

LEGEND:

- Note:
- The Survey Plan, showing contours at interval of 0.5m, spot levels and existing trees, forms the base of the Landscape Plan
  - The building plan shows the car park footprint and driveway
- Property boundary
- Existing trees as identified in the Arborist's Report:
- ID #s indicating high (H) / medium (M) / low (L) value;
  - with DBH - diameter of trunk at breast height;
  - SRZ - structural root zone;
  - TPZ - tree protection zone.
- R = tree to be removed

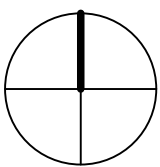
- Proposed reduced levels - refer to the Building and Engineering Plans for details (source)
- Outline of building above
- Proposed landscape works (refer to Plan # 1905 / 2 for details):
- Extent of planting area within the site
  - Extent of areas under the building to be mulched with rock / pebbles
  - Extent of rehab planting to existing drainage swale located in the naturestrip
  - Extent of planting provided to act as filtration planting for storm water flows (1m wide)
  - Alignment for 1-2m wide access way to be mulched with organic material but not planted

- In addition provide:
- 2m diam mulch rings to all existing trees located on the Cabbage Tree Rd front boundary - G1 to G14 and G24 to G38;
  - for tree # T6 provide a 4m diam mulched ring to the trunk base;
  - for trees #s T3, T4, T5, T7 and T8 provide a 2m diam mulched ring to the trunk base;
  - the balance of the nature strip to be turfed except where storm water filtration planting is proposed.

Proposed fill banks created by the proposed path consisting of a coarse, gap graded material such as 20-50mm crushed basalt or equivalent

Proposed raised edging / retaining walls (maximum height to be 340mm)

PLAN REGISTER:	
1905/1	Landscape Site Plan
1905/2	Landscape Planting Plan
1905/3	Planting Plan L2 / Weeds List / Detail #1905/C
0905/4	Construction Notes / Detail #s1905/A & B
1905/5	Plant Schedules



Date:	Amendments:
9.08.2019	ROUGH DRAFT Issued electronically as PDF for FEEDBACK
27.09.19	PDF for FEEDBACK
3.10.2019	DRAFT Issued electronically as PDF to Turnbull Plan
10.10.2019	FINAL Issued electronically as PDF to Turnbull Plan

Project:

**Proposed Gym**

**Indoor Recreation Facility**

**39 Cabbage Tree Rd**

**Bayview NSW 2104**

Client:

**Jason and Janine Crawford**

Sheet Title:

**Landscape Site Plan**

Scale: Plan and Bar Scale @ 1:100 @ A1 sheet size

0 1m 5m 8m

Base drawing supplied by CMS Surveyors & Blue Sky

Date: August 2019 (refer amends table)

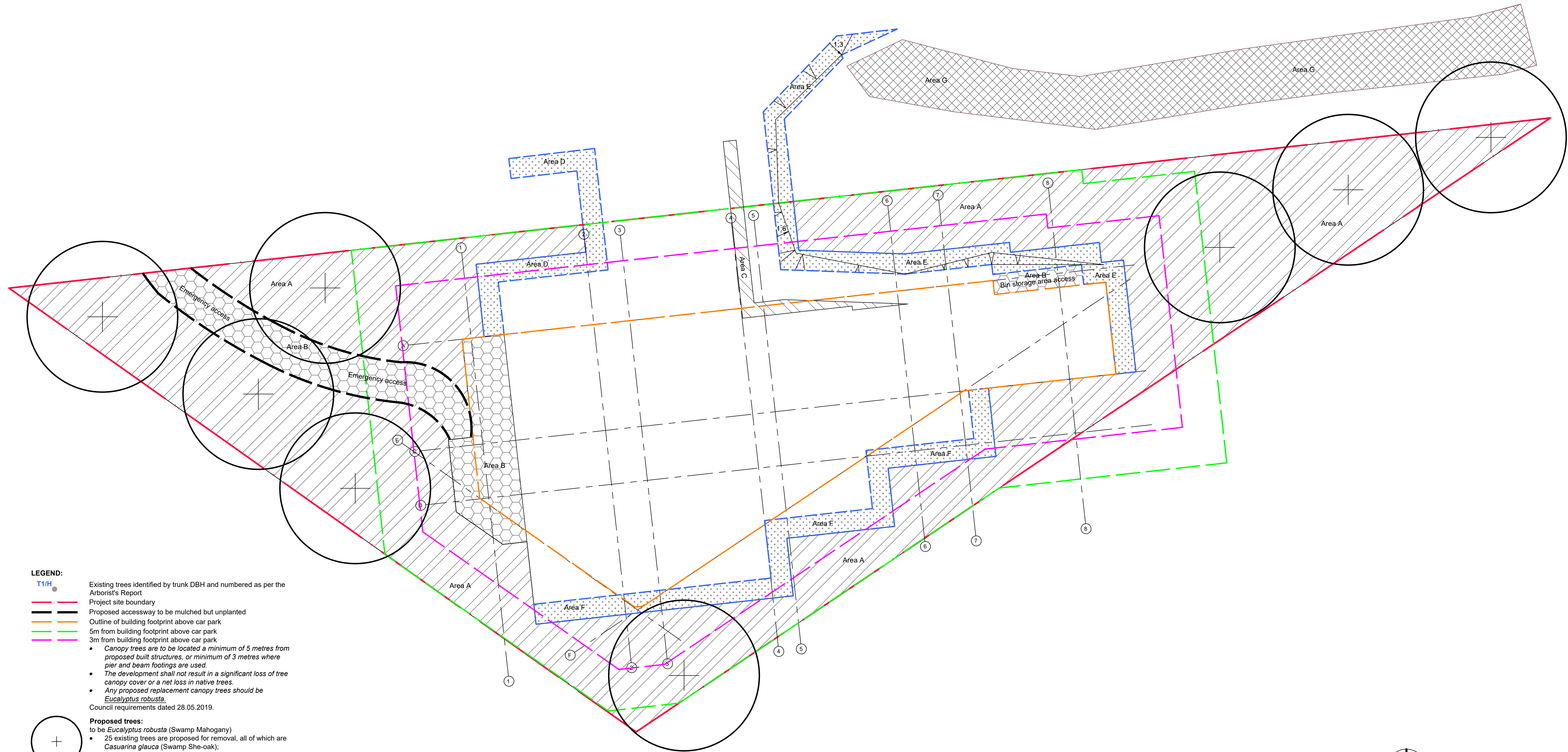
Dwg no: 1905/1 sheet 1 of 5

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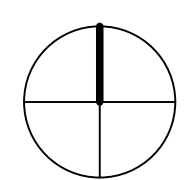




- LEGEND:**
- T1/H** Existing trees identified by trunk DBH and numbered as per the Arborist's Report
- Project site boundary
- Proposed accessway to be mulched but unplanted
- Outline of building footprint above car park
- 5m from building footprint above car park
- 3m from building footprint above car park
- Canopy trees are to be located a minimum of 5 metres from proposed built structures, or minimum of 3 metres where pier and beam footings are used.
  - The development shall not result in a significant loss of tree canopy cover or a net loss in native trees.
  - Any proposed replacement canopy trees should be *Eucalyptus robusta*.
- Council requirements dated 28.05.2019.

- Proposed trees:**  
to be *Eucalyptus robusta* (Swamp Mahogany)
- 25 existing trees are proposed for removal, all of which are *Casuarina glauca* (Swamp She-oak);
  - it is considered that replacement of these trees with 25 canopy trees would only promote the growth of poorly formed trees, particularly as Swamp Mahoganies are selected;
  - consequently, within the context of the restrictions noted above about proximity to built structures, it is proposed to plant 8 (eight) new trees (Swamp Mahoganies);
  - in addition, plantings of groundcovers, grasses, small and large shrubs, and small trees are proposed to supplement these tree plantings.

