WARRIEWOOD VALLEY RELEASE AREA

Landscape Masterplan and Design Guidelines (Public Domain)
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DISCLAIMER

NOTE:
The facilities and features on this plan are diagramatic only and the actual location will be subject to regular reviews of the Section 94 Plan by Council, and will also be dependant on survey, site considerations and compliance with all relevant standards and requirements.

All internal Sector Road Layouts/ Landscaping/ Open Space (Apart from Sectors 1, 2, 8, 10, 11 and 12) are indicative only and reflect submissions by the Developers at the time of preparation of this Plan.

Council does not endorse or otherwise the proposals by the Developer in each Sector.
1.1 Generally

The Warriewood Valley Release Area Landscape Masterplan and Design Guidelines (Public Domain) have been prepared to provide Pittwater Council and the development community with a coordinated basis upon which planning and design of streetscape, open space and creekl ine corridor improvements can be undertaken through out staged development of the release area.

The design guidelines are aimed to provide minimum standards upon which site specific design development of sustainable landscape strategies can be undertaken. Landscape elements include:

- Setbacks of street tree planting to road corridors
- Standards for street tree planting materials and size
- Standards for open space and creekline landscape enhancement and key design principles

The Warriewood Valley Valley Release Area project is a significant initiative which aims to establish a coordinated framework for integrated development to occur in the valley focusing upon the “green” corridors provided by creekline corridors and related open space and roadway links.

1.2 Structure of the Report

This report is presented in three principal sections:

Section 2 Landscape Masterplan
Describes the overall landscape strategies for the release area incorporating creekline corridors, open space areas (Central Local Park, Neighbourhood Parks, and Sport Fields), and road corridors (Avenues, Industrial Avenues, and Sector Roads).

Section 3 Streetscape Planting Guidelines
Landscape plan and sectional guidelines for design development of street corridor plantings.

Section 4 Creekline Planting Guidelines
Landscape plan and sectional guidelines for design development of creekline corridors landscape treatments. Guidelines provide design principles which must be subject to site specific Hydraulic and Civil Engineering design.

Section 5 Central Local Park and Active Sportsfield
Schematic plans of generic active sportsfield and schematic design of the Central Local Park.
2.1 Generally

The Landscape Masterplan on the following page summarises the landscape related components of the Warriewood Valley Release Area Planning Controls (DCP’s, Section 94 Plan, and Roads Masterplan). These include:

- **Street Corridors**: Street tree planting themes to avenues, industrial avenues, and sector streets. Street trees species for sector shareways and accessways are also identified.

- **Creekline Corridors, Open Space and Buffer Zones**: Indicate the 50 m wide multi-use open space reservation to the Narrabeen and Fern Creek Buffer Zones. Creekline rehabilitation and bank stabilisation, weed removal and native revegetation, and passive use recreation.

- **Open Space and Buffer Zones**: The Masterplan incorporates an indicative open space scheme for district and neighbourhood parks incorporating development conservation proposals. Buffer zones as indicated represent proposed location of dual purpose (buffer and access link) zones adjoining sensitive areas or required setbacks and screening.

- **Service and Recreation**: Identify the indicative location of off road pedestrian and cycleway linkages, playground facilities and public transport nodes.

The aim of the masterplan is to provide a consolidated reference document encompassing all landscape related objectives and requirements of the planning controls for the release area.

Key Public Domain Principles outlined in the DCP which underpin the masterplan and design guidelines following include:

- **Safety**: Provision of safe pedestrian and cycle access through road corridors, creek corridors, and open space areas.

- **Connectivity**: Vehicular and pedestrian access is efficiently managed through a hierarchy network of attractive and clearly defined links.

- **Bush in the Valley**: A minimum of 40% of creekline corridor area is to comprise native vegetation (existing and new) to establish interconnected flora and fauna corridors. The corridors are to support multi-use objectives including pedestrian/cycle access, and passive recreation.

- **Recreation in the Valley**: Distribution of open space / parkland areas to cater for a variety of functions and user types including playground facilities and park furniture.

Streetscape guidelines have been prepared to guide those responsible for planning and development of the public domain in the Warriewood Valley in the implementation of Council’s objectives for a coordinated, functional and attractive landscape image.

