LEND LEASE

JORDAN SPRINGS
Melaleuca Park & Eastern Basin
LANDSCAPE DEVELOPMENT APPLICATION

JOR-0013 Issue E 16/09/2015

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MELALEUCA PARK & EASTERN BASIN
LANDSCAPE DEVELOPMENT APPLICATION

Client:
Lendlease

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JOR 0013	E	16/09/2015	ER	MOD	MOD	DA	DA Submission

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Source: Nearmap (2015)

SITE & CONTEXT

The Eastern Lake is located along the eastern boundary of the Jordan Springs Western Precinct. Village 5 is located to the north of the lake (known as Melaleuca), and is the lot identified as this development's local park. The site is bounded by the Wianamatta Regional Park to the east, Lakeside Parade to the south, Greenwood Parkway to the west and Callistemon Circuit to the North. The total area of the site including the Melaleuca Park, Eastern Lake and Lake Surrounds is 65,571m2.

Surrounding the site to the south, west and north, are residential subdivision areas in various stages of construction with typical detached dwellings. Inset into the site are three lots of proposed integrated housing with views and drainage corridors providing access points into the heart of the site. The Eastern Lake is the second lake in the Western Precinct of Jordan Springs, with the Village Lake located to the east. This lake is the last element in the Western Precinct's major stormwater system prior to its discharge into the Wianamatta Regional Park.

The site has been cleared apart from the stand of trees within the Village 5 Park area and the seven existing trees to the north west. These trees are intended to be retained, which includes the large Melaleuca which the Village and Park are named. Protection measures are currently in place around these existing trees.

SCOPE OF THIS APPLICATION

The Development Application for the civil and stormwater works has been approved by Council on 8 April 2015. A number of key elements including the batter and maintenance access requirements were covered under this DA. The site is currently operating as a detention and siltation basin for the subdivision works and some of the bulk earthworks have been undertaken. This application is for the landscape embellishment works, as required under the Voluntary Planning Agreement (VPA). The Lake surrounds and the Melaleuca Park have been considered as one site to ensure seamless integration between the spaces.

PLANNING CONTEXT

The planning instruments relevant to the Eastern Lake and Melaleuca Park are the Western Precinct - Precinct Plan, Development Control Strategy and Planning Agreement Commitments, and the Sydney Regional Planning Policy No.30 ADI St Mary's. The site is identified in the Precinct Plan as the Eastern Basin Park (C) and identifies the requirements of the site as follows:

- Provided as a node at the western end of the east-west drainage / vegetation corridor to complement local and pocket parks in serving the adjoining neighbourhoods;
- Adjoins proposed stormwater basin which will provide a permanent standing water body, providing visual and recreational potential;
- Integration with the corridor will optimise landscape and visual amenity and provide good connectivity via the corridor shared access path;
- Corridors primarily relate to site drainage lines identified as suitable for rehabilitation for riparian and recreational purposes; and
- All corridors provide potential for off road cycle/pedestrian linkages.

The Planning Agreement Commitments requires the following inclusions:

- Play space
- Picnic facilities
- Associated landscaping
- Internal/street path linkages and connections to cycle/pedestrian links
- Native canopy tree planting – non linked canopies within fire protection zone
- 15% of open space permitted to contribute to stormwater detention

LANDSCAPE DESIGN PROPOSAL

Lake Surrounds

The Lake's initial function is as a detention basin as part of the wider Jordan Springs storm water network, however it will also serve as an important community asset for open space, recreation and creation of native habitat. The character of the Lake will be quite different to the Village Lake. It will be more naturalistic and informal, taking advantage of the significant macrophyte filter beds as a wetland habitat for water birds.

One of the requirements for the detention basin is the provision of a 3 metre wide concrete access path loop around the basin with a number of access points. The landscape concept utilises this path as a recreational loop around the lake. Some minor adjustments have been made to the path locations (as shown on the Civil DA), to accommodate the retention of existing trees and better integrate the path into the design. These changes are illustrated on the Stormwater drawings submitted with this application. Additional access locations have been added to those required for maintenance to provide better permeability and integration into the surrounding street network. Open views are maintained at these entrance points to maximise visibility into the site. Around the main loop path distance markers will be inset to allow people to run or walk measured laps of the lake for exercise. Seating, bins and bike racks are provided at a number of nodes around the Lake.

A pedestrian and cycle path will loop around the lake without joining the street footpath network, and a lower viewing deck has been introduced off the path. The viewing deck with seating is located centrally to allow people to pause and view the lake from the southern side and an opportunity to appreciate the wetland habitat up close.

Existing site photo showing present earthworks and detention basin

Prize existing Melaleuca Tree which the park will be named after

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Lake Surrounds (continued)

The structure of the viewing deck will be fibre reinforced plastic (FRP) with a timber kerb rail and FRP mini mesh deck. This deck will be raised a maximum of 800mm above the bank in order to avoid the need for handrails. An interpretive element will be installed along the edge of the deck explaining the birds which may be observed on the lake.

The lake side experience has been enhanced through tree planting in selected locations to allow framed views to the lake, and areas of enclosure and shade.

The path on the northern side of the lake curves around the existing Melaleuca tree to exclude incursion within the Tree Protection Zone (TPZ).

The majority of the lake's banks will be planted with native species to enhance the natural character, biodiversity and habitat opportunities. Where required, bank stabilisation will be installed to avoid erosion and a wash barrier, such as a line of natural stones, will be included at the base of the bank where erosion can be exacerbated by the action of small wind blown waves.

Play Space

The playground in the local park will be unique to Jordan Springs. The existing grove of spotted gum has been retained and the park concept is based around the experience of being within the trees. The play areas and water play space will be nestled within the existing clearings in the trees along the meandering discovery tadpole trail. The play equipment has been selected to serve a range of age groups and abilities and for its quality and durability. Various items of equipment depict the common local native flora and fauna in order to create the sense of place. Refer to DA 15 for selected play equipment.

From the East entrance, the discovery trail begins at the head of the tadpole where there is a carved native 'critter' surrounded by planting, a double swing, and two in-ground trampolines set into a rubber soft fall surface and bark mulch.

The trail curves around a play space with two white faced heron tree house structures. Each heron tree house has a climbing net allowing children to climb up to a timber platform deck. The 'mother' heron has a platform deck height of 2.1m for older children and the 'baby' heron has a platform deck height of 1.5m for younger children. The 'mother' heron has a slide and the 'baby' heron has a raised viewing deck. Beneath the heron structures are eggs and balancing logs which surround the bark mulch surface. The North facing balancing log has a 'North' carving for children to navigate whilst viewing from the platform decks.

At the centre of the discovery tadpole trail is a frog and frog eggs for children to climb on. The planting around the frog reveals secret clearings and steppers to hop across. A steel frame pulgi hideout is located two metres from the discovery trail and forms an open den for children to play inside.

Further along the discovery trail is a gathering sandpit circle with mushroom seats, surrounded by sandstone boulders. This sandpit area is adjacent to a water play area with a hand pump, rills and weirs which can be used by children of all abilities. The pump would be connected to the potable water supply via a pipe under the adjacent access path through the trees. The system has a low water flow and must be pumped hard to get water out. As such, there is no danger of the water being left to flow. The rills have been sized to avoid runoff from the system, however, should enough water be pumped to overflow the rills, it will simply run into the surrounding bush through a small area of natural rocks.

