grounds Manager. Install sample panel for approval of Grounds Manager.

### Type P6

P6 Decomposed Granite

Description: Natural crushed granite aggregate stabilised with cement and compacted in-situ.

For heritage curtilages & heritage courtyards.

Technical Specification:

#### Materials:

Yellow or brown decomposed granite aggregate (Deco ®Gold/ Deco ®Granite-Brown) or equal.

Suppliers:

Benedict Sand & Gravel, Australian Native Landscapes or equal.

Installation:

Subgrade: compacted sub-grade to engineers specification & detail

Stabilising: Mix aggregate with 4% Portland cement or hydrated lime by volume, thoroughly mixed and damp but not wet when placed.

Laying: Apply to a depth of 100mm and then lightly moisten and mechanically compact to achieve a minimum finished depth of 75mm with a minimum 85% of the modified maximum dry density (to AS1289).

Falls: Ensure falls are less than 1:80-1:100 to avoid erosion. Falls are to be away from buildings and where necessary away from pavement areas. Where concentrated run-off occurs special consideration must be given to slope and edge details.

Edging: Provide edgings to decomposed granite areas.

Finish: Roll in a top fine layer of loose decomposed granite aggregate to provide a finished textured surface.

Approval:

Provide sample of decomposed granite for approval of Grounds Manager. Install sample panel for approval of Grounds Manager.



### Type P7

#### P7 Asphaltic Concrete

Description: Flexible pavement consisting of a mixture of dense grade aggregates and bitumen.

Road surfaces only, not used for pedestrian pavements



#### Technical Specification:

#### Materials:

AC 20/ AC10 and utilise Class 170 bitumen. Conform to the requirements of Australian Standard AS 2734-1984.

#### Installation:

Subgrade: compacted sub-grade to engineers specification & detail Subbase: to engineers specification & detail Paving is laid and compacted hot to produce a dense smooth surface.

#### Approval:

Submit a proposed asphalt concrete mix design to the Grounds Manager for review and approval prior to placement. Install sample panel for approval of Grounds Manager.

#### P8 Ramps

Description: Accessible pedestrian ramps to building entries & pedestrian routes.



#### Technical Specification:

Standard:

Ramps to meet all current accessibility standards. Ramp surfaces to be non-slip Provide kerbs & handrails as required by AS 1428, current Australian standards & codes. Provide tactile indicators as required by AS 1428, current Australian standards & codes.

Materials: Select ramp material to match or complement adjacent pedestrian pavements.

Installation: Subgrade: compacted sub-grade to engineers specification & detail Subbase: reinforced concrete slab or compacted road base, to engineers specification & detail

Approval:

Ramp material to approval of Grounds Manager.

## Attachment 2 Hardscape Step Element



Description: Repair or replacement of existing solid trachyte stone steps.



#### Technical Specification:

#### Standard:

For repair and replacement of existing treads and for new steps adjacent to existing trachyte steps; match existing steps in materials, finish and design.

#### Materials:

Solid trachyte blocks to match existing adjacent steps. If trachyte is unavailable (New quarry stone or demolition stone), Austral Verde granite with a grit blasted finish to the top and a sawn finish to the face is to be used.

#### Installation:

Slip resistance: Existing trachyte steps are often smooth polished and pose slip hazards. A risk analysis should be determined for each set of new steps installed and for existing steps. Step surfaces to be non-slip. For new & existing trachyte steps, provide slip resistance testing.

Provide handrails as required by AS 1428 or current Australian standards & codes where applicable. Provide tactile indicators as required by AS 1428 or current Australian standards & codes where applicable.

Approval: Install sample tread of Grounds Manager. S2 Sandstone Steps

Description: Solid sandstone steps



Technical Specification:

#### Standard:

New sandstone steps should match existing adjacent steps in materials, finish and design. Steps to meet all current accessibility standards. Step surfaces to be non-slip Provide handrails as required by AS 1428, current Australian standards & codes.

Provide factile indicators as required by AS 1428, current Australian standards & codes.

#### Material:

Large solid sandstone blocks, medium grained buff coloured sandstone without prominent banding. Sandstone shall be new and of durability class A. Stone to be free of defects and without clearly defined, easily split bedding planes.

#### Product:

Local (Sydney Basin) sandstone similar to "Somersby" sandstone

Size:

Solid sandstone blocks the full depth of the tread. Long lengths to give minimal tread joints and offset joints on stairs above and below. Lengths within stairs should be consistent.

#### Finish:

Non- slip finish, match adjacent/surrounding examples where appropriate. Gang sawn finish to provide slip resistance to comply with relevant Australian Standards, free from radial saw marks.

Supplier: Gosford Quarries or equal.

#### Installation:

Subgrade: compacted sub-grade to engineers specification & detail. Base: reinforced concrete slab to engineers specification & detail. Jointing: To be mortar jointed to match adjacent examples.1:2:9 Off white cement: Lime Putty: Sand

#### Approval:

Provide sample of sandstone for approval of Grounds Manager. Install sample panel approval of Grounds Manager. S3 Concrete Steps

Description: In-situ reinforced concrete steps



Technical Specification:

Standard:

Steps to meet all current accessibility standards. Step surfaces to be non-slip Provide handrails as required by AS 1428, current Australian standards & codes.