A key consideration in the development of guideline has been the objective of establishing common themes for the layout of streetscape elements such as tree planting, shared pedestrian/cycle paths and street lighting.

The presence of underground services and utilities places a significant constraint on the ability to provide meaningful street tree canopy. Street trees of adequate scale (height and spread) are the fundamental strategy by which Council’s objectives of “Bushland in the Valley” and quality of living and working environment can be realised.

The cross sections shown on the streetscape guidelines indicate the options available for incorporation of street tree planting in the typical footpath reserve situation identified by Council’s Masterplan. These options indicate that for Sub Arterials a consistent setback 0.55 metres from the property boundary is preferred. To Avenues incorporating existing kerb and footpath formations and services/ utilities (eg. section of Macpherson Street) this may require adjustment based on exact location of Ausgrid Utilities. For Collector Roads, a centred carriageway, enabling a tree alignment of 2.0 metres from property boundary is preferred.

Liaison will be required with Ausgrid (Avenues) and Telstra (Collector Roads) to ensure that tree alignments can be achieved for these corridor types.
2.0 Landscape Masterplan

Open Space Areas
- Including Creekline corridors and Riparian Areas. Proposed native tree and understorey planting.
- Location and species to be confirmed through detailed design.

Open Space Areas (Recreation)
- Open space for recreational purposes. Facilities and planting to be confirmed through detailed design.

Open Space Areas (Sports Fields)
- Open space for sports fields. Facilities and planting to be confirmed through detailed design.

Community Facilities
- Recreational and community buildings and car parking.

Street Corridors
- Sub-Arterial Roads: Refer to Streetscape Guidelines S1
- Collector Roads: Refer to Streetscape Guidelines S2
- Local Streets: Refer to Streetscape Guidelines S3

Existing Vegetation
- Native trees and understorey planting to be retained unless approved for removal by Council.
- All noxious weeds vegetation to be removed in creekline and site development works.

Facilities and features on this plan are diagrammatic only and the actual location will be subject to regular reviews of the Section 94 Plan by Council, and will also be dependent on survey, site considerations and compliance with all relevant standards and requirements.

All internal sector road layouts, landscaping and open space are indicative only and reflect submissions by developers at the time of preparation of this plan.
Sign - On Proposed Path
Landscaped Entry
Proposed Pedestrian/Cyclist Bridge

1. Narrabeen Creek at Sector 5/6
2. Narrabeen Creek between Buffer 1A and 1L
3. Fern Creek at Sector 8
4. Narrabeen Square
5. Warriewood Wetlands
6. Mater Maria Catholic College

15. Narrabeen Creek to Warriewood Road
18. Vuko Place to Pittwater Road
20. Pittwater Road to Boondah Road
23. Narrabeen Creek to Macpherson Street
31. Boondah Road to Warriewood Wetlands
32. Jacksons Road to Warriewood Wetlands
33. Fern Creek to Fern Creek Road
Plant species for landscape development

<table>
<thead>
<tr>
<th>STREET CORRIDORS</th>
<th>CREEKLINE CORRIDORS (CENTRAL 1M PUBLIC CREEDLINE BIRD STRIP)</th>
<th>CREEDLINE CORRIDORS (25M PRIVATE CREEDLINE BIRD STRIP)</th>
<th>NARRABEEN CREEDLINE</th>
<th>FERN CREEK CREEDLINE</th>
<th>MULLETT CREEK CREEDLINE</th>
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Plant Species

NORTHERN BEACHES COUNCIL
WARRIEWOOD VALLEY RELEASE AREA
MASTERPLAN AND DESIGN GUIDELINES

November 2016
Landscape Materials Schedule

S-3

SHARE PATH
1.5m wide min. concrete construction with broom finish to Australian Standards.