- Area A** Proposed planting to reflect *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions Profile*.
- Area equals 484m<sup>2</sup>
- Area B** Areas to be mulched but not planted:
- Area under external stairs equals 27m<sup>2</sup>
  - Area for emergency access equals 36m<sup>2</sup>
  - Area for access to the bin storage equals 4m<sup>2</sup>
- Area C** Proposed planting of native strappy plants
- Area equals 9m<sup>2</sup>
- Area D** Proposed planting for storm water infiltration / filtration
- Area equals 17.5m<sup>2</sup>
- Area E** Proposed planting for storm water infiltration / filtration
- Area equals 36m<sup>2</sup>
- Area F** Proposed planting for storm water infiltration / filtration
- Area equals 32m<sup>2</sup>
- Area G** Proposed rehab planting to drainage swale
- Area equals 94m<sup>2</sup>



Date:	Amendments:
3.10.2019	DRAFT issued electronically as PDF to Turnbull Plan.
10.10.2019	FINAL issued electronically as PDF to Turnbull Plan.

Project:  
**Proposed Gym  
Indoor Recreation Facility  
39 Cabbage Tree Rd  
Bayview NSW 2104**

Client:  
**Jason and Janine Crawford**

Sheet Title:  
**Landscape Planting Plan**

Scale: Plan and Bar Scale @ 1:100 @ A1 sheet size

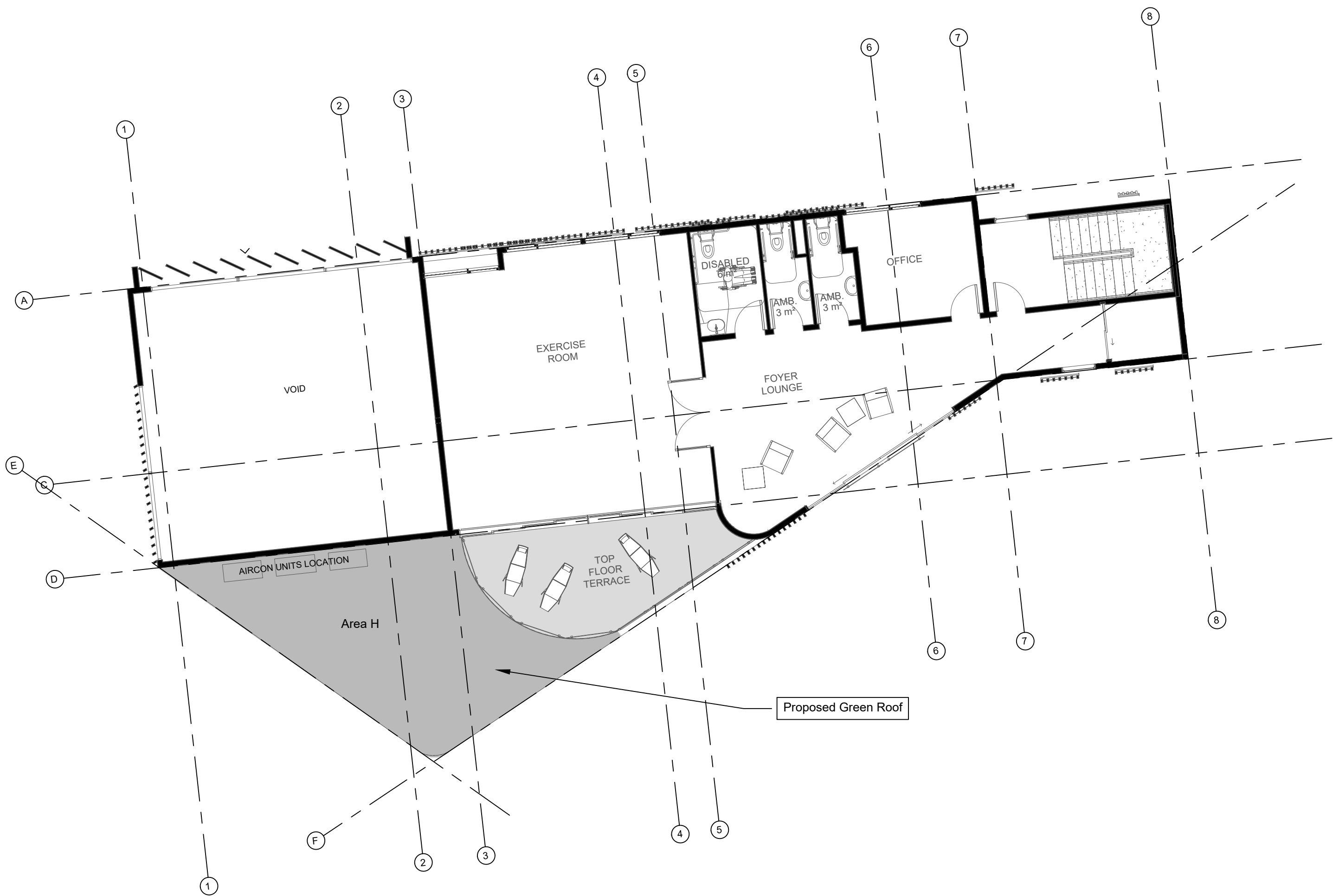
Base drawing supplied by

Date: August 2019 (refer amends table)