Provide tactile indicators as required by AS 1428, current Australian standards & codes.

Material:

Reinforced concrete to engineer's specification & detail.

Finish:

•

Non-slip finish to provide slip resistance to comply with relevant Australian Standards..

Light exposed aggregate finish:

- Screed/light wash immediately after pouring then trowel finish and leave until hard.
  - Spray with water and break cement slurry with fine broom finish.
- Wash off cement dislodged by broom finish.
- Acid wash after 3-4 days with 1 part acid: 8 parts water.

Note: Contractor shall provide sediment control to ensure no slurry/sediment is discharged into stormwater system.

Benchmark:

Location of standard / sample or example on site - Western Avenue.

Approval: Install sample panel for approval of Grounds Manager. S4 Granite Steps

Description: Solid Granite



Technical Specification:

Standard: Steps to meet all current accessibility standards. Step surfaces to be non-slip Provide handrails as required by AS 1428, current Australian standards & codes. Provide tactile indicators as required by AS 1428, current Australian standards & codes.

Material: Solid granite blocks, free of defects.

Product: Chinese Granite – Tombstone Grade

Size:

Solid granite blocks the full depth of the tread. Long lengths to give minimal tread joints, minimum length 1000mm. Offset joints, lengths within stairs should be consistent.

Finish:

Non-slip finish to provide slip resistance to comply with relevant Australian Standards.

Supplier: Sam the Paving Man or equal.

Installation:

Subgrade: compacted sub-grade to engineers specification & detail Base: reinforced concrete slab to engineers specification & detail

## Attachment 3 Hardscape Edge Element



E1 Flush Metal Edging

Description: 10mm thick galvanized steel edge to achieve a clean edge to planting beds and lawn areas.

Used between planting & decogranite paving or lawn & paving.

Technical Specification:

Materials:

Metal edging 75mm x10mm thick hot dipped galvanised steel.

Installation:

Secure with galvanized steel pegs both sides at 500mm centres driven down firmly into subgrade and finish minimum 15mm below top edge of steel.

Stakes to be firmly driven on mulched sides of planting area. Top to finish flush with adjacent finished levels.

Approval: Sample for approval of Grounds Manager prior to installation.

#### E2 Raised Metal Edging

Description: Raised 10mm thick steel edge as installed at Main Quadrangle lawns.



Technical Specification:

Materials: Raised Metal Edge 10mm thick mild steel. Height 75mm nominal. Determine height based on replacement location required.

Finish: Match existing edging in Quadrangle in size, appearance and properties.

Benchmark: Location of standard / sample or example on site – Main Quadrangle.

Approval: Sample for approval of Grounds Manager prior to installation. Description: Raised untreated steel edge as installed to Eastern Avenue lawns.



Technical Specification:

Materials: 12mm untreated steel plate

Installation: Refer to Typical detail prepared for Camperdown Public Domain.

Benchmark: Location of standard / sample or example on site – Eastern Avenue

Approval: Sample for approval of Grounds Manager prior to installation.

Detail:



Detail from: Jeppe Aagaard Andersen + Tinka Sack + Turf Design for The University of Sydney

#### E4 Sandstone Edging

Description: Raised solid sandstone kerb edge to garden bed edges.



#### Technical Specification:

#### Material:

Local (Sydney Basin) sandstone similar to "Somersby" sandstone Medium grained buff coloured sandstone without prominent banding. Sandstone shall be new and of durability class A. Stone to be free of defects and without clearly defined, easily split bedding planes.

Size:

250x150 (nominal) x 600-1000mm length or to match adjacent sandstone edges.

#### Finish:

Fine Gang sawn finish, free from radial saw marks or to match adjacent/surrounding examples.

Supplier: Gosford Quarries or equal.

#### Installation:

Mortar Bedding Material: 6 parts Nepean River Sand: 1 part Lime: 1 part Portland cement. Jointing: To be mortar or butt jointed to match adjacent examples. 10-15mm maximum width. 1:2:9 Off white cement: Lime Putty: Sand

Approval:

Sample for approval of Grounds Manager prior to installation.

## Attachment 4 Hardscape Wall Element



W1 Sandstone Walls

Description: Sandstone walling



#### Technical Specification:

#### Location:

For walls adjacent to existing sandstone walls match detail & finishes to adjoining or adjacent walls. Where sandstone is dominant building material and new walls are required, sandstone should be selected. Sandstone may also be used in other precincts to reinforce the University identity.

#### Material:

Medium grained buff coloured sandstone without prominent banding. Sandstone shall be new and of durability class A. Stone to be free of defects and without clearly defined, easily split bedding planes.

#### Product:

Local (Sydney Basin) sandstone similar to "Somersby" sandstone

Size:

New Walls: Stone blocks vary, generally rectangular in size, 250-300mm width x 600-1200mm length x 250-300 high (nominal).

Existing Walls: Match blocks & coursing to adjacent sandstone walls.