GARDEN AREAS
existing subgrade shall be excavated to loosen the ground conditions to 400mm depth
retain all quality existing topsoil in place, subject to approval from Council
poor existing soils shall be replaced with minimum 400mm depth imported soils as nominated, subject to approval from Council
garden bed areas shall be mulched with 100mm hardwood chip

TURF AREAS
existing subgrade shall be excavated to loosen the ground conditions to 200mm depth
retain all quality existing topsoil in place, subject to approval from Council
poor existing soils shall be replaced with minimum 200mm depth imported soils as nominated, subject to approval from Council

PLANTING
all trees installed shall be certified as compliant to Natspec’s Specifying Trees
tree pits shall be a minimum of 700mm depth x 2.0m wide
tree pits shall be a minimum of 700mm depth x 2.5m wide
backfilling soils shall consist of approved existing site topsoil or replacement soil subject to Council approval
all tree pit backfilling shall consist of 100% sandy loam, followed by a 150mm depth top layer of organic humus mix
mulch shall consist of 75mm coarse hardwood chip mulch

TURF

TURF AREAS

GARDEN AREAS

NORTHERN BEACHES COUNCIL

Warriewood Valley Release Area
MASTERPLAN AND DESIGN GUIDELINES

November 2016

Guidelines

Principles

Street tree planting to be installed as per masterplan generally at 6-12m intervals dependent on the species characteristics, mature size and location.

All street trees to be minimum 35-400 litre stock, dependent on species selection and location, and this is subject to final approval by Council.

All street trees shall be subject to pre-order of plant material.  All trees to be grown by recognised nursery under-natspec growing guidelines.

Existing trees over 3 metres in height are to be retained where possible.

Street lighting poles must be kept to a design minimum.

Sharepath lights are to be married to a design minimum.

All kerb edging to incorporate mass planted areas of suitable low growing shrubs and groundcovers.  Plantings should be selected relative to sight line required for specific locations.

Street tree plantings to footpath should generally include underplantings of native grasses.

Garden area planting to be at a high density, i.e. 35-75 litre stock and 3 per m2 for groundcovers and 3 per m2 for shrub areas.  Native species up to 1m in ultimate height.  All small plantings should be a minimum 5 litre pot size and groundcovers shall be the 200mm pot size

Water points to be provided to verge planting areas at 50-100m centres dependent on ultimate street layout.

All pram or disabled access ramps to be in accordance with DDA and Australian Standards.

All proposed works must be liaised with utility authorities via Dial Before You Dig with safety location drawings kept on site at all times.

All trees planted in footpath shall include 1200mm radius buffer, or as nominated

Generally all plant material is to be endemic to the area. Plant material that deviates to the area should be pre-approved by the council prior to works.  All plant material shall be pre-approved by the council.

Street lighting poles must be conventional in height Australian, i.e. Decorative Uniax No.1 or Style No.2.
Street tree planting to be installed as per masterplan generally at 6-12m intervals dependent on the species characteristics, mature size and location.

All street trees to be minimum 35-200 litre stock, dependent on species selection and location, and this is subject to final approval by Council.

All street trees shall be subjected to pre-order of plant material. All trees shall be grown under native growing guidelines.

Existing trees over 3 metres in height are to be retained where possible. Trees shall be maintained in good condition, within the road reserve such provision to be provided through perimeter 1.8m high temporary fencing during the construction of works.

Water points to be provided to verge planting areas at 50-100m centres, dependent on ultimate street layout.

All pram or disabled access ramps to be in accordance with AustRoad, DDA and Australian Standards.

All proposed works must be liaised with utility authorities (via Dial Before You Dig) with utility location drawings kept on site at all times.

All trees planted in turf shall include hardwood chip mulch with a 2m x 2m timber edging per tree pit. Overall, all plant material is to be endemic to the area. Plant material not endemic to the area may be used to accent planting for nominated entries or features but kept to a design minimum.

Street lighting poles must be conventional Energy Australia, i.e. either Decorative Style No.1 or Style No.2.