Children are able to bring the water into the sand area to explore the texture and mutability of the open-ended medium. As children experiment with the properties of sand and create their own castles, they can decorate the objects with stones, leaves, and flowers that they find in nature.

At the termination of the tadpole trail is a climbing maze with cicada life cycle.

It is understood that a WIFI network is to be rolled out across Jordan Springs and a post and box will be located in the park. The form and location will be coordinated with the provider prior to installation.

Kick-about Space

A turfed ellipse to the south of the tree grove defines a more formal kick about space. This space is defined by a concrete path to the south, and a seating wall to the north; this allows the lawn space to be maintained easily as a separate area to the surrounding grassed areas. The path provides access to the top of the lake bank and the seating wall addresses the level change between the existing trees and the main maintenance access path. This northern section of the space provides more passive viewing of the main section of the lawn.

Adjacent to the kick about space (where the bank grade is no steeper than 1:6), there is a grassed area to allow viewing and relaxing opportunities overlooking the lake.

Melaleuca Grove

Flanking the kick about space at the top of the lake bank is the Melaleuca Grove. This grove of trees is set in turf and provides a sheltered area for picnicking and passive recreation with views to the lake. Amongst the trees is a picnic shelter with tables and benches. The tree grove will be planted in rows which allow view corridors through to the lake from the play space to maintain this important visual link.

Interface with Integrated Lots

The integrated housing will be developed separately and as such, the landscape design is based around the intended design principles for these lots. The intention is for these dwellings to be designed with their main living spaces on the first floor with outdoor terraces at this upper level to look out to the lake. The surrounding landscape design generally provides a planted buffer zone for privacy and separation from the public space. The rear fences of the lots are currently intended to remain low (1.2m), to allow surveillance over this fence from the lots and afford the residents a view of the lake.

Planting in the buffer zone will be of low shrubs and clear trunked trees to maintain visibility and avoid potential opportunities for concealment. The precise location of the trees will be determined following the determination of the lot layout in order to avoid conflicts with views from the dwellings.

Existing & Proposed Vegetation

The Melaleuca Park has a great asset in the grid of existing spotted gum, which has been retained on site. The park has been designed within this grove to take advantage of the shade and character it provides. The equipment, paths and soft fall areas have been carefully located within existing clearings and away from the significant specimens to minimise the need to remove trees, and reduce any stress the design may have on the existing trees. In addition to the main tree grid, a number of self seeded trees have now grown. These vary in health and some are dead. As recommended by the Arborist report, selective thinning of these trees will be undertaken to ensure the health of the larger specimens.

Six large eucalypts and the Melaleuca have also been retained to the north west of the site. These trees will also be protected as required during construction. Any tree surgery required to remove unsafe limbs will also be undertaken as part of the works.

Existing grid of spotted gum to be protected and retained throughout construction

Existing understorey of tree grove to be retained

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Existing & Proposed Vegetation (continued)

The intention for the understory of the tree grove area is to maintain the existing grass and herb layer by implementing appropriate fencing and sediment controls during construction. This layer is made up of low native grasses, herbs and shrubs allowing clear surveillance through this wooded area and requiring minimal maintenance from day one. Where protection is not possible in the zone surrounding the construction, remediation planting of low native grasses and shrubs will be installed. This planting will remain informal along the discovery trail. Limited ornamental planting will be used to highlight the entrances to the site.

The planting around the Lake will consist of three areas. The top section of the banks which is inundated infrequently will be planted with low shrubs, and clear trunked trees in selected areas to provide shade and a variety of experiences around the lake. The lower areas of the bank will be inundated more frequently and as such, suitable low shrub species will be selected for these conditions and to maintain visibility. At the base of the batters are a number of macrophyte beds that form part of the water treatment system. The species in these beds will be suitable to carry out this function as well as to attract native birds and animals to this type of wetland environment.

The species within the site have been selected from the Native Vegetation of the Cumberland Plain (NPWS 2002) and Western Precinct (Jordan Springs) Vegetation Management Plan (2015) subject to the scale and extent of the Lake. This will ensure the Park will be in keeping with the wider Jordan Springs Development, and maintain a native palette sympathetic to the communities indigenous to the site, as found in the Regional Park. Planting throughout the site will generally be high canopied trees with clear trunks, and low shrubs and grasses. The exception to this will be the area to the north in front of the integrated housing where the maintenance access path gets very close to the fence line. In this area, it may be appropriate to plant some taller shrubs for the privacy of these dwellings.

The species selected will be largely native, low fire risk and with low water requirements. Watering will be provided during the establishment period but no permanent irrigation system is proposed.

Materials

The materials for the site have been selected for there safety, durability and low maintenance requirements as well as their aesthetic qualities. In general, paths will be concrete with a broom finish. The play area will be rubber soft fall in a neutral colour to tie in with the surrounding vegetation. The discovery path will also be soft fall to allow the equipment to be set close to it with mulched softfall in the areas around each item to help blend these into the setting and add to the sense of discovery. The water play will be high quality stainless steel equipment set on a concrete slab with cast in rills.

Due to the unique wooded character of the site, timber has been selectively introduced to enhance this character. The timber elements will be high quality play equipment and the kick rail to the viewing deck. The main construction of the viewing deck will be FRP including the piers, structure and the mini mesh decking.

The shelter structure will be steel with powder coated finish as per the shelters at the Village 4 Park. No Corten finishes will be used on the site.

Furniture

Furniture has been selected for durability, ease of maintenance and aesthetic and functional qualities. Benches, bins, bike racks, the shelter and picnic tables will be consistent with those used throughout the Jordan Springs development, and specified on the design drawings.

Public Art

A public art element will be incorporated into the parkland. The work is likely to be related to the lake and wetland location and will be designed and approved separately to this DA.

Accessibility & Inclusive Design

All paths around the site have been designed to grades to allow accessibility and will be designed to comply with AS1428. The play spaces have not been designed to be fully inclusive as the Touched by Olivia play area is located at the Northern Oval for this purpose. The design does however, provide a number of elements suitable for children with disabilities including tactile and fine motor boards, and the raised timber water rills. The play areas are accessible throughout for both prams and wheel chairs, with space to park adjacent to the built in bench seating throughout the park. The majority of the bench seats will have arms and back rests, except where the seat is to serve both directions. The picnic table will also be accessible to wheelchairs.

Safety and Security

Safety and security within the parkland is of paramount importance to the success of the space in contributing to the community. Access, both visual and physical, into the site is somewhat limited by the integrated housing lots. Wherever corridors exist between these lots, open grassed areas, clear trunked trees, and low shrubs maintain views into the Lake while providing some visual softening and shade. The Play space design considers the fall zones of all equipment and the soft fall is provided to appropriate depths calculated for the fall distances.

The main play areas are located within the existing grove of trees. It can be seen from the photographs provided (DA 19, Photographs 1-4). The clear trunked trees and low grass understorey provide site lines deep into the park. The clearing of saplings and larger shrubs will enhance this further. For safety, the equipment will comply with the required Australian Standards. The play equipment will be generously spaced in order to maintain clear visibility. The materials selected meet the requirements for slip resistance and paths (particularly within the grove area), will be able to be easily swept or blown to remove leaves, as part of the maintenance of the park.

The water play rills have been designed to minimise the quantity of water running into the outflow. Due to the slow pumping action and the length of the rills, the water will seldom reach the end of the rill meaning that there is little risk and safety issues caused by ponding of the water. A natural rock outfall will be provided at the outlet just in case the water does get this far.