Finish:

Range from fine gang sawn finish, free from radial saw marks to sparrow pecked/ punched and boasted with margins. Match to adjacent sandstone walls.

Supplier: Gosford Quarries or equal.

#### Installation:

Install footings to Engineer's detail & specification. Generally install in stretcher bond pattern, with joints offset. Stonework

shall be installed by an experienced stonemasons.

Jointing: To be mortar jointed to match adjacent examples.1:2:9 Off white cement: Lime Putty: Sand. Mortar should be no stronger than the sandstone and the colour should be controlled by the use of off-white cement and selected sands to match surrounding mortar joints.

Benchmark: Adjacent walls.

Approval: Confirm type & finish with Grounds Manager prior to ordering. Sample for approval of Grounds Manager prior to installation.

#### W2 Custom Walls

Description: Walls: For walls within building curtilage or attached to building, select materials & finishes associated with building material or from University standard elements.



Technical Specification:

Materials: In-situ concrete, or rendered blockwork

Guidelines:

Limited use of custom walls.

Custom walls to be used for walls within building curtilage or attached to building Select materials & finishes associated with building material or from those existing within the University or from University standard elements.

Walls & footings to be designed to engineers detail & specification.

Approval:

Provide drawings & specifications for approval of Grounds Manager. Confirm type & finish with Grounds Manager prior to ordering. Sample for approval of Grounds Manager prior to installation.

## Attachment 5 Hardscape Fence Element



F1 Heritage Palisade Fences

Description: Heritage steel palisade fencing with tapered spearheads.



#### Technical Specification:

#### Description:

Heritage steel palisade fencing with tapered spearheads and located in holes drilled into curved sandstone bases. Located on all fenced boundaries to the Camperdown campus.

#### Location:

Restore/ repair/ reinstate existing palisade fences to match existing. Existing palisade fencing be maintained, restored and continued along the external Campus boundaries.

Materials, Installation & Finish:

Refer to previous guidelines prepared by Public Works and University of Sydney Heritage specifications.

Benchmark:

Example on site – University Boundaries.

Approval:

Confirm type & finish with Grounds Manager prior to ordering. Sample for approval of Grounds Manager prior to installation.

#### F2 Steel Palisade Fences

Description: Steel palisade fencing with crimped ends



#### Technical Specification:

#### Location:

Install where security fencing is required to:

- internal areas of Camperdown campus and,
- all areas within Darlington campus.

#### Description:

Palisade fence comprised of square section steel stakes with crimped ends. 25mm square verticals with crimped spear top set through 40mm square top & bottom rails. Verticals welded to square section top and bottom bars. All steel to be hot dipped galvanised & powdercoated.

Finish: Powdercoat: Black

Suppliers: ARC Fences or equivalent.

Benchmark: Western Avenue

Approval: Confirm type & finish with Grounds Manager prior to ordering. Sample for approval of Grounds Manager prior to installation. F3 Contemporary Steel Palisade Fences

> Description: Vertical steel palisade fencing.



Technical Specification:

#### Location:

Where new fencing is required outside of heritage precincts a range of vertical palisade fencing can be considered.

#### Description:

Palisade fence comprised of vertical stakes without spearheads. Stakes shall be attached to top and bottom bars and can be either flat mild steel or round bars. All steel hot dipped galvanised or powder coat paint finish.

Finish: high gloss finish, colour –Black.

Approval:

Confirm type & finish with Grounds Manager prior to ordering. Sample for approval of Grounds Manager prior to installation.

### Attachment 6 Furniture Seat Element



Description: Timber slatted seat with back



Technical Specification: Base frame-either cast aluminium or hot dip galvanised steel. Timber battens: Kiln dried hardwood screw fixed to contoured profiles

Installation: Seats must be securely fixed on level ground according to manufacturers instructions. Sub-surface mounts are preferable. Hard paving or decomposed granite is required for the foot zone of the seat.

Finish: Slats – timber or metal – black finish Paint finish: Two pack polyurethane finish: Black

Suppliers: Street Furniture Australia Emerdyn Pty. Ltd. Botton & Gardiner Urban Furniture Zebra Design

Approval: Confirm type & finish with Grounds Manager prior to ordering. Sample for approval of Grounds Manager prior to installation.

Detail:



S2 University Standard Bench

Description: Timber slatted bench with post support



Technical Specification: Base frame-either cast aluminium or hot dip galvanised steel. Timber battens: Kiln dried hardwood screw fixed to contoured profiles

Installation: Seats must be securely fixed on level ground according to manufacturers instructions. Subsurface mounts are preferable. Hard paving or decomposed granite is required for the foot zone of the seat.

Finish: Slats – timber or metal – black finish Paint finish: Two pack polyurethane finish: Black

Suppliers: Street Furniture Australia Emerdyn Pty. Ltd. Botton & Gardiner Urban Furniture Zebra Design

Approval: Confirm type & finish with Grounds Manager prior to ordering. Sample for approval of Grounds Manager prior to installation.

Detail:



S3 Heritage Style Timber Seat

Description: Solid timber seat in heritage style.



Technical Specification:

Hardwood park seat with armrests and unturned silhouette/squared timbers. Suitable for external use. Assembly to be mortice and tenon joints, solid brass fixtures and marine glues.