### Landscape Materials Schedule

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<thead>
<tr>
<th>Section</th>
<th>Turf</th>
<th>Small Canopy Tree Planting</th>
<th>Property Boundary</th>
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<tbody>
<tr>
<td>SHARE PATH</td>
<td>1.5m wide new concrete construction with broom surface finish to Australian Standards</td>
<td>35 to 200 litre stock</td>
<td>700mm depth x 2.0m wide</td>
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<td>TURF AREAS</td>
<td>existing subgrade shall be excavated to loosen the ground condition to 250mm depth</td>
<td>tree pits shall be planted only when existing services or road infrastructure limit tree pit soil volume, or as advised by Council</td>
<td>75mm coarse hardwood chip mulch</td>
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<td>GARDEN AREAS</td>
<td>poor existing soils shall be replaced with minimum 100mm depth imported soilmix as non-soil, subject to approval from Council</td>
<td>backfilling soilmix shall consist of approved existing site soiltest or replacement soilmix subject to Council approval</td>
<td>all trees shall be planted for all Small Canopy Trees listed in 2.0 Plant Species, or as advised by Council</td>
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<tr>
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<td>existing subgrade shall be excavated to loosen the ground condition to 400mm depth</td>
<td>all trees installed shall be certified as compliant to Natspec’s Specifying Trees</td>
<td>all trees shall be a minimum of 700mm depth x 2.0m wide</td>
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<td>retain all quality existing topsoil in place, subject to approval from Council</td>
<td>tree pits shall be a minimum of 700mm depth x 2.0m wide</td>
<td>backfilling soilmix shall consist of 100% sandy loam, followed by a 100mm depth topsoil of organic humus mix</td>
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**Guidelines**

- Street tree planting to be installed as per masterplan generally at 6-12m intervals dependent on the species characteristics, mature size and location.
- Water points to be provided to verge planting areas at 50-100m centres, dependent on ultimate street layout.
- All pram or disabled access ramps to be in accordance with AustRoad, DDA and Australian Standards.
- All proposed works must be liaised with utility authorities (via Dial Before You Dig) with utility location drawings kept on site at all times.
- All trees planted in turf shall include hardwood chip mulch with a 2m x 2m timber edging per tree pit. Overall, all plant material is to be endemic to the area. Plant material not endemic to the area may be used to accent planting for nominated entries or features but kept to a design minimum.
- Street lighting poles must be conventional Energy Australia, i.e. either Decorative Style No.1 or Style No.2.
Warriewood Valley Release Area

Masterplan and Design Guidelines

- Provide structural soil under the road pavement as shown for a minimum 5 m width.
- For a minimum 5 m width under street trees.
- Under street trees.
- Mass shrub planting under street trees.
- Small canopy tree planting under street trees.
- Native grass planting under street trees.
- Turf.
- Street lights.
- Large canopy tree planting.
- Feature palm tree planting (min. 6m trunk).
- Mass shrub planting to medium (max. 1m) and turf.
- Feature palm tree planting (min. 6m trunk).
- Small canopy tree planting as per S-1 and S-2.
- Small canopy tree planting.
- Mass shrub planting under street trees.

Section A-A

Landscape Materials Schedule

| SHARE PATH | 2.1m wide min. concrete construction with biomi surface finish to Australian Standards |
| TURF AREAS | Existing subgrade shall be excavated to loosen the ground conditions to 400mm depth |
| GARDEN AREAS | Existing subgrade shall be excavated to loosen the ground conditions to 400mm depth |
| PLANTING | All trees installed shall be certified as compliant to Natspec’s Specifying Trees Standards |

Guidelines

Principles

Street tree plantings to be installed as per minimum generally at 0-12m interval dependent on the species characteristics, mature size and location.

Feature palms at the Sector Entry shall be Livistona Australis and shall be a minimum clear trunk height of 6 metres tall.

All street trees at Sector Entry to be minimum 450 litre stock, with nominated tree species subject to final approval by Council.

All palms and street trees shall be subject to pre-order of plant material. All palms and trees to be grown by recognised nurseries under Natspec growing guidelines.

The feature palms within the median must be retained unless a structural site modification occurs.

All street trees at Sector Entry to be minimum 450 litre stock with nominated tree species subject to final approval by Council.

Garden areas planted to be at a high density (ie. 4 per m2 for shrubs and 9 per m2 for ground cover) and generally include drought tolerant species. All palms shall be planted for minimum 700mm depth of imported soilmix as nominated, subject to pre-order of plant species, or as advised by Council.

Street tree planting to be installed as per requirements of approved existing site topsoil. All palms and street trees shall be a minimum 400 litre stock, with nominated tree species subject to final approval by Council. All palms and street trees shall be subject to pre-order of plant material from Council, nominated, subject to approval from Council.