Dwg no: 1905/2 sheet 2 of 5

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**LEGEND:**

Area H

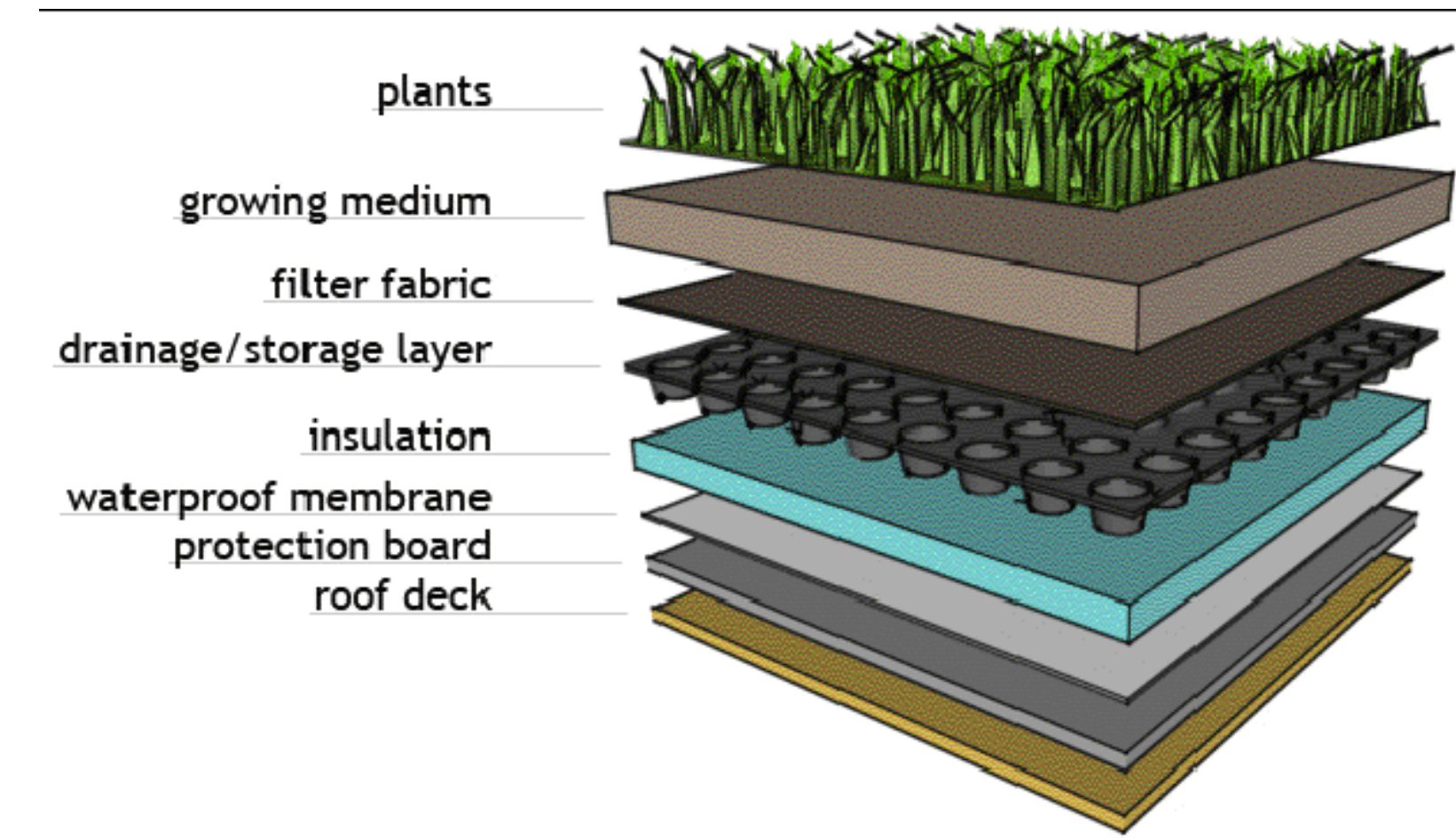
Proposed green roof on level 2

- Area equals 39m<sup>2</sup>

**Note:**  
Refer to Construction Notes for details and to the Plant Schedule for species selection and quantities

**FLOOR PLAN: Level Two**

Scale 1:100

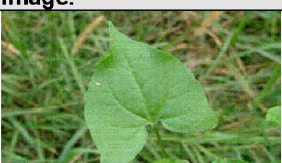

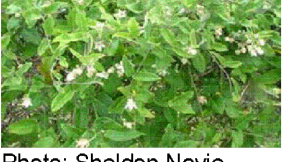

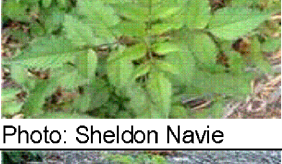
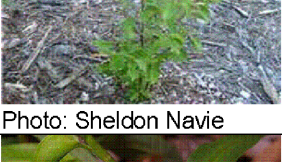
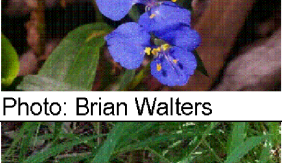
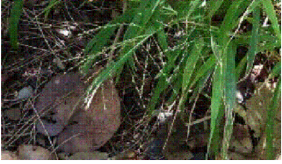


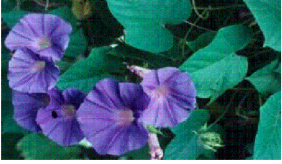







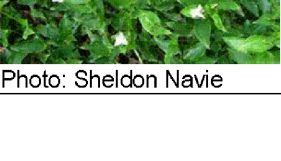


**DETAIL #1905/C: Typical green roof planting and preparation**

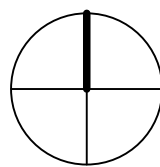
Not to scale

Source: www.myrooff.com

**WEED SPECIES LIST:**

Weed Species*	Common Name	Habit / growth form	Status	Removal Method	Image
<i>Acetosa sagittata</i>	Rambling Dock	Vine	significant environmental weed in NSW <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/acetosa_sagittata.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/acetosa_sagittata.htm</a>	Cut off above ground material, use a trowel to carefully dig up the tuber and the underground stems.	 Photo: Sheldon Navie
<i>Ageratina adenophora</i>	Croton Weed	Shrub	significant environmental weed in NSW – Class 4 <a href="http://keyserver.lucidcentral.org/weeds/data/media/Html/ageratina_adenophora.htm">http://keyserver.lucidcentral.org/weeds/data/media/Html/ageratina_adenophora.htm</a>	Hand pull	 Photo: Sheldon Navie
<i>Araujia sericifera</i>	Moth Vine	Vine	significant environmental weed in NSW <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/araujia_sericifera.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/araujia_sericifera.htm</a>	Plants smoother supporting vegetation are poisonous and the sap is a skin irritant. Hand pull while wearing protective clothing.	 Photo: Sheldon Navie
<i>Asparagus aethiopicus</i>	Asparagus Fern	Herbaceous weed	Priority weed / weed of national significance (WoNS) / noted by Council as a weed listed under the NSW Biosecurity Act 2015 requiring the plant to be eliminated	Dig out the entire crown or corm by severing the tough surrounding roots (roots and watery tubers can remain in situ)	 Photo: Harry Rose
<i>Bidens pilosa</i>	Cobbler's Peg	Annual herb	an environmental weed in New South Wales <a href="https://keys.lucidcentral.org/keys/v3/testime/weeds/sy/weeds/Media/Html/Bidens_pilosa_(Blackjack).htm">https://keys.lucidcentral.org/keys/v3/testime/weeds/sy/weeds/Media/Html/Bidens_pilosa_(Blackjack).htm</a>	Hand pulling	 Photo: Sheldon Navie
<i>Cinnamomum camphora</i>	Camphor laurel	Tree	Invasive plant	Parent plant (#T30) is located outside of the site but is the source of new seedlings. Hand pull seedlings.	 Photo: Sheldon Navie
<i>Commelina cyanea</i>	Scurvy Weed	Herb	Can be weedy	Not significant – does not require removal	 Photo: Brian Walters
<i>Ehrharta erecta</i>	Panic Veldt Grass	Grass / strappy plant	will out-compete native ground covers in nearly all soil conditions. <a href="https://sydneyweeds.org.au/weeds/panic-veldt-grass/">https://sydneyweeds.org.au/weeds/panic-veldt-grass/</a>	Hand pull but given the overshadowing of the site by the existing tree canopies it is proposed to thickly mulch the planting area to smother the remaining weed propagules and to plant native species suited to shade conditions	 Photo: Colin Meurk
<i>Fumaria spp.</i>	Climbing Fumitory	Herb	Naturalised / common in riparian areas in New South Wales <a href="https://keyserver.lucidcentral.org/weeds/data/media/Html/fumaria_capreolata.htm">https://keyserver.lucidcentral.org/weeds/data/media/Html/fumaria_capreolata.htm</a>	Hand pull wearing gloves	 Photo: Sheldon Navie
<i>Geranium homeanum</i>	Northern Cranesbill	Herb	Exotic plant	Hand pull as required	 <a href="http://www.friendsofianeco-venationalpark.org.au">http://www.friendsofianeco-venationalpark.org.au</a>
<i>Ipomoea indica</i>	Morning Glory	Vine	noted by Council as a weed listed under the NSW Biosecurity Act 2015 requiring the plant to be eliminated	Morning Glory can be removed by hand – carefully roll up the runners and chip the roots out of the ground. Do not yank runners as they will separate from the roots.	 DPI website
<i>Microlaena stipoides</i>	Weeping Grass	Grass / strappy plant	Native elsewhere in Australia	Not significant – does not require removal	 Photo: Bluedale website
<i>Nothoscordum gracile</i> or <i>Nothoscordum borbonicum</i>	False Weed	Onion	Environmental weed in NSW	Hard to control manually – bulbets buried quite deep	 Photo: Sheldon Navie
<i>Parietaria judaica</i>	Asthma Weed	Herb	Environmental weed in NSW	Hand pull ensuring all roots are removed	 Photo: Sheldon Navie
<i>Potentilla indica</i>	Indian Strawberry	Herb	Minor environmental weed in Sydney	Hand pull	 Photo: Sheldon Navie
<i>Rubus fruticosus agg</i>	Blackberry	Grass / strappy plant	Priority weed / WoNS – Class 4	Hand pull removing all the roots	 Photo: Sheldon Navie
<i>Senna pendula</i>	Cassia	Shrub	Class 4 in NSW	Hand pull removing all the roots	 Photo: Sheldon Navie
<i>Setaria palmifolia</i>	Palm Grass	Grass / strappy plant	Environmental weed in NSW	Hand pull	 Photo: Sheldon Navie
<i>Tradescantia fluminensis</i>	Wandering Trad	Herbaceous weed	Class 4 in NSW	Hand pull carefully removing roots at each joint	 Photo: Sheldon Navie

\* Source Naria Environmental Pty Ltd



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**Bayview NSW 2104**

Client:

**Jason and Janine Crawford**

Sheet Title:

**Planting Plan L2 / Weeds List**

Scale: Plan and Bar Scale @ 1:100 @ A1 sheet size

Base drawing supplied by Blue Sky

Date: August 2019 (refer amends table)

Dwg no: 1905/3 sheet 3 of 5

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# CONSTRUCTION NOTES

- Note:**
- Check the location of all underground services prior to undertaking any earthworks or digging.
  - Undertake all building works in accordance with the provisions of the Building Code of Australia.
  - All excavations and backfilling are to be executed safely in accordance with appropriate professional standards and excavations are to be properly guarded and protected to prevent them from being dangerous to life or property.