#### Installation:

Seats must be securely fixed on level ground according to manufacturers instructions. Fix with Hot dip galvanised U-shaped stirrup bracket which is fixed into concrete base. Counter sink screws into stirrup plates to secure chair legs.

Hard paving or decomposed granite is required for the foot zone of the seat.

#### Materials:

Hardwood. Supplier must demonstrate timber is sourced from sustainable plantations. A large amount of product is available produced from forest timbers with uncertain provenance. This is unacceptable in line with the University's sustainability policy.

Finish: Natural finish and allow to naturally weather.

Suppliers: Lister Teak Cotswold Furniture Collection

Approval:

Confirm type & finish with Grounds Manager prior to ordering. Sample for approval of Grounds Manager prior to installation. S4 Custom seating

Description: Individually designed seats for discrete spaces.



Technical Specification:

Guidelines:

Limited use of custom seating only with approval of grounds manager campus infrastructure services. Custom seating to be used only in discrete "individual spaces" eg. precinct hubs / building courtyards. Continue use of existing custom seating to central spine (Eastern Ave). Elements to be selected from those used for existing seating on site, granite, timber etc. Consider the comfort of users, timber slatted seating surfaces are preferred. Install hard paving or decomposed granite is required for the foot zone of the seat.

Approval:

Provide drawings & specifications for approval of Grounds Manager. Sample for approval of Grounds Manager prior to installation.

## Attachment 7 Furniture Table Element



T1 University Standard Table

Description: Timber slatted table with post support



Technical Specification:

#### Materials:

Base frame-either cast aluminium or hot dip galvanised steel. Timber battens: Kiln dried hardwood screw fixed to contoured profiles

Installation:

Tables must be securely fixed on level ground according to manufacturers instructions. Subsurface mounts are preferable.

Finish: Timber Battens: Stain or paint finish depending on location. Paint finish: Two pack polyurethane finish: Black or Dark/Charcoal Grey.

Suppliers: Street Furniture Australia Emerdyn Pty. Ltd. Botton & Gardiner Urban Furniture Zebra Design

Approval: Confirm type & finish with Grounds Manager prior to ordering. Sample for approval of Grounds Manager prior to installation.

Detail:



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### Attachment 8 Furniture Bin Element



Description: Fixed litter bin with cylindrical perforated body.



Technical Specification:

#### Materials:

Aluminium rim and base castings with "as cast" finish. Cylindrical perforated aluminium body. Galvanised support leg. Zincalume inner liner with handles.(55 litre)

Installation: Subsurface or surface fixed as appropriate. Subsurface mounts are preferable.

Finish: Powdercoat: Colour-black. Rim and base unpainted-aluminium "as cast" finish.

Supplier: Street Furniture Australia

Approval: Confirm type & finish with Grounds Manager prior to ordering.

Detail:



### **Attachment 9 Furniture Bollard Element**



Description: Contemporary style cylindrical bollards with straight profile and no base definition



Technical Specification:

#### Materials:

Manufactured from zinc plated 165mm (nominal) diameter tubular steel body.

Manufactured from 165mm (nominal) diameter stainless steel tubular steel body. 900mm high

Installation:

Subsurface or surface fixed as appropriate. Subsurface mounts are preferable. Centre to centre spacing is to be minimum of 1200mm and a maximum of 1700mm Install removable lockable bollards where occasional vehicle access is required.

Finish: Polished stainless steel, or Powdercoated black

Location: For use throughout the campus

Supplier: Street Furniture Australia Zebra Design

Approval: Confirm type & finish with Grounds Manager prior to ordering.

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## Type B1

Description: Traditional style bollard with fluted profile and base.



Technical Specification:

Materials: Manufactured from cast aluminium

Installation:

Subsurface or surface fixed as appropriate. Subsurface mounts are preferable. Centre to centre spacing is to be minimum of 1200mm and a maximum of 1700mm Removable lockable bollards where occasional vehicle access is required.

Finish: Powdercoat: Colour-black

Location: For use in heritage precincts and adjacent to heritage buildings. (Circa 1850-1920)

Supplier: Street Furniture Australia

Approval: Confirm type & finish with Grounds Manager prior to ordering.

Detail:



## Type B2

## Attachment 10 Furniture Cycle Rack Element



C1 University Standard Rack

Description: Arched tubular stainless steel cycle racks.



Technical Specification:

Materials:

Tubular stainless steel, 42mm dia pipe, 850mm (w) x 850mm (h).

Installation: Install to manufacturers specification. Racks must be securely fixed on level paved surface according to manufacturers instructions. Subsurface mounts are preferable.

Finish: Stainless steel

Suppliers: Street Furniture Australia Leda Securabike Furphy Foundry

Approval: Confirm type & finish with Grounds Manager prior to ordering.

Detail:



C2 University Standard Rack

Description: Narrow arched tubular stainless steel cycle racks.

Technical Specification:

Materials: Tubular stainless steel, 42mm dia pipe, 270mm (w) x 850mm (h).

Installation: Install to manufacturers specification. Racks must be securely fixed on level paved surface according to manufacturers instructions. Subsurface mounts are preferable.