The street tree planting shall be minimum 5 litre pot size and height. All shrub planting should include drought tolerant species.

Garden area planting to be at a high density (ie. 4 per m2 for shrubs and 9 per m2 for ground cover) and generally include drought tolerant species. All palms shall be planted for minimum 700mm depth of imported soilmix as nominated, subject to pre-order of plant species, or as advised by Council. All street trees at Sector Entry to be minimum 450 litre stock, with nominated tree species subject to final approval by Council.

The street tree planting shall be minimum 5 litre pot size and height. All shrub planting should include drought tolerant species.

Garden area planting to be at a high density (ie. 4 per m2 for shrubs and 9 per m2 for ground cover) and generally include drought tolerant species. All palms shall be planted for minimum 700mm depth of imported soilmix as nominated, subject to pre-order of plant species, or as advised by Council. All street trees at Sector Entry to be minimum 450 litre stock, with nominated tree species subject to final approval by Council.

All street trees at Sector Entry to be minimum 450 litre stock, with nominated tree species subject to final approval by Council. All palms and street trees shall be subject to pre-order of plant material. All palms and trees to be grown by recognised nurseries under Natspec growing guidelines.

The feature palms within the median must be retained unless a structural site modification occurs.

All street trees at Sector Entry to be minimum 450 litre stock, with nominated tree species subject to final approval by Council. All palms and street trees shall be subject to pre-order of plant material. All palms and trees to be grown by recognised nurseries under Natspec growing guidelines.

The feature palms within the median must be retained unless a structural site modification occurs.

All street trees at Sector Entry to be minimum 450 litre stock, with nominated tree species subject to final approval by Council. All palms and street trees shall be subject to pre-order of plant material. All palms and trees to be grown by recognised nurseries under Natspec growing guidelines.
Guidelines

Nodal planting of specific canopy trees to identify pedestrian refuge crossing points.

All street trees to be minimum 35-400 litre stock, dependent on species selection and location, and this is subject to final approval by Council.

All street trees shall be subject to pre-order of plant material. All trees to be grown by recognised nursery under natspec growing guidelines.

Existing trees over 3 metres in height are to be retained where possible, with consultation to Health and Sustainability, subject to final approval from Council.

All kerb widenings to incorporate mass planted areas of suitable low height shrubs and groundcovers. Planting should be selected relative to sight lines required for specific locations.

Street tree plantings to footpath should generally include underplantings of native grasses.

Garden area planting to be at a high density (ie. 4 per m² for shrubs and 9 per m² for groundcovers) and generally include drought tolerant native species up to 1m in ultimate height. All shrub planting should be a minimum 5 litre pot size and groundcovers shall be 200mm pot size.

Water points to be provided to verge planting areas at 50-100m centres dependent on ultimate street layout.

Street lighting poles must be conventional Energy Australia, i.e. Decorative Style No.1 or Style No.2.

Landscape Materials Schedule

SHARE PATH concrete construction with broom surface finish to Australian Standards

TURF AREAS

existing subgrade shall be excavated to ensure the ground conditions to 200mm depth

return all quality existing topsoil in place, subject to approval from Council

poor existing soils shall be replaced with minimum 100mm depth imported soil as nominated, subject to approval from Council

GARDEN AREAS

existing subgrade shall be excavated to ensure the ground conditions to 400mm depth

return all quality existing topsoil in place, subject to approval from Council

poor existing soils shall be replaced with minimum 400mm depth imported soil as nominated, subject to approval from Council

garden bed areas shall be mulched with 100mm hardwood chip

PLANTING

all trees installed shall be certified as compliant to Natspec’s Specifying Trees

树 pits 35 to 200 litre stock

树 pits 400 litre stock

mulch shall consist of approved existing site topsoil or replacement soil mix subject to Council approval

all tree pit backfilling soil mix shall consist of 100% sandy loam, followed by a 100mm depth toplayer of organic humus mix

mulch shall consist of 75mm coarse hardwood chip mulch

pot sum 35 - 75 litre stock

tree pits shall be planted only when existing services or road infrastructure limit tree pot soil volume, or as advised by Council

tree pits 200 litre stock

shall be planted for all Small Canopy Trees listed in 2.0 Plant Species, or as advised by Council

tree pits 400 litre stock

shall be planted for all Medium and Large Canopy Trees listed in 2.0 Plant Species, or as advised by Council