## 1.0 WORKS RELATED TO EXISTING TREES:

Refer to the *Arboricultural Impact Assessment (AIA)* prepared by Urban Forestry Australia for details.

THIS SECTION IS FOR INFORMATION

**ALL REQUIREMENTS NOTED IN THIS SECTION AND CONTAINED WITHIN THE AIA ARE TO BE ADHERED TO BY ALL PERSONS ONSITE**

### 1.1 Prior to commencement of any works / clearing / demolition / earthworks:

#### 1.1.1 Engagement of a Project Arborist (PA):

- A minimum AQF level 5 Arboriculturist is to be engaged prior to works commencing;
- The PA to advise on tree protection measures;
- The PA to liaise re construction detailing and installation of the proposed driveway and footpath;
- All trees to be retained are to be protected in accordance with the AIA and the measures to be placed under the direction of the PA or Council's Tree Management Officer;
- Advice is to be sought from the PA where potential / unidentified conflicts arise with any proposed future works and tree retention.

#### 1.1.2 Tree protection works required for trees to be retained:

- To be in place prior to commencement of any works including clearing, demolition and earthworks;
- To be provided under the direction of the PA to all trees to be retained;
- The fenced TPZs will exclude all activity from within these zones – including but not limited to no access by persons, machinery or equipment; no storage of any items; no sheds; no portable toilets; and no discharge of waste products or fuels or chemicals;
- The tree protection works cannot be moved or altered without the PA's prior written approval;
- Exclusion fencing is required around the trees to be retained located within the road reserve;
- Exclusion fencing is required to be placed no less than 2m from the common boundary to the golf course;
- No washing or rinsing of tools and equipment, preparation of any mortars, concrete mixing or brick cutting is to occur within 8m upslope of any palms or trees to be retained;
- Appendix C of the AIA provides details re tree protection measures.

#### 1.1.3 Tree removal works:

- Prior to removal of the nominated trees, the Project Arboriculturist shall identify the trees for removal by clearly marking with high visibility paint or tags;
- Tree removal works to be undertaken by a minimum AQF3 tree contractors;
- Remove the dead trees as identified on the Landscape Plan Set;
- Remove the living trees as identified on the Landscape Plan Set;
- Mulch derived from site greenwaste (fungal disease free and weed species free) can be used for ground protection within the Tree Protection Zones (TPZ).

#### 1.1.4 Trees identified for removal:

Confirm trees to be removed by referring to the AIA:

Tree ID#:	Species:	Details:	Quantity for replacement purposes:
T11	dead		n/a
T13	dead		n/a
T29	dead		n/a
T17	<i>Casuarina glauca</i> (Swamp She-oak)	Group of 15 suckering trees	15
T18	<i>Casuarina glauca</i> (Swamp She-oak)	Large tree	1
G15-G23	<i>Casuarina glauca</i> (Swamp She-oak)	9x trees	9
<b>total</b>	<b>To be removed</b>		<b>25</b>

### 1.2 During construction / installation of landscape works:

#### 1.2.1 Tree and root pruning:

- Prior to undertaking any type of this work, any pruning required is to be assessed by the PA and written approval supplied;
- All pruning of branches to be undertaken by a minimum AQF Level 3 Arborist in accordance with AS4373-2017 *Pruning Amenity Trees*.

#### 1.2.2 Stockpiling and location of storage sheds:

- Consult with the PA prior to placing any items within a tree's TPZ;
- Follow the directions of the PA (the AIA provides instructions for placement of approved items) at all times.

#### 1.2.3 Pavements – to be installed by others:

- Refer to the architectural plans for location;
- Refer to the AIA for further details;
- Refer to note below re fill material.

#### 1.2.4 Fill material – to be installed by others:

- The approved location for fill material is shown on plan – adjacent to the entry path – refer to the Landscape Plan Set;
- Fill material to consist of a coarse, gap graded material such as 20-50mm crushed basalt or equivalent to provide some aeration to the root zone. Note that roadbase or crushed sandstone or other material containing a high percentage of fines is unacceptable for this purpose;
- The fill material to be consolidated with a non-vibrating roller to minimise compaction of the underlying soil;
- Permeable geotextile may be used beneath the sub-base to prevent migration of the stone into the sub-grade. No fill material shall be placed in direct contact with the trunk.

#### 1.2.5 Walling – to be installed by others:

- Proposed retaining walls and raised edges are to be installed in conjunction with the installation of the car park, driveway and entry path works to limit the period of time cut banks (and thus tree roots) created by site excavation are exposed;
- Proposed footings are to be designed to span tree roots greater than 50mm in diameter.

### 1.3 Post construction:

#### 1.3.1 Mulch:

- Remove temporary mulch from TPZs to remove any contaminants;
- Replace with good quality mulch and addition of 10% organic matter.

## 2.0 WORKS BY OTHERS PRIOR TO COMMENCEMENT OF LANDSCAPE WORKS:

### 2.1 Retain Site Topsoil:

Topsoil shall be stripped by others from areas to be developed / built on and stock-piled within the site. Stock-piled topsoil must be no deeper than 1.3 metres, located outside drainage lines and tree canopies and be protected from run-on water by suitably positioned diversion banks. Where the period of storage will exceed 14 days, stock-piles are to be seeded or sprayed with an appropriate emulsion solution to minimise particle movement. Refer also to note above re stockpiling within TPZs.

### 2.2 Walls and retaining walls / edging:

To be installed by others – refer to architectural plans.

### 2.3 Paths / driveways / pavements:

To be installed by others – refer to architectural plans – refer to note re walling above.

### 2.4 Stormwater management / drainage system:

To be installed by others.

### 2.5 Removal of refuse:

All builders' refuse, spoil and/or material unsuitable for use in landscape areas shall be removed from the site on completion of the building works.

## 3.0 LANDSCAPE CONSTRUCTION NOTES:

### 3.1 Note:

Refer to items:

- 1.0 WORKS RELATED TO EXISTING TREES
- 2.0 WORKS BY OTHERS PRIOR TO COMMENCEMENT OF LANDSCAPE WORKS:

of these notes prior to commencing any works.

### 3.2 Removal of refuse:

Remove any remaining builders' refuse, spoil and/or material unsuitable for use in landscape areas from the site prior to commencing landscape works. Avoid causing damage to areas to be planted.

### 3.3 Weed removal:

Refer to the **Weed Species List** in this plan set for details of weeds identified on site and proposed methods of removal. Avoid the use of chemicals – as possible, manually control weed species. Remove by hand all weed plantings and roots as possible without causing damage to adjacent roots of trees to be retained. Wear gloves and other protective clothing whilst undertaking weed control as required. Alternatively, chip weeds out using a hand held manually operated hoe. Ensure that all greenwaste from weed species is bagged and disposed of at a Council approved waste site. Remove weed vine species completely from the trunks and canopies of existing trees. Retain kidney weed and native violets and other native grasses and groundcovers as ground cover.

### 3.4 Garden edging:

provide a shallow spade edge between lawn areas and planting / mulched areas.