Finish: Stainless steel

Suppliers: Street Furniture Australia Leda Securabike Furphy Foundry

Approval: Confirm type & finish with Grounds Manager prior to ordering.

Detail:



C3 Corkscrew Cycle Rack

Description: Corkscrew or spiral stainless steel cycle racks.



Technical Specification:

Materials: Tubular stainless steel 50.8mm O/D Stainless Steel Tube

Installation:

Install to manufacturers specification. Racks must be securely fixed on level paved surface according to manufacturers instructions. Darlington Precinct only. Subsurface mounts are preferable.

Finish: Stainless steel

Suppliers: Furphy Foundry Street & Park Furniture

Approval: Confirm type & finish with Grounds Manager prior to ordering. Sample for approval of Grounds Manager prior to installation.

## Attachment 11 Furniture Drinking Fountain Element



DF1 Accessible Drinking Fountain

> Description: Accessible drinking fountain with curvilinear blade & flush mounted sump.



Technical Specification:

#### Materials:

One piece cast aluminium with mounting pit to house plumbing, curvilinear blade 12mm thick, 70mm dia pipe. Dimensions: Height 1100mm, height at spout 1020mm, footprint width 655mm, overall 1215mm x 795mm

Installation: Install to manufacturers specification & relevant standards & codes. Sub-surface mounting with polycrete pit Ensure drainage/pavement design at base is designed to reduce likelihood of puddling and slip risk.

Finish: Powdercoat: black

Suppliers: Street Furniture Australia

Approval: Confirm type & finish with Grounds Manager prior to ordering.

### Attachment 12 Furniture Tree Surround Element



T1 Tree Surround

Description: Specific tree grate developed for particular use along Eastern Avenue.



Technical Specification:

Materials: Size: 2x2m (Nominal) Product No.: S304-2m Grate Material: Minimum grade 600-3 - Spheroidal Ductile cast Iron to conform to AS1831. The grate material is ductile iron 500-7 Frame Material Minimum grade T220 Grey cast iron to conform to AS1830. The frame is fabricated from RHS using hot dipped gal Q235 steel Tree hole Expansion capability 500mm, 910mm

Finish: Cast Iron

Suppliers: Hub Street Equipment

Approval: Confirm type & finish with Grounds Manager prior to ordering.

## Attachment 13 Planting Element



#### Heritage zone planting

The list of heritage plants includes some of the major species planted on the campus in the nineteenth and early twentieth century. These plants are particularly well demonstrated in Science Road, Quadrangle and Manning Road Precincts.

It is intended that the heritage plant palette form the basis of planting in the zones designated Heritage Plantings (Refer to Planting Zone Master Plan).

Heritage planting plays an important role in determining the campus character and maintaining the integrity of the Heritage precincts.



#### **Contemporary Planting**

The mix of exotic and native species is a combination of species currently successfully used throughout the Campus and some additional species. The native palette has been extended in line with changing expectations with regard to maintenance & water use. The list is characterised by a wide and eclectic range of species selected in context with the heritage nature and planting character of the University.

It is intended that this palette form the basis of planting in the zones designated Contemporary Plantings (Refer to Planting Zone Master Plan) in areas other than Heritage.

#### **Exotic Planting**

Recent planting have successfully utilised a range of exotic species that relate both to heritage themes and contemporary design.





#### Native / Endemic planting



This mix of endemic species is selected from plant communities originally found in the University area. The plants selected are suitable for some limited massed boundary planting areas throughout the Campus.

Species selection is based on information from "Taken for Granted" (Benson & Howell 1990), which identifies the most likely community for the area as Turpentine-Ironbark Forest, with Sandstone Forest Woodland possibly occurring towards Parramatta Road.

It is intended that this palette forms the basis of planting in the zones designated Endemic Planting (Refer to Planting Zone Master Plan).

#### **Plant Selection**

The species listed below are intended to form the majority of species within the campus providing the structural planting and style for each zone (Refer to Planting Zone Master Plan). The plant lists are considered guidelines only and selection should not be limited to them, but guided by these species.

The proposed University palette is characterised by a wide and eclectic range of species, the aim being to select plants to suit their proposed location rather than apply a rigid rule, such as exotic or native.

#### Indicative Species Lists

Indicative suitable species lists are provided below for:

- a. Trees, including feature trees in streets and public squares & courtyards
- b. Heritage plantings
- c. Contemporary planting (exotic /native mix, used throughout the Campus)
- d. Native/ Endemic plantings (massed boundary areas)