REFER TO CURRENT WARRIEWOOD VALLEY ROADS MASTER PLAN FOR ROAD RESERVE AND CARREGWAY WIDTHS

NORTHERN BEACHES COUNCIL

Warriewood Valley Release Area

MASTERPLAN AND DESIGN GUIDELINES

November 2016
Guidelines

Principles
Where traffic templates allow for softworks in the roundabout, construct according to the adjacent detail, ‘Typical Roundabout – Non Structural Soils’. Note all dimensions are a minimum.

Where traffic templates don’t allow for softworks, plant a tree in the centre of the roundabout using structural soils and permeable paving. Construct according to the adjacent detail, ‘Typical Roundabout – Structural Soils’. Note all dimensions are a minimum.

All kerb widenings to incorporate mass planted areas rather than turf that is able to incorporate structural soils. Planting should be selected relative to sight lines required for specific locations.

A garden area to include minimum 400mm cultivated soil (compost added) and mulched with 100mm hardwood chip. Planting to be at a high density (ie. 4 per m²) and generally include drought-tolerant native species, up to 1m in ultimate height. All shade/flower plans using plant material endemic to the area. All plant material not endemic to the area may be used to accent planting for nominated entries or features but kept to a design minimum.

Materials
- PLANTS
  - Min pot size – Trees: 500 litre, Shrubs: 5 litre, Groundcovers: 2.5 litre.

- SOILS
  - Topsoil – Organic Garden Mix.
  - Structural Soil – 40mm Structural Soil.
Guidelines
Location:
The 50 metre creekline reservation of Narrabeen and Fern Creek.
Principles:
The 50 metre creekline reservation to be planned and implemented as multi-use open space corridors to incorporate:
- Creekline rehabilitation; regrading and stabilisation of creek banks to 1:3 max grade (vegetated) and 1:6 max grade (at water access points, see C-2).
- Rock armouring of waterline to reduce propensity for erosion.
- Weed removal and native revegetation
- Recreational amenity; Pedestrian/cycle linkages to residential areas and for district access.
- Integrate corridors with Neighbourhood Park areas where possible to consolidate open space areas, share facilities (eg. Playgrounds).
- Flora and Fauna Habitat; Provide for native vegetation or revegetation to a minimum of 40% of areas as interlinked vegetation corridor creekline reserve.
- Locate pedestrian/cycle path to form edge between maintained grassland and native vegetation. Where alternate edge is required timber edge (150x50mm Band) with 1.5mtr width of Nepean River gravel margin as maintenance barrier.
- Pedestrian/cycle paths to be located above the 20% AEP flood level for that specific location. It is preferred the pedestrian/cycle path acts as a transition between the Inner 25 metre Creekline Corridor and the Outer 25 metre Creekline Corridor. The location is variable to ensure connectivity with existing sections of the path and vegetation conservation.
- Maintained grassland areas to be provided with native shade tree planting.
- Provide widenings to creek waterbody where possible to slow water movement and provide additional environmental feature.
- Maintain adequate sightlines to pedestrian/cycle path to alignment to meet Austroads standards.
- Provide seating and litter bins at nodal points, viewing areas and linkage intersections.
- Signs at nodal points at nominal 250 metre spacing.
- signage at nominal 100 metre spacings
- Solar lights at nominal 50 metre spacings
- Refer to Water Management Specification

Section: Multiuse corridor areas
Pedestrian/cycle path to form primary buffer between maintained grassland and native vegetation. Location is variable.
Provide seating and litter bins at nodal points, viewing areas and linkage intersections.
Reragging and stabilisation of creek banks to 1:3 max grade (vegetated).

Section: Native flora/fauna corridor
Maintained grassland areas to be provided with native shade tree planting.
Pedestrian/cycle path to form primary buffer between maintained grassland and native vegetation.
Native aquatic planting to form margins of stream banks.
Reragging and stabilisation of creek banks to 1:3 max grade (vegetated).