### 3.5 Pebble mulching:

To be located within the car park under the building as shown on the Landscape Plan Set:

- select Hawkesbury Sandstone Pebble (40-70mm) tumbled (as available from ANL or equivalent);
- remove any building debris / refuse and vegetative matter;
- excavate as required area to a depth of 75mm – DO NOT EXCAVATE WITH THE TPZ OF ANY EXISTING TREES;
- lay weed control matting in the base of the area, return edges up the sides of the excavation but finish below adjacent finished surface levels of the pavement (the matting is not to be exposed following placement of the pebble mulch);
- spread pebble mulch to a depth of 75mm (flush with adjacent pavements);
- hose with recycled water to clean off pebbles if dirty.

## 4.0 PROPOSED PLANTING:

### 4.1 Materials:

<i>Plants:</i>	Supply the species as noted on Plan and which have large healthy root systems, with no evidence of root restriction or damage. Ensure plants are vigorous, well established, free from pests and diseases and consistent with the species. Plants are to be hardened off and suited to the site's natural climatic conditions. Trees to display a single leading stem unless otherwise required. The tree should not be too tall for the pot size. Stock may be rejected if considered by the client's representative to be too large for the pot size.
<i>Site topsoil:</i>	Soil excavated from the site which contains organic matter, supports plant life, conforms generally to the fine to medium texture classification to AS 4419 (loam, silt, clay loam) and is free from: <ul style="list-style-type: none"><li>• Stones &gt; 25 mm diameter.</li><li>• Clay lumps &gt; 75 mm diameter.</li><li>• Weeds and tree roots, sticks and rubbish.</li><li>• Material toxic to plants.</li></ul>
<i>Imported Topsoil:</i>	Only to be sourced where no site topsoil is available. In accordance with AS4419-2003, equal to Australian Native Landscapes <a href="#">NATIVE LOW 'P' MIX™</a> .
<i>Turf Underlay:</i>	In accordance with AS4419-2003, equal to Australian Native Landscapes <a href="#">TURF UNDERLAY</a> .
<i>Turf:</i>	Kikuyu
<i>Fertilisers:</i>	Provide eco-friendly products with an N-P-K ratio specifically suited to native species
<i>Leaf Litter</i>	Material consisting of vegetative material of species known not to be weed or noxious weed species, chipped to pieces not larger than 75 x 50 x 15mm. Ensure mulch is free of deleterious and extraneous matter such as soil, weeds and sticks. Do not use bark mulch, pebble mulch or tub ground material, do not use bark fines and do not use freshly chipped plant material. The mulch to be weathered material.
<i>Pebble mulch:</i>	20-30mm decorative white or pale coloured pebble / gravel (select one with a high albedo rating to reflect heat)

### 4.2 Planting into ground:

Includes mass planting to the portion of unbuilt on site; strip planting adjacent to the driveway and footpath pavements located within the road reserve; and rehab planting along the drainage swale located within the road reserve.

#### 4.2.1 Mass planting to the portion of unbuilt on site (refer to Detail #1905/A):

- Refers to Areas A, B and F and Areas C, D and E where they fall within the site;
- a portion of Area E will include fill banks created from crushed basalt or equivalent (see notes re fill material above) – retain intact;
- remove any remaining extraneous, non-organic material and weed plants as noted above;
- retain existing organic matter and any mulch installed within the tree protection zones if it complies with the specification for mulch in these notes;
- randomly place plants as specified in the Plant Schedule – ensure trees, shrubs, grasses and groundcovers are evenly missed across the site – do not place in a grid system;
- install plants where shown on plan and as per detail for planting into ground. Adjust plant locations to avoid existing tree roots. Abandon planting holes if roots are encountered when excavating holes. Backfill abandoned holes with site topsoil;
- DO NOT PLANT WITHIN THE PROPOSED AREAS MARKED AS 'B' - accessways for emergency evacuation and for access to the bin storage area and the area under the stairs;
- DO NOT PLANT WITHIN THE FILL BANK in Area E;
- spread additional mulch to all nominated areas to ensure an average minimum 100mm depth of organic material across all areas noted above. Where applicable finish mulch levels flush with adjacent pavements.

#### 4.2.2 Strip infiltration planting adjacent to the driveway and footpath pavements located within the road reserve (refer to Detail #1905/A):

- Refers to Areas C, D and E where they fall within the road reserve;
- remove vegetative cover eg lawn grasses and weeds as required;
- a portion of these areas will include fill banks created from crushed basalt or equivalent (see notes re fill material above) – retain intact;
- spread mulch to 100mm depth over the area to be planted and over the fill banks (feather depth to nil where adjacent to the pavement at the edge of the fill bank);
- install plants where shown on plan and as per detail for planting into ground. Adjust plant locations to avoid existing tree roots. Abandon planting holes if roots are encountered when excavating holes. Backfill abandoned holes with site topsoil;
- DO NOT PLANT INTO THE FILL BANK.

#### 4.2.3 Rehab planting along the drainage swale located within the road reserve (refer to Detail #1905/B):

- Refers to Area G;
- remove weeds as specified above;
- place and fix erosion control matting to banks of drainage swale;
- cut slits into the matting to install plantings as per the detail;
- place plants in a random mix evenly across the slopes to ensure full coverage.

### 4.3 Planting on Green Roof (refer to Detail #1905/C):

- the roof deck to be prepared with:
  - waterproof layer;
  - root barrier material;
  - protection matting;
  - drainage layer;
  - filter sheet; and,
  - growing substrate.
- plants to be installed into the growing substrate;
- the area to be mulched with 75mm depth of pebbles.

### 4.4 Mulched tree rings:

- with the tree trunk at the centre, provide, as required, a 2m diameter mulched area to 100mm depth to trees #s:
  - G1-14 and G24-38 inclusive; and
  - T3, T4, T5, T7 and T8;
- with the tree trunk at the centre, provide, as required, a 4m diameter mulched area to 100mm depth to tree # T6.

## 4.5 Proposed Lawn Areas:

Proposed within the road reserve, between the edge of the bitumen road and the lot boundary, for the width of the lot except for the areas of proposed planting as noted above and the paved driveway and footpath. Two options depending on the condition of the existing lawn following completion of building works:

- either renovate the existing lawn by over-seeding, weeding, mowing, fertilising, watering etc as required, or
- Remove any debris and vegetation from proposed lawn areas. Remove temporary protective fencing following completion of all building works. Cultivate ground to a depth of 100mm. Do not cultivate within the TPZs of existing trees / plantings. Smooth out cultivated soil and loosely compact. Ensure smooth transition between filled levels and existing levels. Place and spread 75mm depth of turf underlay to bring levels to match adjacent levels. Smooth out and lightly compact soil. Lay turf across the contour, in stretcher bond pattern with staggered joints. Tamp down to bond turf with soil. Fertilise with lawn fertiliser in accordance with manufacturer's directions. Water turf well.