#### Tree mSpecies

Tree Species	Common Name	Community*
Main Tmos		
Figure billi	Lille Weening Fig	
Ficus magraphylla	Moreten Rev Fig	
Ficus macrophylia Ficus mbiginges	Port Jackson Fig	8
lacaranda mimositolia	lacaranda	
Lophostomon confortus	Druebboy	8
Platanus y hybrida	London Plana Tree	ü
Flatanus x hybrida	London Plane Tree	п
Secondary Trees		
Acmena smithii	Lilly Pilly	N
Angophora costata	Smooth Barked Apple	SFW
Angophora floribunda	Rough Barked Apple	SFW
Araucaria cunninghamii	Hoop Pine	н
Araucaria heterophylla	Norfolk Island Pine	н
Brachychiton acerifolius	Illawarra Flame Tree	н
Castanospermum australe	Blackbean	N
Corymbia gummifera	Red Bloodwood	SFW
Cupaniopsis anarcardioides	Tuckeroo	N
Cupressus sempervirens	Pencil Pine	н
Eucalyptus botryoides	Bangalay	SFW
Eucalyptus globoidea	White Stringybark	TIF
Eucalyptus haemastoma	Scribbly Gum	SFW
Eucalyptus paniculata	Grey Ironbark	TIF
Eucalyptus pilularis	Blackbutt	SFW
Eucalyptus piperita	Sydney Peppermint	SFW
Eucalyptus resinifera	Red Mahogany	TIF
Flindersia australis	Crows Ash	N
Magnolia grandiflora	Southern Magnolia	н
Melaleuca quinquenervia	Paperbark	N
Melia azederach	White Cedar	N
Quercus robur	English Oak	н
Schinus areira	Peppercorn Tree	н
Syncarpia glomulifera	Turpentine	TIF
Syzygium australe	Brush Cherry	N
Syzygium leuhmanii	Weeping Lilly Pilly	N
Small Trees		
Backhousia citriodora	Lemon Myrtle	N
Banksia integrifolia	Coast Banksia	SFW
Banksia serrata	Old Man Banksia	SFW
Ceratopetalum gummiferum	NSW Christmas Bush	SFW
Elaeocarpus reticulatus	Blueberry Ash	N
Gordonia axillaris	Gordonia	н
Lagerstroemia indica	Crepe Myrtle	E
Magnolia x soulangiana	Magnolia	н
Plumeria acutifolia	Frangipani	н
Pyrus ussuriensis	Manchurian Pear	E
Tibouchina 'Alstonville'	Tibouchina	E
Tristaniopsis laurina	Water Gum	N

Tree Species	Common Name	Community*
Palms		
Livistona australis	Cabbage Palm	н
Phoenix canariensis	Canary Island Date Palm	н
Washingtonia robusta	Cotton Palm	н
Community*		

H - Heritage Trees E - Exotic Trees N - Native Trees SFW - Sandstone Forest Woodland Community TIF - Turpentine Ironbark Community

#### Heritage Species

Botanical Name	Common Name	Community*
_	ł	
Trees		
Refer to Tree Schedule - Community	H	н
Accorts		
A navo attonuatum	Century Plant	н
Cordvline australis	Cabhage Tree	ü
Cycas revoluta	Sage Palm	ü
Zamia furfuraceae	Cardboard Palm	ü
Lana and docto	Calaboard Faint	
Shrubs		
Abelia x grandiflora	Glossy Abelia	н
Abutilon x Hybridum	Lantern Flower	н
Azalea sp.	Azalea	н
Buxus japonica	Japanese Box	н
Calathea makoyana	Peacock Plant	н
Camellia sasanqua	Sasanqua Camellia	н
Camellia japonica	Japanese Camellia	н
Ctenanthe "greystar"	Grey Star	н
Duranta repens	Sky Flower	н
Gardenia augusta 'Florida'	Gardenia	н
Hibiscus rosa sinensis	Hibiscus	н
Hydrangea macrophylla	Hydrangea	н
Michelia figo	Port Wine magnolia	н
Murraya paniculata	Orange Jessamine	н
Philodendron selloum 'compacta'	Philodendron	н
Phormium 'Bronze Baby'	Dwarf Flax	н
Phormium tenax 'Atropurpureum'	Purple Flax	н
Plumbago capensis	Plumbago	н
Spathiphyllum 'Moana Loa'	Peace Lily	н
Spathiphyllum 'Sensation'	Giant Peace Lily	н
Spiraea cantonensis	May Bush	н
Strelitzia nicholai	Giant Bird of Paradise	н
Strelitzia reginae	Bird of Paradise	н
Viburnum suspensum	Viburnum	н
Viburnum tinus	Laurestinus	н
Groundcovers & Climbers		
Agapanthus orientalis	African Lily	н
Clivia miniata	Clivea	н
Dietes indoides	African Iris	н
Ficus pumila	Creeping Fig	н
Hedera canariensis	lvy	н
Hedera helix	English Ivy	н
Heliotropium arborescens	Cherry Pie	н
Linope 'giant'	Giant Turf Lily	н
Linope spicata Variegata'	Vanegated Turf Lily	н
Ophiopogon japonicus	Mondo grass	н
Parthenocissus tricuspidata	Boston Ivy	н
Wisteria sinensis	Wisteria	н