The trees to be retained will be maintained as necessary, in accordance with the Arborist's Report, which makes recommendations on the removal of unsound trees and tree surgery to minimise the risks of limb drop.

No lighting is to be installed within the park so as to discourage night time use.

Proposed concrete with broom finish, as photographed at Village 4 Park

Proposed shelter, as photographed at Village 4 Park

Proposed seating, as photographed at Village 4 Park

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The design of the park has carefully considered the accessibility of the lake and introduced a number of measures to mitigate potential risks, such as downing. The measures of mitigation include:

- Flows coming into and out of the site in areas accessible to residents will be designed and managed to minimise any safety risks including minimising the flow depth to avoid user contact with water.
- The majority of the banks will be planted with mass native planting to deter access to the water.
- The water body has extensive macrophyte planting zones which fulfil a water treatment function. These beds will double as safety walk out zones. In particular, a walk out zone is provided in front of the kick about space to avoid children running in to retrieve a ball.
- Where an unbuilt treatment to restrict access, such as around a culvert area, is not practical, safety fencing will be installed to deter access.
- Safety signage, life rings and all other warning devices will be installed as required.
- Contrast edges will be provided to the viewing deck.

Bushfire

As required by the Office of Environment and Heritage, access shall be provided to the basin for the purpose of a static water supply for fire fighting purposes. The access trail is provided along the eastern boundary adjacent to the boundary with the Regional Park. The trail can be accessed at both ends with an additional access across the grassed area to the North (adjacent to the Melaleuca Park). Given the space constraints, it is not feasible to provide a turnaround area, however as the trail has an alternate exit, appropriate signposting for the trail will be provided. A 4m wide path, suitable for Category 1 vehicles, is proposed with an additional 1m on each side, clear of shrubs and long grasses with no overhead obstructions. The Council access ramp to the water can be utilised for the vehicle hard stand area to drought water at the permanent water level with additional access possible from above the culvert under the spillway at less than 4m. The Lake will not be available for aircraft access.

The Bushfire Report prepared by Eco Logical requires the APZ on the site to be managed open space or open water to a distance of at least 100m so that an APZ or construction standards are not required for new dwellings within Village 5. A buffer screen planting strip is to be provided to screen the macro-fauna fence and visually integrate the Regional Park. To compensate for this planted zone an additional 10m will be added to the existing APZ's to compensate to the eastern side of the site.

In order to meet the performance objectives for this zone, no tree canopy will occur within 2m of a future dwelling roof line and trees or groups of trees within the APZ will be separated by 2-5m. The shrub planting in the parkland will not be close enough to ignite an adjacent building due to the setbacks within the integrated housing lots.

The proposed APZs will be maintained, achieving the performance objectives of an Inner Protection Area (IPA), including reduction of ground fuel to maintain less than 4 tonnes per hectare of fine fuel.

Maintenance

The park has been designed in zones which will have clear levels of maintenance. The Melaleuca Park play spaces and kick about area will be the highest maintenance areas. The tree grove area not directly associated with the play areas will be maintained in its natural state to reduce maintenance requirements. The remainder of the park including the screen planting, lake surrounds and banks will also have low maintenance requirements.

All lawn areas will be accessible by ride on mowers and plant species will be selected to reduce maintenance demands. At junctions between two soft finishes, timber edging will be installed to maintain the definition and assist in maintenance. The lake will be accessed by a full loop path (a minimum of 3m wide), with entry from four points around the site and an access ramp to maintain the lake itself. The design minimises maintenance through appropriate selection of hard and soft materials.

An area to enable Council to dry weeds from the basin has been provided adjacent to the basin access ramp on the turfed area. An additional Council Maintenance Area is provided on the turfed area beside the access path off Bungendore Circuit.

Detailed maintenance will be provided in the Maintenance Manual at the Construction Certificate Stage.

Existing detention basin

Erosion control matting and lakeside planting

Accessible / user friendly

Existing tree grove

Sandstone seating walls around kick-about space.

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LEGEND

1. Existing Melaleuca Tree
2. GPT Access
3. Indicative Basin Access
4. Existing Significant Trees - refer to DA 17
5. Existing Dense Tree Grove - refer to DA 16
6. Shade Zone from Tree Grove
7. Existing Lay-by
8. Integrated Development Sites
9. Existing Street Trees
10. Future Street Trees
11. Planned Access Points
12. Village 5 Park Boundary
13. Rock Lined Inlet
14. Rock Lined Outflow
15. Culvert Crossing
16. Regional Park
17. Residential Development
18. Macrophyte Bed
19. Permanent Water Level 23.9m
20. Planted, Stabilised Banks
21. Substation

- Regional Park Access
- Major Access Point
- Vehicular Network
- Key Node
- View Corridor
- View to Regional Park
- View into Lake from Lakeside Parade
- Regional Park Address
- Macrofauna Fence
- Storm Water Connection
- Regional Park Interface
- Asset Protection Offset
- Overland Flow Path
- 3m Lake Loop Path
- Integrated Site Interface

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JOR-0013 DA 07

SITE ANALYSIS PLAN

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LEGEND

1. Existing Melaleuca Tree with raised deck path
2. GPT Access
3. Basin Access Ramp
4. Existing Significant Trees Retained
5. Open Water
6. Cycle Parking
7. Access Path
8. Soften Rock Outflows
9. Macrophyte Beds
10. Planted Stabilised Banks
11. Existing Significant Tree Grove Retained
12. Pump, Rills and Seating Area
13. 3m wide Loop Path with 100m markings
14. Screening to Integrated Development
15. Formal Kick About Area
16. Viewing Deck off deck path with seating and bird Interpretation on Edge.
17. Picnic Shelter
18. Play Area
19. Filtered Views Along Lakeside Parade
20. Council Maintenance Area
21. Max Water Level 1:20yr = RL 25.9
    Max Water Level 1:100yr = RL 26.1
22. APZ Zone Shifted to Allow Screen Planting
23. 4m +2 Allows for RFS Access Requirements
24. Future Integrated Lots

- Existing Trees to be retained
- Proposed Tree Planting
- Proposed Melaleuca Grove
- Proposed Embankment Tree Planting
- Proposed Low Level Screen Planting
- Proposed Embankment Shrub Planting
- Proposed Macrophyte Planting
- Proposed Long Grass
- Proposed Turf
- Proposed Kickabout Lawn
- Fencing
- Max Water Level 1:20yr = RL 25.9
- Max Water Level 1:100yr = RL 26.1

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LANDSCAPE PLAN

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SECTION A-A
1:250@A3

Street trees

Future integrated lots are indicative only and subject to future design and approvals.