Plan: Vegetated corridor
**Guidelines**

**Location:** Adjacent Water Quality Detention ponds, and at creek waterbody widenings

**Principles:**
- Provide varied and safe access to creekline and waters edge at selected locations.
- Extend Pedestrian/cycleway to serve as access points to water.
- Modulate planting to ensure views and sightlines into creekline.
- Revectate creekline margins with native aquatic species.
- Provide appropriate terracing at waters edge to provide viable planting depths, and where bank gradients require.
- Provide rock work in naturalistic horizontal patterns protect and enhance creek banks.
- Do not adjoin maintained grass areas directly to rock armouring zones - minimum 2 metre native planting buffer required.
- Refer to DCP No.20 for recommended creekline species for vegetation precincts.

- Maintain Pedestrian/cycle path sightlines and security surveillance through alignment of path and planting design.
- Pedestrian/cycle paths to be located above the 20% AEP flood level for that specific location. It is preferred the pedestrian/cycle path acts as a transition between the Inner 25 metre Creekline Corridor and the Outer 25 metre Creekline Corridor. The location is variable to ensure connectivity with existing sections of the path and vegetation conservation.

**Section: Water bodies and viewing area**

- Provide Solar Lighting units at nodal points, and pedestrian/cycleway intersections
- Provide rock work in naturalistic horizontal patterns protect and enhance creek banks
- Revectate creekline margins with native aquatic species
- Provide seating and litter bins at nodal points, viewing areas and linkage intersections
- Maintain minimum 500mm depth of water in detention ponds below (culvert invert) drainage level
- Provide planting to ensure views, and sightlines into creekline

**Section: Water Quality Detention Ponds**

- Aquatic planting to margins of detention ponds. Enhance edges and drainage outlets with natural stone work (see C4)
- Maintain minimum 500mm depth of water in detention ponds below (culvert invert) drainage level
- Provide seating and litter bins at nodal points, viewing areas and linkage intersections
- Rock armouring of water line to reduce propensity for erosion and high flow scouring
- Do not adjoin maintained grass areas directly to rock armouring zones - minimum 2 metre native planting buffer required
- Solar lights at nominal 50 metre spacings
- Signs at nominal 100 metre spacings
- Solar lights at nominal 50 metre spacings

**Plan: Accessible water**

**Plan: Water Management bodies**
Guidelines Location
Adjacent remnant stands of native bushland vegetation, and revegetation zones along creeklines reservations.

Principles:

- Protect stands of Swamp Mahogany Forest to creekline margin.
- Extend Pedestrian/cycleway to serve as access points to water. This maybe in the form of boardwalks.
- Arrange Pedestrian/cycleway access to pass through forest providing enhanced environmental experiences.
- Incorporate raised boardwalk through impeded drainage zones.
- Extend Swamp Mahogany vegetation community through natural bushland revegetation techniques to appropriate areas. Provide Bushland revegetation strategy.
- Provide Environmental Impact Assessment (EIA) for all proposals with Development Application (DA).
- Plant creekline margins with aquatic planting for water quality and Fauna habitat. Provide appropriate terracing at waters edge for viable planting depths.
- Provide appropriate rock terracing at waters edge to provide viable planting depths, and where bank gradients require.
- Maintain Pedestrian/cycle sightlines and security surveillance through alignment of path and planting design. Modulate planting to ensure views and sightlines into creekline.
- Pedestrian/cycle paths to be located above the 20% AEP flood level for that specific location. It is preferred that Pedestrian/cycle paths act as a 25 metre Creekline Corridor and the Start of 25 metre Creekline Corridor. The location is variable to ensure connectivity with existing sections of the path and vegetation conservation.
- Provide seating and litter bins at nodal points, viewing areas and linkage intersections.
Guidelines

Location:
The 50 metre creekline reservation of Narrabeen and Fern creek generally.

Adjacent Detention ponds, stormwater outlets and at creek waterbody widenings.

Principles:

- Ensure creek-line reservation to be planned and implemented as multi-use open space corridors to incorporate water management features.

- Locate rock plunge weir to widened waterbody zones, where gradient allows.