Community\* H - Heritage Plants

#### **Contemporary Species**

Contemporary Species	Common Name	Community*
Trans	·	
Trees Defecto Tree Schedule		
Refer to Tree Schedule		
Accents		
Agave attenuatum	Century Plant	E
Alcanterea imperialis	Giant Bromeliad	Ē
Alcanterea imperialis "Rubra"	Giant Red Bromeliad	Ē
Asplenium nidus	Birds Nest Fern	N
Cordyline terminalis 'rubra'	Red Ti	E
Cordyline stricta	Narrow Palm Lilv	N
Cordyline petiolaris	Swamp Lily	N
Crinum pedunculatum	Spider Lily	N
Cycas revoluta	Sago Palm	E
Cyathea australis	Rough Tree Fern	N
Doryanthes excelsa	Gymea Lily	N
Phormium tenax 'Atropurpureum'	Purple Flax	E
Strelitzia nicholai	Giant Bird of Paradise	E
Strelitzia reginae	Bird of Paradise	E
Zamia furfuraceae	Cardboard Palm	E
Shrubs		
Acacia "Limelight"	Limelight Wattle	N
Alpinia caerula	Native Ginger	N
Alpinia zerumbet 'variegata'	Vanegated Ginger Lily	Ę
Alternanthera dentata 'Huby'	Hed Alternathera	E
Austromynus Hybrids	Midgen Berry Swamp Banksia	N
Calathaa makayana	Swamp Banksia Deseek Blent	
Callistomon (Anzac)	Peacock Fiant	E
Callistemen (Captain Cook)	Contain Cook Battlebrush	N
Callistemon citrinus 'Endoavour'	Endosvour Pottlobrush	N
Callistemon 'Uannah Day'	Lannah Day Bottlohnish	N
Callistemon 'Kings Park Special'	Kings Park Special Bottlobrush	N
Callistemon 'Mauve Mist'	Mauve Mist Bottlebrush	N
Callistemon 'Reeves Pink'	Reeves Pink Bottlebrush	N
Camellia sasangua	Camellia	Ē
Correa alba	White Correa	N
Correa 'Dusky Bells'	Dusky Bells	N
Ctenanthe "grevstar"	Ctenanthe	E
Eriostemon myoporoides	Long Leaf Wax Flower	N
Gardenia augusta 'Florida'	Gardenia	E
Grevillea 'Honey Gem'	Honey Gem	N
Grevillea 'Ivanhoe'	Ivanhoe Grevillea	N
Grevillea 'Misty Pink'	Misty Pink Grevillea	N
Grevillea 'Ned Kelly'	Ned Kelly Grevillea	N
Grevillea poorinda 'Blondie'	Blondie Grevillea	N
Grevillea 'Superb'	Superb Grevillea	N
Leptospermum petersonii	Lemon-scented Tea Tree	N
Leptospermum 'Pink Cascade'	Weeping Tea Tree	N
Melaleuca linariifolia 'Snowstorm'	Snow in Summer	N
Murraya paniculata	Orange Jessamine	E
Philodendron selloum 'compacta'	Philodendron	É
Phormium 'Bronze Baby'	Dwart Flax	E

Contemporary Species	Common Name	Community*
Pittosposum chambifalium	Million I I alla	Ν
Philosporum momonolium Disetrepthus ecklenii	Caskerer Flewer	N
Piece annus ecklonii Caethiahullum Maaaa Laat	Cockspur Flower	E
Spatniphyllum Moana Loa	Peace Lily Ciant Dagas Lity	E
Spainiphyllum Sensation	Giant Peace Lily	E
Syzygium australe Blazer	Brush Cherry	N
Syzygium paniculatum	Rush Chemi	IN N
Syzygium paniculatum "dwar"	Brush Cherry Viburgung	
Viburnun suspensum Westrie fis ferliesen	Viburnum Canatal Basances	E
westingia truticosa	Coastal Rosemary	N
Groundcovers & Climbers		
Agapanthus orientalis	African Lily	E
Anigozanthos Hybrids	Kangaroo Paws	N
Baeckea virgata (minature)	Dwarf Heath Myrtle	N
Blechnum cartilagineum	Gristle Fern	N
Blechnum nudum	Water Fern	N
Brachycome multifida	Cut-leaf Daisy	N
Carpobrotus glaucescens	Coastal Pigs Face	N
Cissus antarctica	Kangaroo Vine	N
Cissus hypoglauca	Five-leaf Water Vine	N
Cissus rhombifolia	Grape lvy	N
Clivia miniata	Clivea	E
Correa decumbens	Spreading Correa	N
Dianella 'Breeze'	Flax Lily	N
Dianella 'Little Jess'	Flax Lily	N
Dietes iridoides	African Iris	E
Doodia aspera	Rasp Fern	N
Doodia media	Common Rasp Fern	N
Grevillea 'bronze rambler'	Bronze Rambler Grevillea	N
Grevillea 'gaudi chaudi'	Gaudi Chaudi Grevillea	N
Grevillea 'Poorinda Royal Mantle'	Royal Mantle Grevillea	N
Hardenbergia violacea	False Sasparilla	N
Hedera canariensis	lw .	E
Hibbertia scandens	Climbing Guinea Flower	N
Kennedia rubicunda	Dusky Coral Pea	N
Liriope 'giant'	Giant Turf Lily	E
Liriope spicata Variegata'	Variegated Turf Lily	E
Lomandra 'Katrinus'	Spiny-headed Mat Rush	N
Lomandra 'Tanika'	Tanika	N
Myoporum parvifolium	Creeping Boobiala	N
Neoregelia sp.	Bromeliad	E
Ophiopogon japonicus	Mondo grass	E
Pandorea jasminoides	Bower of Beauty	N
Pandorea jasminoides 'Snowbells'	White Bower Vine	N
Philodendron 'Xanadu'	Xanadu Philodendron	E
Pilea cadieri	Aluminium plant	E
Poa labillarderi 'Eskdale'	Tusock Grass	N
Scaevola aemula	Fan Flower	N
Trachelospermum jasminioides	Star Jasmine	E
Viola hederacea	Native Violet	N