Fencing to lot boundary 1200mm in height

Low level planting with clear stem trees

Embankment tree planting maximum 2m from the water line

Embankment shrub planting

28.00

1:30 fall

27.40

27.50

Maximum water level 1:100 yr RL +26.1m
Maximum water level 1:20 yr RL +25.9m
Permanent water level RL +23.9m

5500

3000

Greenwood Parkway
Public verge
Private Driveway
Future Integrated Lots
Private outdoor space
Planting
Turfed area
Concrete Loop path
Stabilised 1:5 batter with erosion control matting
Rock lining
East Lake

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1:250 @A3
0 2 4 6 8 10m

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SECTION A-A Lakeside Parade

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SECTION B-B
1:250@A3

Macrophyte planting
Embankment shrub planting
Low level planting with clear stem trees
Fencing to lot boundary 1200mm in height
Future integrated lots are indicative only and subject to future design and approvals.
Street tree planting

Maximum water level 1:100 yr RL +26.1m
Maximum water level 1:20yr RL +25.9m
Permanent water level RL +23.9m
24.00
26.00
1:10 slope
27.25
27.75

3000
5500

East Lake
Stabilised 1:4 batter with jute matting
Concrete Loop path
Turfed area
Planting
Private outdoor space
Future integrated lot
Private driveway
Public verge
Bungendore Circuit
Public verge works by others

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1:250 @A3
0 2 4 6 8 10m

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SECTION B-B Bungendore Circuit

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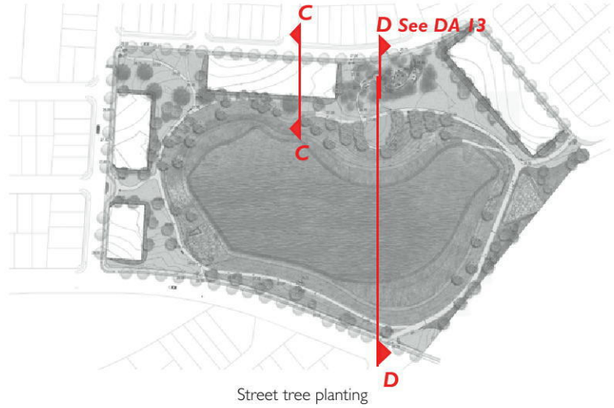
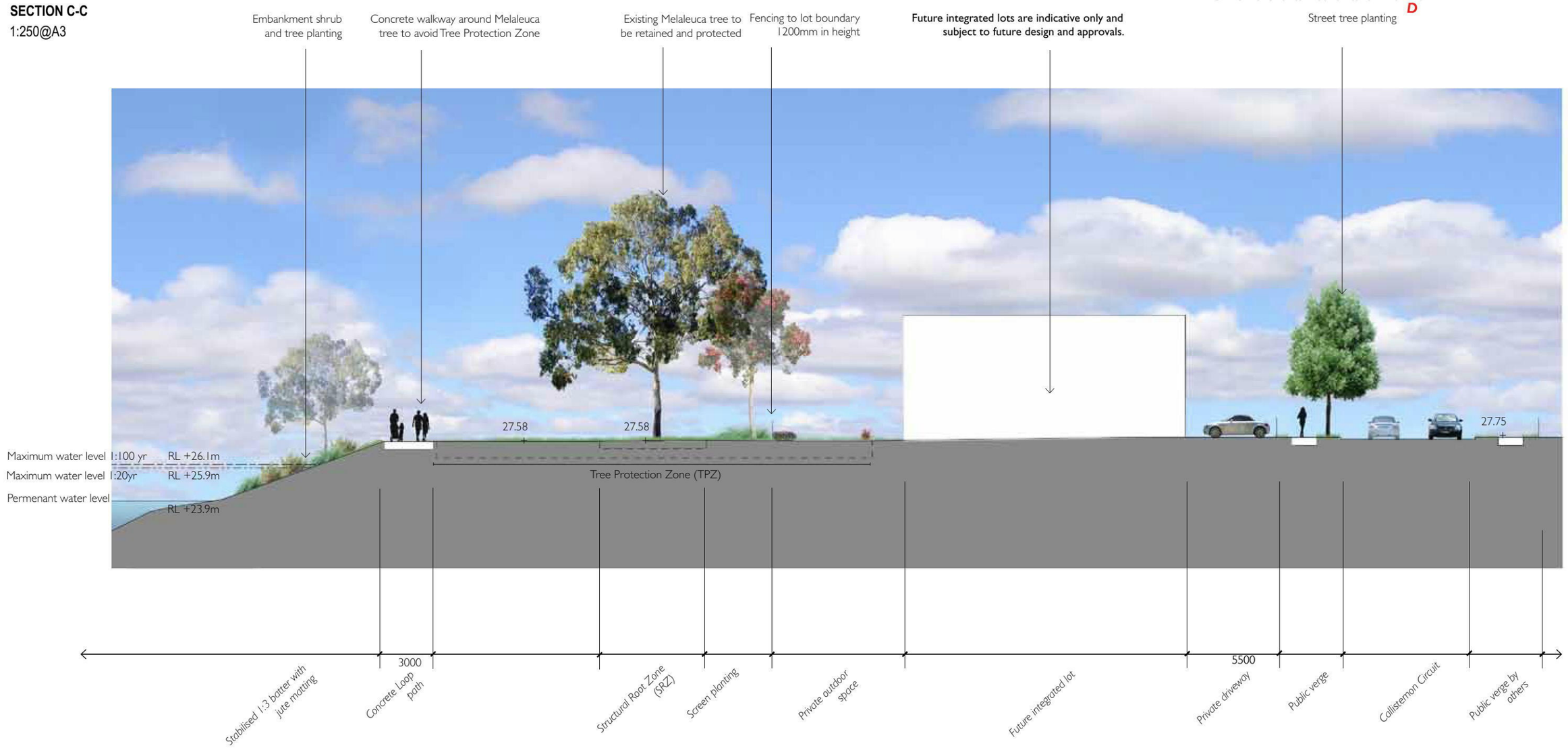


SECTION C-C
1:250@A3



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SECTION C-C Callistemon Circuit

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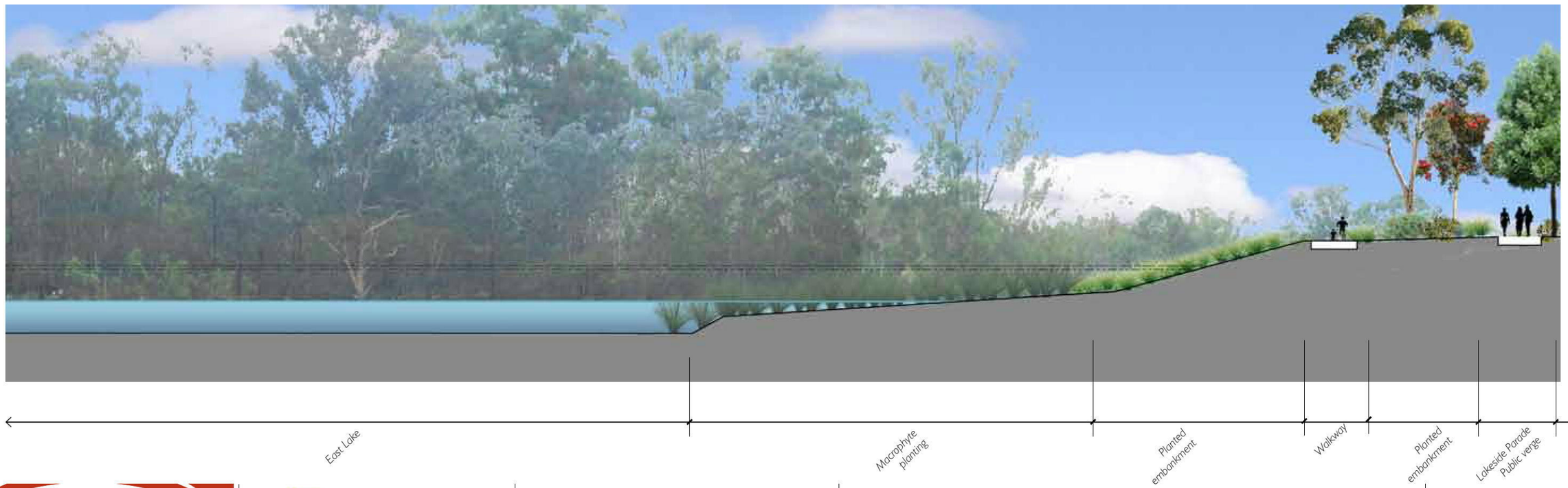
JOINS TO SECTION D-D PART B