# MAINTENANCE NOTES

### Planting Maintenance:

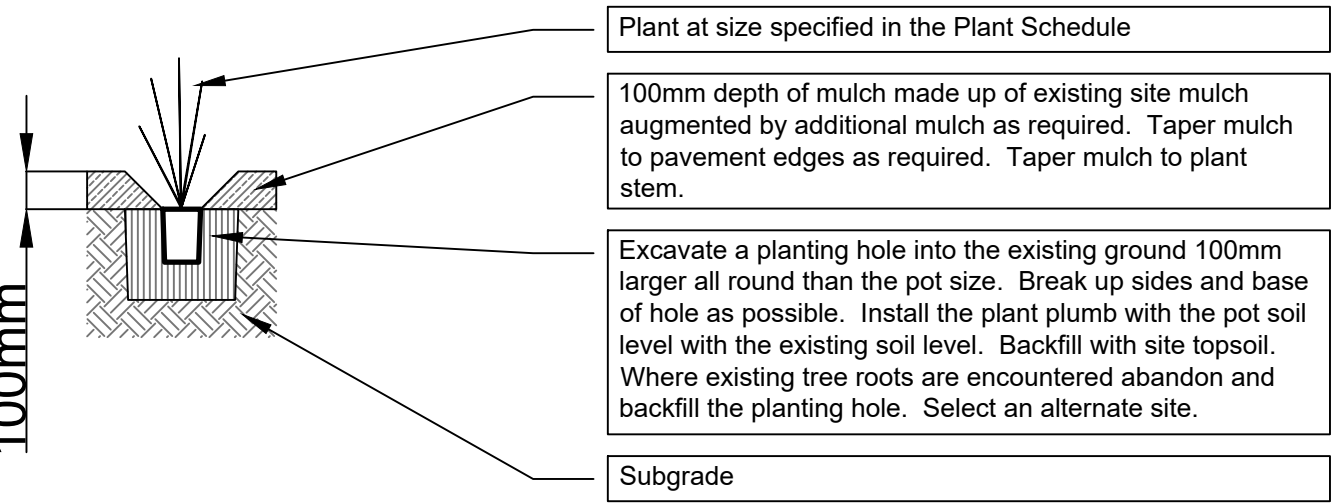
Water plantings well at time of installation and then to establish. Water by soaking not frequent sprinklings. Fertilise within 6-8 weeks of installation. Replenish mulch to maintain depth of 100mm. Undertake weed control in all areas as required. Supplementary plant as required. Plant as per installation instructions above. Continue to maintain for at least one full summer. Following establishment of plantings discontinue the watering regime and rely on rainfall alone. Over time retain plantings which survive dry periods and replace failed species with species proven to tolerate dry conditions.

### Lawn Maintenance:

Water turf well at time of installation and then to establish. Water by soaking not frequent sprinklings. Following establishment of lawn discontinue the watering regime and rely on rainfall alone.

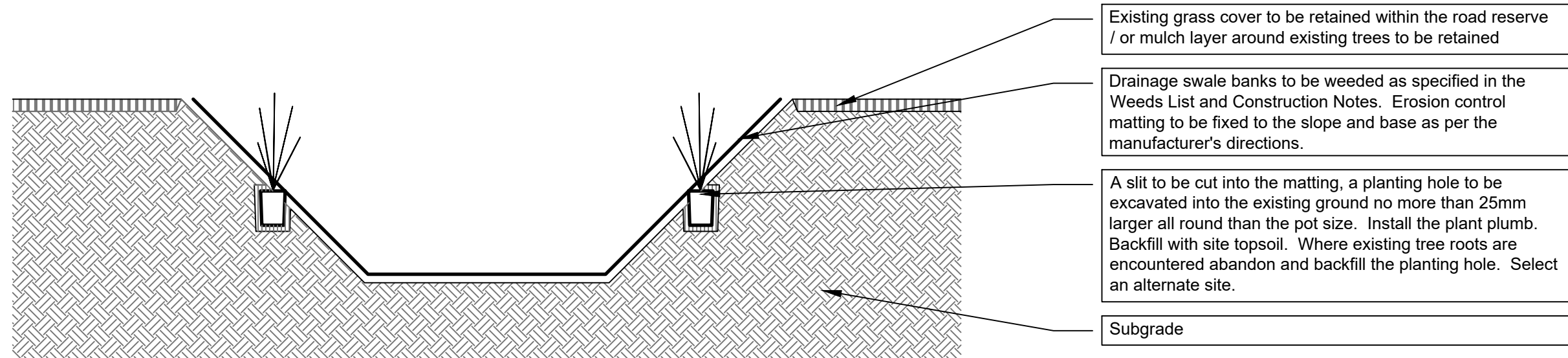
### Council water restrictions:

Comply with Council regulations and requirements at all times.



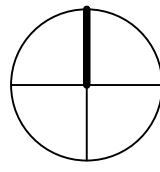
## DETAIL #1905/A: Planting into ground

Scale 1:20



## DETAIL #1905/B: Planting into the drainage swale

Scale 1:20



Date:	Amendments:
3.10.2019	DRAFT issued electronically as PDF to Turnbull Plan.
10.10.2019	FINAL issued electronically as PDF to Turnbull Plan.

Project:

**Proposed Gym**  
**Indoor Recreation Facility**  
**39 Cabbage Tree Rd**  
**Bayview NSW 2104**

Client:

**Jason and Janine Crawford**

Sheet Title:

**Construction Notes / Details**

Scale: Plan and Bar Scale @

0

Base drawing supplied by

Date: **August 2019** (refer amends table)

Dwg no: **1905/4**

sheet 4 of 5

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PLANT SELECTION

CRITERIA FOR SELECTION OF SPECIES:

Category:	Subcategory:	Details:
Site characteristics:	Existing soils:	Modified / sandy loam / alluvial / most likely some introduced material
	Location:	coastal hinterland / approximately 2km from the Bungan Beach / <1km from Wimmereremy Bay on Pittwater
	Aspect:	Relatively level low-lying land / gently sloping from Cabbage Tree Rd south to an adjacent creek
	Existing vegetation:	The site is ringed predominantly with planted Swamp She-Oaks and naturally occurring Swamp Mahoganies with some tree planting within the site. Understorey consists of low growing weeds
	Council covenants:	Site is located within a High Priority Wildlife Corridor
Plants aspects:	Uses:	for winter solar access and summer shade (to assist with maximising energy efficiencies) / for biodiversity / for habitat / for visual amenity
	Issues to avoid:	invasive roots / sharp edges hazardous to pedestrian access
	Management:	low water requirements / minimal maintenance eg pruning / resistance to pests and disease / longevity
	Provenance:	Selection of locally occurring species within the context of the anticipated performance of the plant given predicted changes to climate
	Availability:	Consideration of ease to source selected species
	Issues:	Consideration of issues that plant species may present eg limb drop
Tolerances:	Climate change:	trees are expected to live more than 30 years / in the interests of longevity consideration to be given to selecting species tolerant of projected climatic conditions / refer below to summary of projected climate conditions
	Drought:	periods of prolonged dry weather (characteristic of future climate change projections)
	Bushfire:	a harsher bushfire regime is characteristic of future climate change projections

CLIMATE CHANGE

Projection summaries:  
*Climate Change in Australia* is a website hosted by the Australian Government and CSIRO to provide details of projected changes to Australia's climate. The website address is: <https://www.climatechangeinaustralia.gov.au/en/climate-projections/future-climate/regional-climate-change-explorer/super-clusters?current=ES-C4.0&ofp=true&popup=true>  
*Australia* is divided into regions. Bayview is located in the East Coast region – details provided for possible climate changes for this region include the following:  
The East Coast cluster comprises NRM (natural resource management) regions in the central part of the eastern seaboard of Australia. The area encompasses important headwater catchments for a high proportion of Australia's population. The cluster area has a predominantly sub-tropical climate, with regional variations such as some tropical influences in the north and some temperate influences in the south.  
KEY MESSAGES (predicted for the East Coast cluster include):

- o Average temperatures will continue to increase in all seasons (very high confidence).
- o More hot days and warm spells are projected with very high confidence. Fewer frosts are projected with high confidence.
- o Decreases in winter rainfall are projected for East Coast South with medium confidence. Other changes are possible but unclear.
- o Increased intensity of extreme rainfall events is projected, with high confidence.
- o Mean sea level will continue to rise and height of extreme sea level events will also increase (very high confidence).
- o A harsher fire-weather climate in the future (high confidence).
- o On annual and decadal basis, natural variability in the climate system can act to either mask or enhance any long-term human induced trend, particularly in the next 20 years and for rainfall.