Community\* E - Exotic Plants N - Native Plants

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#### **Endemic Species**

Endemic Species	Common Name	Community*
Troos		
Acadia hinorvia	Coastal Mvall	TIE
Acmona smithii	Lilly Pilly	SEW
Allocasuarina littoralis	Black Sheoak	SEW
Angonhora costata	Smooth Barked Apple	SEW
Angophora floribunda	Bough Barked Apple	SEW
Ranksia integrifolia	Coast Banksia	SEW
Banksia serrata	Old Man Banksia	SEW
Callicoma serratifolia	Black Wattle	SEW
Ceratopetalum gummiferum	NSW Christmas Rush	SEW
Corvmbia gummifera	Red Bloodwood	SEW
Eucalyntus botrvoides	Rangalay	SEW
Eucalyptus dobylotides	White Stringybark	TIE
Eucalyptus geocadea Eucalyptus haemastoma	Scribbly Gum	SEW
Eucalyptus naniculata	Grev Ironbark	TIF
Eucalyptus particulatia Eucalyptus pilularis	Blackbutt	SEW
Eucalyptus piterata	Sydney Pennermint	SEW
Eucalyptus resinitera	Bed Mahogany	TIF
Ficus rubiainosa	Port Jackson Fig	SEW
Glochidion ferdinandi	Choose Tree	SEW
Syncarnia diomulitera	Turpentine	TIF
Syncalpia giomaliera	Tupenne	
Shrubs		<b>T</b> / <b>C</b>
Acacia falcata	Hickory Wattle	
Acacia terminalis	Sunshine wattle	SFW
Acacia ulicitolia	Prickly Moses	SFW
Breynia oblongitolia	Cottee Bush	SFW/TIF
Bursana spinosa	Blackthorn	11
Diliwynia retorta	Eggs & Bacon	SFW
Dodonaea triquetra	Common Hop Bush	SFW/TIF
Hakea dactyloides	Finger Hakea	SFW
Hakea sencea	Needle Bush	
Indigotera australis	Native Indigo	
Leptospermum polygalitolium	Tantoon	SFW
Leptospermum trinervium	Paperbark lea lree	SFW
Ozotnamnus diosmitolius	Rice Flower	SFW/TIF
Pomadems terruginea	Rusty Pomaderris	SEW
Putenaea daphnoides	Large-leat Bush Pea	SFW
Pultenaea villosa	Hairy Bush Pea	I⊪-
Groundcovers & Climbers		
Adiantum aethiopicum	Maidenhair Fern	SFW / TIF
Calochlaena dubia	Common Ground Fern	SFW
Centella asiatica	Pennywort	SFW
Clematis aristata	Old Mans Beard	SFW / TIF
Clematis glycinoides	Old Mans Beard	SFW
Commelina cyanea	Scurvy Weed	SFW / TIF
Cyathea australis	Rough Tree Fern	SFW
Cymbopogon refractus	Barbed Wire Grass	SFW / TIF
Danthonia tenuior	Wallaby Grass	SFW / TIF
Dianella caerulea	Paroo Lily	SFW / TIF
Dichelachne crinita	Long Hair Plume Grass	TIF
Dichelachne micrantha	Short Hair Plume Grass	SFW / TIF
Dichelachne rara	Common Plume Grass	SFW

Endemic Species	Common Name	Community*
Dichondra repens	Kidney Grass	TIF
Echinopogon caespitosus	Bushy Hedghog Grass	TIF
Hardenbergia violacea	False Sasparilla	SFW / TIF
Hibbertia scandens	Climbing Guinea Flower	SFW / TIF
Hypolepis muelleri	Harsh Ground Fern	SFW
Imperata cylindrica	Blady Grass	SFW / TIF
Juncus continuus	Pithy Rush	TIF
Kennedia rubicunda	Dusky Coral Pea	SFW / TIF
Lomandra longifolia	Spiny-headed Mat Rush	SFW / TIF
Microlaena stipoides	Weeping Meadow Grass	TIF
Pandorea pandorana	Wonga Wonga Vine	SFW / TIF
Poa affinis	Clumping Grass	SFW / TIF
Pomax umbellata	Pomax	SFW / TIF
Pratia purpurascens	White Root	TIF
Pteridium esculentum	Bracken Fern	SFW / TIF
Themeda australis	Kangaroo Grass	SFW / TIF
Wahlenbergia gracilis	Australian Bluebell	SFW / TIF

Community\* SFW - Sandstone Forest Woodland Community TIF - Turpentine Ironbark Community