SECTION D-D PART B



JOINS TO SECTION D-D PART A

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1:250 @A3

0 2 4 6 8 10m

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SECTION D-D Callistemon Circuit to Lakeside Parade

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Softfall rubber
Softfall mulch
Sandpit
Broom finish concrete path
Surface remediation
Managed kickabout space
Existing grass and herb layer
Proposed tree planting

LEGEND

1. Wooden carved native 'critter'
2. Steel frame pulgi
3. Wier
4. Water pump
5. Timber steppers
6. Gathering sandpit circle with sandstone boulders and mushroom seats
7. Frog and adjacent frog eggs
8. Balancing logs
9. White faced heron climbing structure with 2.1m high deck
10. White faced heron climbing structure with 1.5m high deck
11. Heron eggs
12. In-ground trampolines
13. Double swing
14. Timber climbing maze with cicada life cycle
15. Seating

ACCESSIBILITY

A. Wheelchair space beside seating wall
B. Cycle parking
C. Distance markers
D. Opening in seating wall to provide direct connection to playground

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1:250 @A3

0 2 4 6 8 10m

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MELALEUCA PARK - DETAILED PLAN

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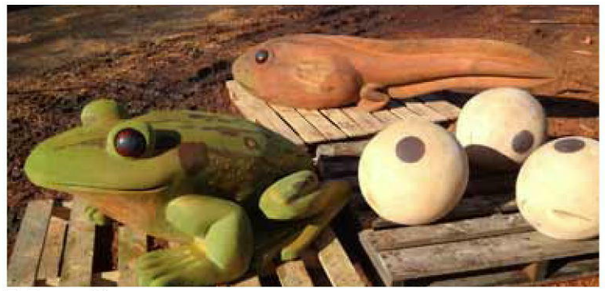
1. Wooden carved native ‘critters’

6. Gathering circle with mushroom seats and surrounding sandstone boulders

11. Heron eggs

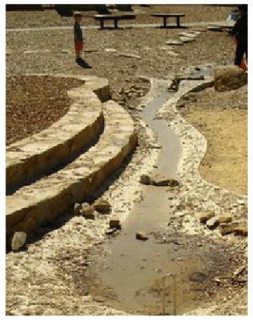
Discovery elements throughout the site

2. Steel frame pulgi



7. Frog and frog eggs

12. In-ground trampolines



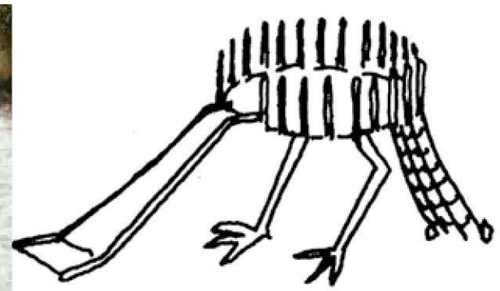
3. Water channel 4. Water pump
*Note: Concrete surface, not sand. No recirculation / water runs off into planting

8. Balancing logs

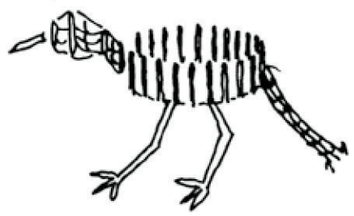
13. Double swing

5. Steppers

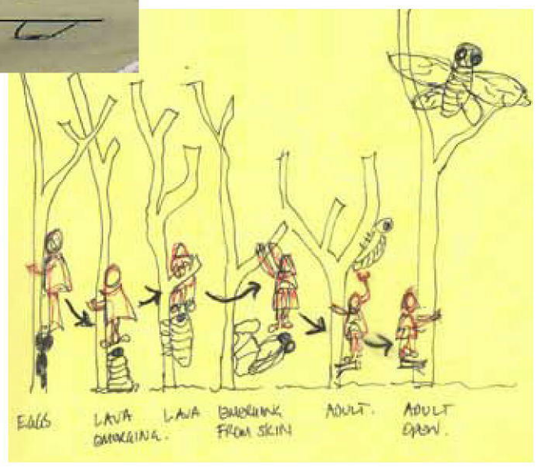
6. Gathering sandpit circle



9. White faced heron climbing structure with 2.1m high deck, slide and rope climbing net



10. White faced heron climbing structure with 1.5m high deck, secondary viewing deck and rope climbing net



14. Timber climbing maze with cicada life cycle (similar intent to above steel example)

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MELALEUCA PARK - PROPOSED PLAY EQUIPMENT

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LEGEND

- *Existing high significance tree to be retained*
- *Existing medium significance tree to be retained*
- *Existing low significance tree to be retained*
- *Tree to be removed*
- T49 *Existing tree number*
- *Structural Root Zone*
- *Tree Protection Zone*

NOTE:
To be read in conjunction with the Arboricultural Impact Report prepared by Arboreport 23.06.15 and the Supplementary Arboricultural Impact Report prepared by Fiddlehead Landscape Design 14.09.15.

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1:250 @A3

0 2 4 6 8 10m

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MELALEUCA PARK - TREE RETENTION AND REMOVAL | 16/09/15 Issue E

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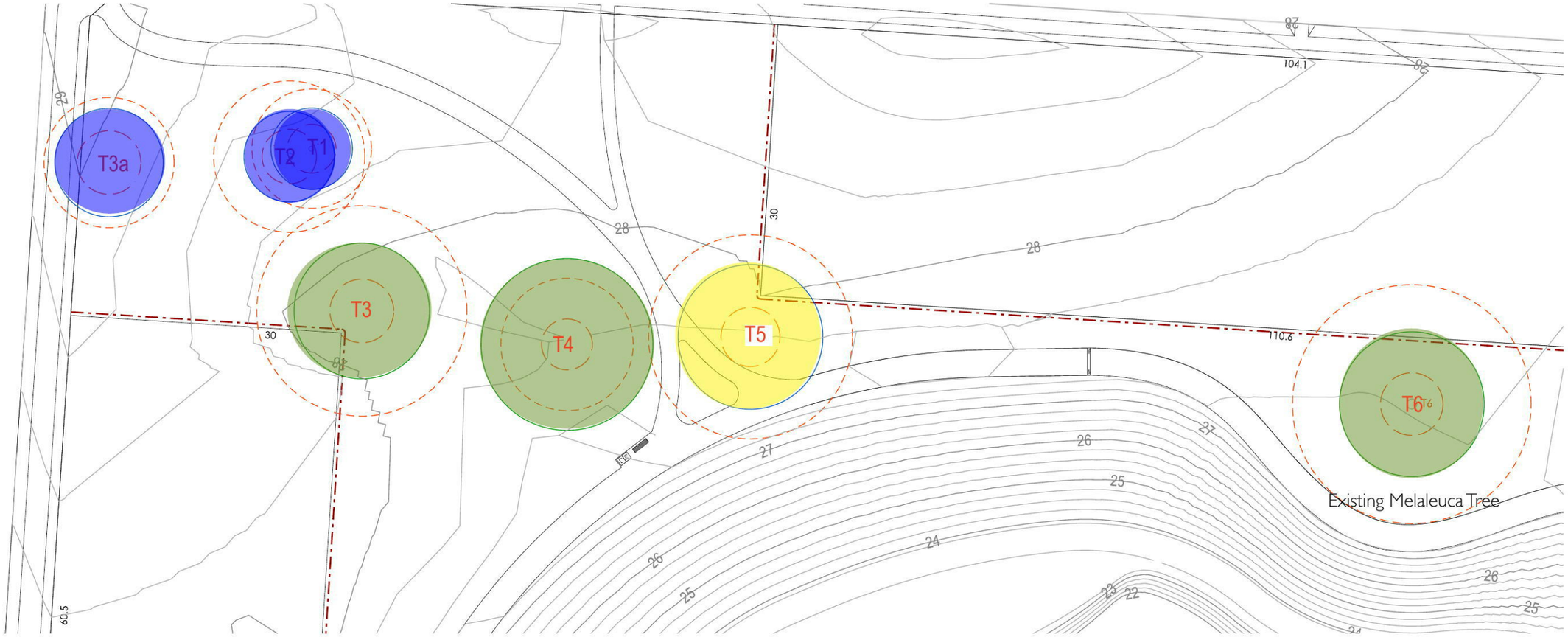