Climate analogues:  
The *Climate Change in Australia* website also provides possible climate scenarios for a region or town based on several projection climate models. The climate analogue tool matches the proposed future climate of a region of interest with the current climate experienced in another region using annual average rainfall and maximum temperature (within set tolerances). For Sydney, *Climate Change in Australia* predicts the following:  
Time frame: The predicted climate of Sydney could be similar to that experienced at the following locations:  
By 2030 Kempsey, Central Coast, Forster-Tuncurry, Taree, Newcastle, Nelson Bay, Maitland or Wauchope in central to mid northern NSW  
By 2050 Kempsey, Forster-Tuncurry, Taree, Maitland, Grafton or Wauchope in mid northern NSW  
By 2090 Casino in northern NSW or Bundaberg, Beaudesert, Mount Morgan, Brisbane, Yeppoon, Hervey Bay or Gympie in coastal SE Qld  
Effectively by 2090, the average temperatures are predicted to increase by 4.2°C and the rainfall to reduce by 23%.  
Ref: <https://www.climatechangeinaustralia.gov.au/en/climate-projections/climate-analogues/analogues-explorer/>

Impacts on Tree Selection:  
To select tree species that will adapt to the changes in climate it is important to assess the locally indigenous species to determine:

- the range over which they currently occur to determine if they can survive in the predicted climate locales as noted above. The *Atlas of Living Australia* provides details of recordings of individual species and thus provides an indication of the existing range of selected species – website address is [www.ala.org.au](http://www.ala.org.au)
- the ability of selected species to cope with extended periods of drought;
- the ability of species to tolerate hot days and extended warm spells; and,
- the ability to tolerate bushfire.

Provenance of plant stock:  
To increase the success rate and thus longevity of tree planting it is proposed to source stock from locales more in keeping with the climate analogues noted above.

PLANT LIST

Species selected from the plant list compiled by Naria Environmental Pty Ltd to reflect the Swamp *Sclerophyll* Forest Endangered Ecological Community

The following extract is from the *Swamp Sclerophyll Forest on Coastal Floodplains of the New South Wales North Coast, Sydney Basin and South East Corner Bioregions Profile* available on the NSW Office of Environment and Heritage website:

"The most widespread and abundant dominant trees include *Eucalyptus robusta* (swamp mahogany), *Melaleuca quinquenervia* (paperbark) ..... Other trees may be scattered throughout at low abundance or may be locally common at few sites, including *Callistemon salignus* (sweet willow bottlebrush), *Casuarina glauca* (swamp oak) and *Eucalyptus resinifera* subsp. *hemilampra* (red mahogany), *Livistona australis* (cabbage palm) and *Lophostemon suaveolens* (swamp turpentine). A layer of small trees may be present, including *Acacia irrorata* (green wattle), *Acmena smithii* (lilly pilly), *Elaeocarpus reticulatus* (blueberry ash), *Glochidion ferdinandi* (cheese tree), *Melaleuca linarifolia* and *M. styphelioides* (paperbarks). Shrubs include *Acacia longifolia*, *Dodonaea triquetra*, *Ficus coronata*, *Leptospermum polygalifolium* subsp. *polygalifolium* and *Melaleuca* spp. Occasional vines include *Parsonsia straminea*, *Morinda jasminoides* and *Stephania japonica* var. *discolor*. The groundcover is composed of abundant sedges, ferns, forbs, and grasses including *Gahnia clarkei*, *Pteridium esculentum*, *Hypolepis muelleri*, *Calochlaena dubia*, *Dianella caerulea*, *Viola hederacea*, *Lomandra longifolia*, *Entolasia marginata* and *Imperata cylindrica*."

Botanical Name:	Common Name:	Habit:	Height m:	Canopy Spread m:	Climatic range:	Tolerances:	Issues:
<b>Trees:</b>							
<i>Acmena smithii</i> syn <i>Syzygium smithii</i>	Lilly Pilly	shrub to small tree	8-10	6	Eastern Australia from Victoria to Qld	Tropical to temperate / sun to heavy shade / moderate frost / extended dry periods	
<i>Allocasuarina littoralis</i>	Black She-Oak	shrubby tree	5-15	3-6	Coastal and adjoining tablelands / Tasmania to Qld	Sandy poor soils /	
<i>Casuarina glauca</i>	Swamp She-Oak	tree	8-10	6-8	East coast south NSW to central Qld / coastal stream / inland rivers	Alluvial soils / high water table / waterlogged soils / some salinity	Invasive roots re water and sewer pipes / can acidify ASS soils as it lowers the water table
<i>Elaeocarpus reticulatus</i>	Blueberry Ash	shrubby tree	8-15	3-5	Eastern Australia from Northern Victoria to southern Qld	Leaves are adapting to the drier climate by becoming harder / moist gullies to rocky outcrops along the coast / not frost tolerant	
<i>Eupomatia laurina</i>	Bolwarra	understory / shrubby	3-5	1-2	Eastern seaboard from Victoria to Cape York Qld / sea level to 1200m	frost sensitive / prefers protected semi shaded site	
<i>Eucalyptus robusta</i> *	Swamp Mahogany	tree	20-30	10-15	Eastern seaboard from Southern NSW to central Qld / sea level to 50m	Swampy or waterlogged soils / tolerates ASS soils / can tolerate av temps between 3-35°C	
<i>Ficus coronata</i>	Sandpaper Fig	small tree	6-12	3-5	Eastern seaboard from Victoria to central Qld – river banks and gullies	Shady position	
<i>Livistona australis</i> **	Cabbage Tree Palm	palm	<25	4-5	Eastern seaboard from Southern NSW to southern Qld	Moist to swampy sites / sheltered and open sites / salt, frost and wind tolerant	
<i>Melaleuca linarifolia</i>	Snow-in-summer	small tree	6-10	3-6	Eastern seaboard from Southern NSW to southern Qld	Tolerates both dry and boggy conditions and is frost hardy	Invasive roots re water and sewer pipes / easily ignitable
<i>Melaleuca quinquenervia</i>	Broad-Leaved Paperbark	medium tree	8-15	5-10	Eastern seaboard Botany Bay NSW to Cape York Qld	Swamps, rivers and estuaries	Flowers twice pa / can cause sinus / allergies
<i>Melaleuca styphelioides</i>	Prickly-Leaved Paperbark	medium tree	8-15	5-10	Eastern seaboard Nowra NSW to southern Qld	Moist sites / coastal / waterways / tolerates swampy to hot and dry	
<b>Shrubs:</b>							
<i>Acacia longifolia</i>	Sydney golden wattle	Tall shrub	1-8	2-4	Southeast Australia / coastal / NSW and Vic	Frost hardy /	
<i>Banksia spinulosa</i>	Hairpin Banksia	Woody shrub	1-3	1-2	Eastern Australia from Vic to SE Qld	Coast / drought resistant	
<i>Breyניה oblongifolia</i>	Coffee Bush	Shrub	3		Southern NSW to North Qld	Range of environs	
<i>Callistemon salignus</i>	Willow Bottlebrush	Tall shrub / small tree	7-8	3-4	Sothern NSW to QLD border	low-lying river flats and damp creeks, rarely in dry areas / tolerate extended dry periods / frost tolerant	
<i>Homalanthus populifolius</i> syn <i>Omalanthus populifolius</i>	Bleeding Heart Tree	shrub to small tree	6-8	3-4	Eastern seaboard from Southern NSW to the Qld tropics	Moist soil / sun to part shade / coast and ranges	
<b>Sedges / grasses:</b>							
<i>Carex appressa</i> ***	Tall Sedge	sedge	0.8 - 1	1-2		Full sun to 50% shade / protected coast / frost tolerant	Requires trimming every 2-3 years
<i>Dianella caerulea</i>	Blue Flax-Lily	perennial herb	1	1	Eastern states of Australia / coast	Hardy / long lived / tolerant of poor drainage / snow and frost hardy / drought resistant	
<i>Gahnia clarkei</i> ***	Tall Saw-sedge	perennial	1.5 - 2.5	2	Victoria to SE Qld	Wet and dry sites / full sun to 90% shade / protected coast / frost tolerant / drought tolerant	Sharp serrated leaf
<i>Gahnia sieberiana</i> ***	Red-Fruit Saw-Sedge	perennial	1.5 - 2	1.5 - 2	Tasmania to Nth Qld / seal level to 1200m	Wet and dry sites / full sun to 50% shade / protected coast / frost tolerant / drought tolerant	Sharp serrated leaf
<i>Imperata cylindrica</i> var. <i>major</i>	Blady Grass	grass	0.7	1	Victoria to SE Asia	Full sun to 50% shade / protected coast / frost sensitive	Flammable
<i>Juncus usitatus</i> ***	sedge	0.8 - 1	0.3		Victoria to SE Qld / coast and inland	Full sun to 50% shade / protected coast / frost tolerant	Requires trimming every 2-3 years
<i>Lomandra longifolia</i> ***	Spiny-Head Mat-Rush	perennial herb	1	1	Victoria to north Qld / coast and inland	Frost, heat and drought tolerant	Spiky flower
<i>Themeda australis</i>	Kangaroo Grass	grass	0.3 – 0.7	0.4 – 0.5	Across Australia	Full sun to 50% shade	Requires trimming every year
<b>Groundcovers:</b>							
<i>Kennedia rubicunda</i>	Dusky Coral Pea	climber	<0.5	4	Eastern seaboard from Victoria to SE Qld	Full sun to part shade / resistant to drought and has some frost tolerance	
<i>Viola hederacea</i> or <i>banksii</i>	Native Violet	perennial herb	<0.1	spreading	SE Australia	Shade	