- Rock work to be natural sandstone, placed and arranged in naturalistic patterns. Water management features such as weirs, stormwater outlets and rock armouring to creekbed and creekbank should also meet water management and engineering specifications.

- Incorporate raised boardwalks through impeded drainage zones.

- Plant creekline margins with aquatic planting to accelerate water quality and fauna habitat.

- Provide appropriate rock terracing at waters edge to provide viable planting depths, and where bank gradients require.

- Do not adjoin maintained grass areas directly to rock armouring zones - minimum 2 metre native planting buffer required.

- Provide widenings to creek waterbody where possible to slow water movement and provide additional environmental feature.

- Provide seating and litter bins at nodal points, viewing areas and linkages intersections.

- Seats at litter bins at nominal 250 metre spacings.

- Signs at nominal 100 metre spacings.

- Solar lights at nominal 50 metre spacings.

Illustration: Stormwater outlet

Outlet to be setback from the waterway a minimum of 13 multiplied by the diameter of the outlet pipe. e.g. 200mm pipe is setback 2.6 metres from the toe of the creek bed.

Create densely planted sedge area in front of outlet.

Illustration: Natural weir and rills

Water management features such as weirs, stormwater outlets, and rockwork to creekbed and creekbank should also meet water management and engineering specifications.

Locate rock plunche weir to widened waterbody zones, where gradient allows.

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Section: Rock armouring

Regrade and stabilize creek banks to 1:3 max grade (vegetated) and 1:2 max grade (at bridge abutments) with suitable engineered stone or pavement pitching under bridge deck.

- Rock armouring of waterline to reduce propensity for erosion and high flow scouring.

- Provide access along creek bed under bridge structures.

- Provide appropriate rock terracing at water edge to enable viable planting depths where bank gradients require.

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Section: Bridge abutments

Regrade and stabilize creek banks to 1:3 max grade (vegetated) and 1:2 max grade (at bridge abutments) with suitable engineered stone or pavement pitching under bridge deck.

- Rock armouring of waterline to reduce propensity for erosion and high flow scouring.

- Provide access along creek bed under bridge structures.

- Provide appropriate rock terracing at water edge to enable viable planting depths where bank gradients require.
Active Sportsfield

Guidelines:
Typical Infrastructure:
- Earthworks (incl re-contouring, levelling & sub-grade preparation)
- Drainage (incl sub-soil infiltration)
- Water Service/Irrigation (bayonet fittings)
- Sealed Carpark (50 spaces incl kerb/edging, surfacing & planting bays)
- Access/Pathways
- Lighting (Solar [10])
- Turfing (incl topsoiling & laying turf)
- Landscaping (incl topsoil, tree/shrub planting, mulching, staking & edging)
- Fencing (painted timber post & rail/log barriers)
- Signage & Furniture (incl bench seats & litter bins)

DISCLAIMER

NOTE:
The facilities and features on this plan are diagrammatic only and the actual location will be subject to regular reviews of the Section 94 Plan by Council, and will also be dependant on survey, site considerations and compliance with all relevant standards and requirements.

All internal Sector Road Layouts/ Landscaping/ Open Space (Apart from Sectors 1, 2, 10, 11 and 12) are indicative only and reflect submissions by the Developers at the time of preparation of this Plan.

Council does not endorse or otherwise the proposals by the Developer in each Sector
Concept plan for southern component of park was adopted by Council in March 2016. Final design of southern component of park to be developed in consultation with community.

Typical Infrastructure:
- Earthworks (incl re-contouring, levelling & sub-grade preparation)
- Structural Work (reg retaining walls)
- Drainage (incl sub-soil drainage)
- Water Service/Irrigation (bayonet fittings)
- Sealed Carpark (incl kerb/edging, surfacing & planting trims)
- Access: Pathways/Bikepaths
- Lighting
- Turfing (incl topsoiling & laying turf)
- Landscaping (incl topsoil, tree/shrub planting, mulching, staking & edging)
- Fencing (incl painted timber post & rail/barrier)
- Shelter (including electric BBQs, tables and seating)
- Signage & Furniture (incl bench seats, picnic tables & litter bins)
- Shade Structure (over playground)