LEGEND

- Existing high significance tree to be retained
- Existing medium significance tree to be retained
- Existing low significance tree to be retained
- Tree to be removed
- T49 Existing tree number
- Structural Root Zone
- Tree Protection Zone

NOTE:
To be read in conjunction with the Arboricultural Impact Report prepared by Arboreport 23.06.15 and the Supplementary Arboricultural Impact Report prepared by Fiddlehead Landscape Design 14.09.15.

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1:500 @A3
0 5 10 15 25m

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LAKE SURROUNDS - TREE RETENTION AND REMOVAL

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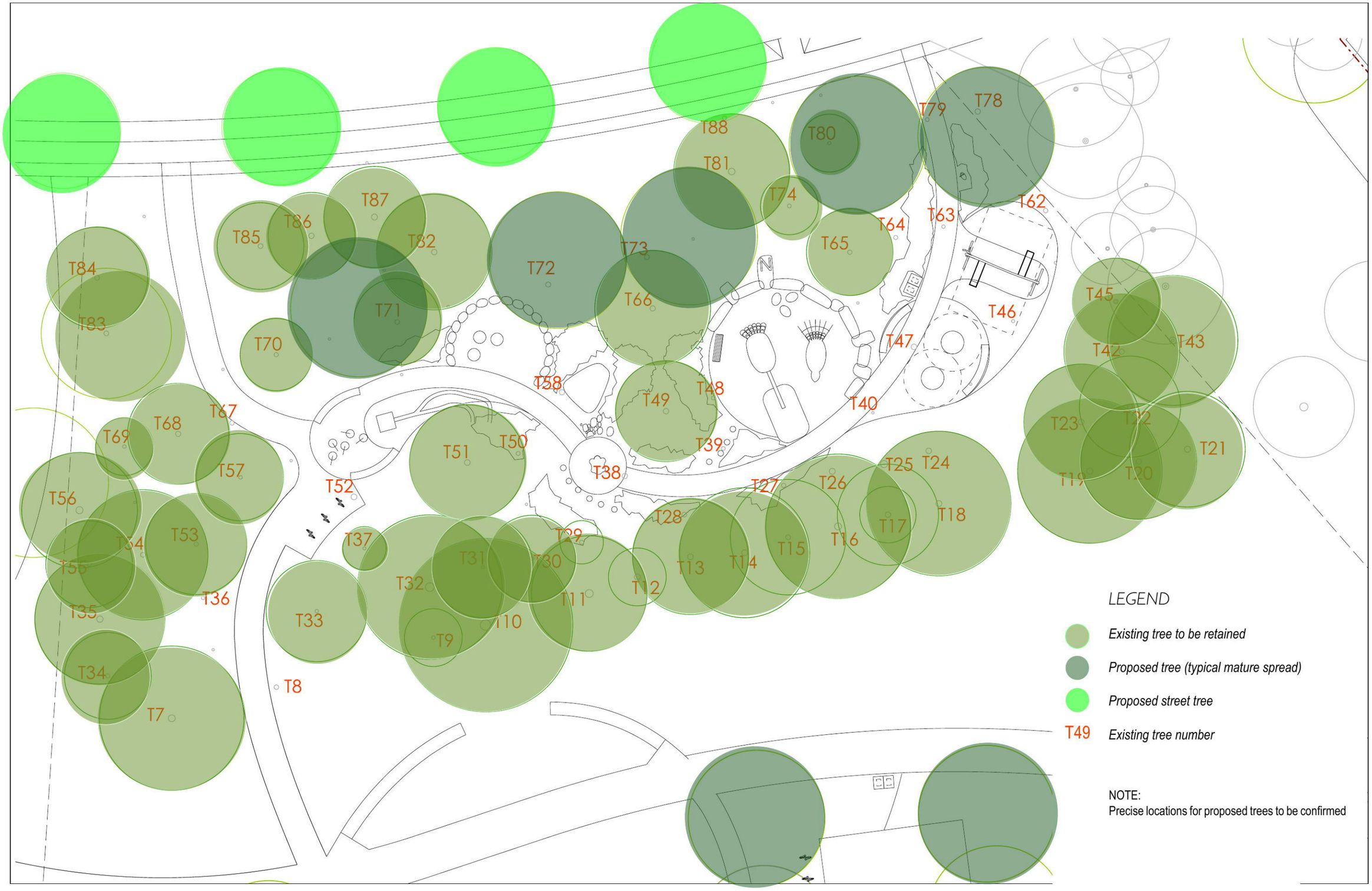

LEGEND

Existing tree to be retained

Proposed tree (typical mature spread)

Proposed street tree

T49 *Existing tree number*

NOTE:
Precise locations for proposed trees to be confirmed

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MELALEUCA PARK - PROPOSED TREE PLANTING

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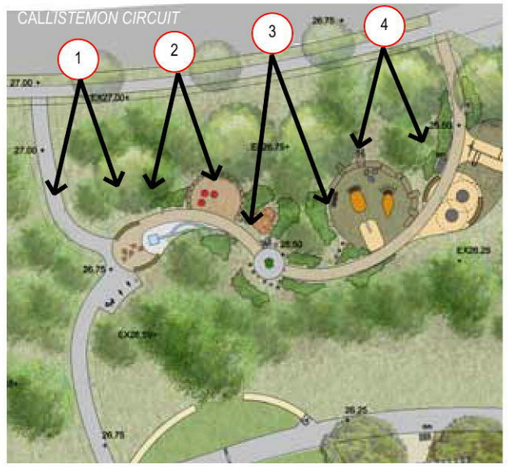

PHOTOGRAPH LOCATION AND DIRECTION KEYPLAN

A surveillance and visibility assessment was undertaken on site to assess the visual permeability of the play area within the existing woodland.

Photos were taken to understand the visibility of a person at various locations within the play area and associated path networks. The photos were positioned and taken from Callistemon Circuit.

From the site study the following conclusions could be drawn:

- There is presently minimal understory planting which allows strong views within the woodland;
- All existing trees within the woodland are clear stemmed with canopies set at a great height from the ground level;
- Additional clearing of self-seeded trees will be undertaken as advised in the Arbor Report and overseen by a qualified Arborist.