\* Nominated by Council as replacement canopy tree species  
\*\* presently occurring onsite  
\*\*\* suitable for planting in bioswale

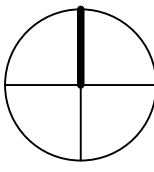
REFERENCES:  
All species searched in the *Atlas of Living Australia* for reported occurrences and climatic range:  
[https://biocache.ala.org.au/search#tab\\_simpleSearch](https://biocache.ala.org.au/search#tab_simpleSearch)  
Species information generally sourced from the following websites:  
<http://plantnet.rbgsyd.nsw.gov.au/floronline.html> PlantNet - NEW SOUTH WALES FLORA ONLINE - published by the UNSW Press, augmented with data from electronic sources maintained by the National Herbarium of New South Wales  
[https://keys.lucidcentral.org/keys/v3/plants\\_se\\_nsw\\_0ld\\_2019\\_01-11\\_delme/index.html](https://keys.lucidcentral.org/keys/v3/plants_se_nsw_0ld_2019_01-11_delme/index.html) plants of south eastern New South Wales  
<http://anpsa.org.au/index.html> Australian Native Plants Society (Australia) – ANPSA  
Others:

- Various Local Governments located on the eastern seaboard of Australia Fact Sheets
- Forestry Corporation of NSW
- Sydney Water

PLANT SCHEDULE

Botanical Name:	Common Name:	Habit:	Height m:	Canopy Spread m:	Quantities by Area:								Pot size:
Area of proposed planting in m²					A	C	D	E	F	G	H		
					484m²	9m²	17.5m²	36m²	32m²	94m²	39m²		
<b>Trees:</b>					20	0	0	0	0	0	0		
<i>Acmena smithii</i> syn <i>Syzygium smithii</i>	Lilly Pilly	shrub to small tree	8-10	6	1	-	-	-	-	-	-	-	tubes
<i>Allocasuarina littoralis</i>	Black She-Oak	shrubby tree	5-15	3-6	1	-	-	-	-	-	-	-	tubes
<i>Casuarina glauca</i>	Swamp She-Oak	tree	8-10	6-8	-	-	-	-	-	-	-	-	tubes
<i>Elaeocarpus reticulatus</i>	Blueberry Ash	shrubby tree	8-15	3-5	1	-	-	-	-	-	-	-	tubes
<i>Eupomatia laurina</i>	Bolwarra	understory / shrubby	3-5	1-2	1	-	-	-	-	-	-	-	tubes
<i>Eucalyptus robusta</i> *	Swamp Mahogany	tree	20-30	10-15	8	-	-	-	-	-	-	-	200mm
<i>Ficus coronata</i>	Sandpaper Fig	small tree	6-12	3-5	1	-	-	-	-	-	-	-	tubes
<i>Livistona australis</i> **	Cabbage Tree Palm	palm	<25	4-5	4	-	-	-	-	-	-	-	tubes
<i>Melaleuca linarifolia</i>	Snow-in-summer	small tree	6-10	3-6	1	-	-	-	-	-	-	-	tubes
<i>Melaleuca quinquenervia</i>	Broad-Leaved Paperbark	medium tree	8-15	5-10	1	-	-	-	-	-	-	-	tubes
<i>Melaleuca styphelioides</i>	Prickly-Leaved Paperbark	medium tree	8-15	5-10	1	-	-	-	-	-	-	-	tubes
<b>Shrubs:</b>					48	0	0	0	0	0	6		
<i>Acacia longifolia</i>	Sydney golden wattle	Tall shrub	1-8	2-4	12	-	-	-	-	-	-	-	tubes
<i>Banksia spinulosa</i>	Hairpin Banksia	Woody shrub	1-3	1-2	12	-	-	-	-	-	-	6\$	tubes
<i>Breyניה oblongifolia</i>	Coffee Bush	Shrub	3		12	-	-	-	-	-	-	-	tubes
<i>Callistemon salignus</i>	Willow Bottlebrush	Tall shrub / small tree	7-8	3-4	-	-	-	-	-	-	-	-	tubes
<i>Homalanthus populifolius</i> syn <i>Omalanthus populifolius</i>	Bleeding Heart Tree	shrub to small tree	6-8	3-4	12	-	-	-	-	-	-	-	tubes
<b>Sedges / grasses:</b>					512	36	72	100	100	375	100		
<i>Carex appressa</i> ***	Tall Sedge	sedge	0.8 - 1	1-2	64	-	24	-	-	-	75	25	tubes
<i>Dianella caerulea</i>	Blue Flax-Lily	perennial herb	1	1	64	36	24	70+	-	50	-	25	tubes
<i>Gahnia clarkei</i> ***	Tall Saw-sedge	perennial	1.5 - 2.5	2	64	-	-	-	-	50	75	25	tubes
<i>Gahnia sieberiana</i> ***	Red-Fruit Saw-Sedge	perennial	1.5 - 2	1.5 - 2	64	-	-	-	-	-	75	25	tubes
<i>Imperata cylindrica</i> var. <i>major</i>	Blady Grass	grass	0.7	1	64	-	-	-	-	-	-	-	tubes
<i>Juncus usitatus</i> ***	sedge	0.8 - 1	0.3	64	-	-	-	-	-	-	75	-	tubes
<i>Lomandra longifolia</i> ***	Spiny-Head Mat-Rush	perennial herb	1	1	64	-	24	30^	-	-	75	-	tubes
<i>Themeda australis</i>	Kangaroo Grass	grass	0.3 – 0.7	0.4 – 0.5	64	-	-	-	-	-	-	-	tubes
<b>Groundcovers:</b>					128	0	0	44	28	0	43		
<i>Kennedia rubicunda</i>	Dusky Coral Pea	climber	<0.5	4	64	-	-	14	8	-	4	tubes	
<i>Viola hederacea</i> or <i>banksii</i>	Native Violet	perennial herb	<0.1	spreading	64	-	-	30#	20	-	39	tubes	

\* Nominated by Council as replacement canopy tree species \*\* presently occurring onsite \*\*\* suitable for planting in bioswale  
+ locate adjacent to the fill banks and the path ^ locate adjacent to the building # locate in shaded areas  
\$ 200mm diam pot



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Project:  
**Proposed Gym**  
**Indoor Recreation Facility**  
**39 Cabbage Tree Rd**  
**Bayview NSW 2104**  
Client:  
**Jason and Janine Crawford**  
Sheet Title:  
**Plant Schedules**  
Scale: Plan and Bar Scale @  
0  
Base drawing supplied by  
Date: August 2019 (refer amends table)  
Dwg no: 1905/5 sheet 5 of 5  
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