This resulted in a high visual surveillance of the play area from external positions bordering the woodland. This will ultimately increase the safety of the playground and prevent antisocial behaviour.

PHOTOGRAPH 1

PHOTOGRAPH 2

PHOTOGRAPH 3

PHOTOGRAPH 4

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MELALEUCA PARK - SAFETY AND SURVEILLANCE

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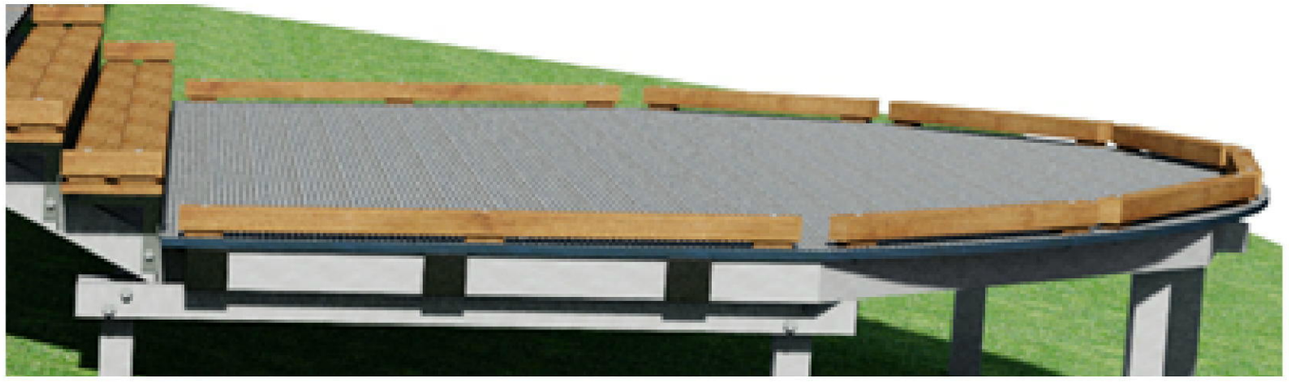
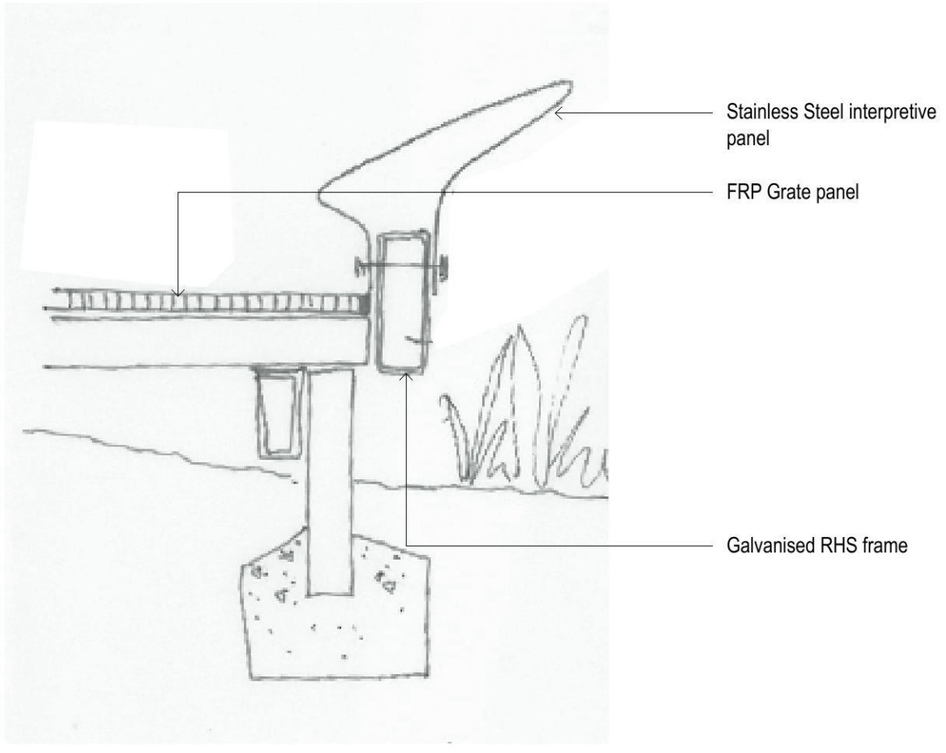


INDICATIVE PLAN - SOUTH VIEWING PLATFORM



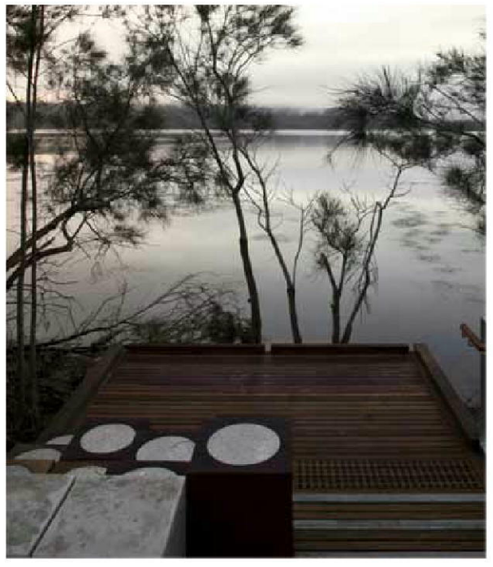
INDICATIVE SECTION - INTERPRETATION PANEL

Not to scale

The South viewing deck steps down from the main circulation loop path to a lower level buffered by vegetation softening the constructed bank. This gives the users a more intimate experience and connection with the Eastern Lake and its surrounding setting. It also provides a unique view looking across to the Macrophytes that define the Lake edge and the distant activated open space of Melualeuca Park.

The gaps in the edge rail ensures a permeable flow of water and debris so when the deck is inundated, minimal debris will be collected. It also acts as a safety barrier to help prevent users from accidentally crossing the edge. Fall heights from the viewing deck will be under 800mm so handrails or balustrading will not be required (AS1428).

An informative interpretation panel will be made from rolled metal and etched with native birds and their Aboriginal names. Refer to Indicative Section and Precedent Image.



PRECEDENT IMAGE - VIEWING DECK

PRECEDENT IMAGE -- INTERPRETATION PANEL

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PROPOSED SOUTH VIEWING DECK

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TREES/WOODLAND

Tristaniopsis laurina
Water Gum

Brachychiton acerifolius
Illawarra Flame Tree

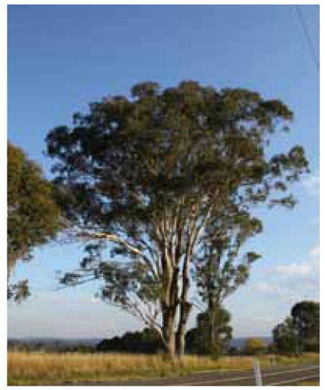
Angophora floribunda
Rough-barked Apple

Eucalyptus fibrosa
Red Ironbark

Eucalyptus sclerophylla
Scribbly Gum

Melaleuca decora
White Feather Honeymyrtle

SCREEN PLANTING



Eucalyptus moluccana
Grey Box

Eucalyptus tereticornis
Forest Red Gum

Melaleuca linariifolia ‘Snowstorm’
Snowstorm

Westringia fruticosa
Coastal Rosemary

Calistemon ‘White ANZAC’
White Calistemon

Acmena smithii
Lilly Pilly

EMBANKMENT GRASSES AND GROUNDCOVERS

Dianella caerulea
Blue Flax Lily

Lomandra filiformis
Wattle Mat Rush

Themeda australis
Kangaroo Grass

Grevillea ‘Poorinda Royal Mantle’
Prostrate Grevillea

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CODE	BOTANICAL NAME	COMMON NAME	Indicative mature height (metre)	Indicative mature width (metre)	Pot Sizes	Indicative densities (p/m^2)
STREET TREES - BY OTHERS						
LOT BOUNDARY - TREES						
Ara cun	*Araucaria cunninghamii*	Hoop Pine	30-60	5-8m	200L	AS SHOWN
Cup ana	*Cupaniopsis anacardioides*	Tuckeroo	7-10m	5-8m	75L	AS SHOWN
Euc mol	*Eucalyptus moluccana*	Grey Box	15-25	6-10m	75L	AS SHOWN
Euc ter	*Eucalyptus tereticornis*	Forest Red Gum	20-40	6-10m	75L	AS SHOWN
LOT BOUNDARY - UNDERSTOREY PLANTING						
Car app	*Carex appresssa*	Tussock Sedge	0.7	0.75	140mm	6
Fic pum	*Ficus pumila*	Creeping Fig	-	-	140mm	1.5 Lineal
Lom 'Kat'	*Lomandra longifolia 'Katrinus'*	Katrinus	0.5-0.6	0.7	140mm	6
Wes fru 'WR'	*Westringia fruticosa 'White Rambler'*	White Rambler	0.5-1.0	1.0-2.0	140mm	2
APZ ZONE - MASS PLANTING						
Gre 'HG'	*Grevillea 'Honey Gem'*	Honey Gem Grevillea	2.0-3.0	1.0-2.5	150mm	6
Mel lin 'SS'	*Melaleuca linariifolia*	Snowstorm	2.0	1.5-2.5	200mm	6
Wes fru	*Westringia fruticosa*	Coastal Rosemary	2.0	1.5-2.5	200mm	6
Wes fru 'WR'	*Westringia fruticosa 'White Rambler'*	White Rambler	0.5-1.0	1.0-2.0	140mm	6
PLAY AREA - REMEDIATION PLANTING						
Car app	*Carex appressa*	Tall Sedge	1.2	1	150mm	6
Cer tom	*Cerastium tomentosum*	Snow in Summer	0.2	0.75	150mm	3
Con cne	*Convolvulus cneorum*	Silverbush	0.6	1	150mm	2
Dia cae	*Dianella caerulea*	Blue Flax lily	0.4	0.4	150mm	6
Gau lin	*Gaura lindheimeri 'Ballerina Blush'*	Ballerina Blush	0.5	0.4	150mm	6
Gre 'Poo'	*Grevillea 'Poorinda Royal Mantle'*	Prostrate Grevillea	2	3	150mm	3
Har vio	*Hardenbergia violacea*	Native Sarsaoarilla	3	1.5	150mm	4
Jun wil	*Juniperus wiltonii 'Blue Rug'*	Blue Rug Juniper	0.3	3	150mm	3
Lir mus	*Liriope muscari 'Evergreen Giant'*	Evergreen Giant	0.6	0.4	150mm	5
The aus	*Themeda australis*	Kangaroo Grass	1.2	0.75	150mm	6
Tra jas	*Trachelospermum jasminoides*	Star Jasmine	1	1.2	150mm	4
PLAY AREA - TREES						
Euc cre	*Eucalyptus crebra*	Narrow-leaved ironbark	20	15	75L	AS SHOWN
Mel lin	*Melaleuca linariifolia*	Snow in Summer	8.0	2	75L	AS SHOWN
Cor mac	*Corymbia maculata*	Spotted Gum	25	15	75L	AS SHOWN
EMBANKMENT GRASSES AND GROUNDCOVERS						
Car app	*Carex appressa*	Tall Sedge	1.2	1	150mm	6
Iso nod	*Isolepsis nodosa*	Knobby Club Rush	0.5-1.5	0.6-2	150mm	6
Jun usi	*Juncus usitatus*	Common Rush	0.2	0.75	Viro Tube	6
Lom lon	*Lomandra longifolia*	Long leaved Matt-rush	0.5-0.6	0.7	140mm	6
Poa lab	*Poa labillardierei*	Tussock Grass	0.8	0.8	150mm	6
EMBANKMENT SHURB PLANTING						
Bur spi	*Bursaria spinulosa*	Blackthorn	1-1.5	1.5-2	150mm	4
Aca fal	*Acacia falcata*	Sickle Wattle	4	4	150mm	4
Aca uli	*Acacia ulicifolia*	Prickly Moses	2.0-3.0	1.5-2	150mm	4
Ind aus	*Indigofera australis*	Austral Indigo	2.0-3.0	1.5-2	150mm	4
EMBANKMENT TREE PLANTING						
Ang flo	*Angophora floribunda*	Rough-barked apple	25	6.0-15	45L	AS SHOWN
Euc amp	*Eucalyptus amplifolia*	Cabbage Gum	30	15	45L	AS SHOWN
Euc fib	*Eucalyptus fibrosa*	Broad-leaved Ironbark	35	15	45L	AS SHOWN
Mel sty	*Melaleuca styphelioides*	Prickly-leaved Paperbark	6.0-8.0	3.0-5.0	45L	AS SHOWN
MACROPHYTES						
Bau art	*Baumea articulata*	Jointed Twigrush	1.8	2	Viro Tube	6
Bol flu	*Bolboschoenus fluviatilis*	Marsh Club Rush	1.5	2	Viro Tube	6
Sch muc	*Schoenoplectus mucronatus*	Roughseed Bulrush	1		Viro Tube	6
Sch val	*Schoenoplectus validus*	River Club-Rush	1.5-2.0		Viro Tube	6
TURF						
Pen cla	*Pennisetum clandestinum*	Kikuyu Grass			Roll	

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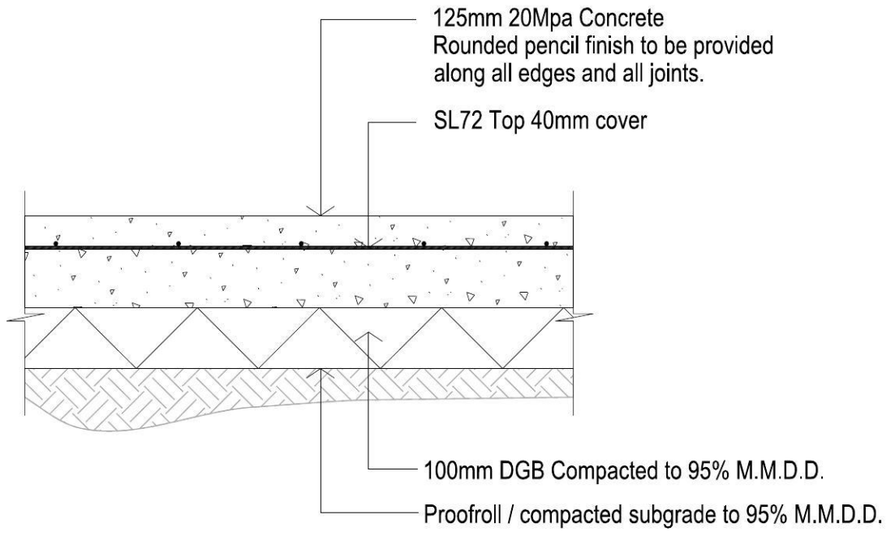
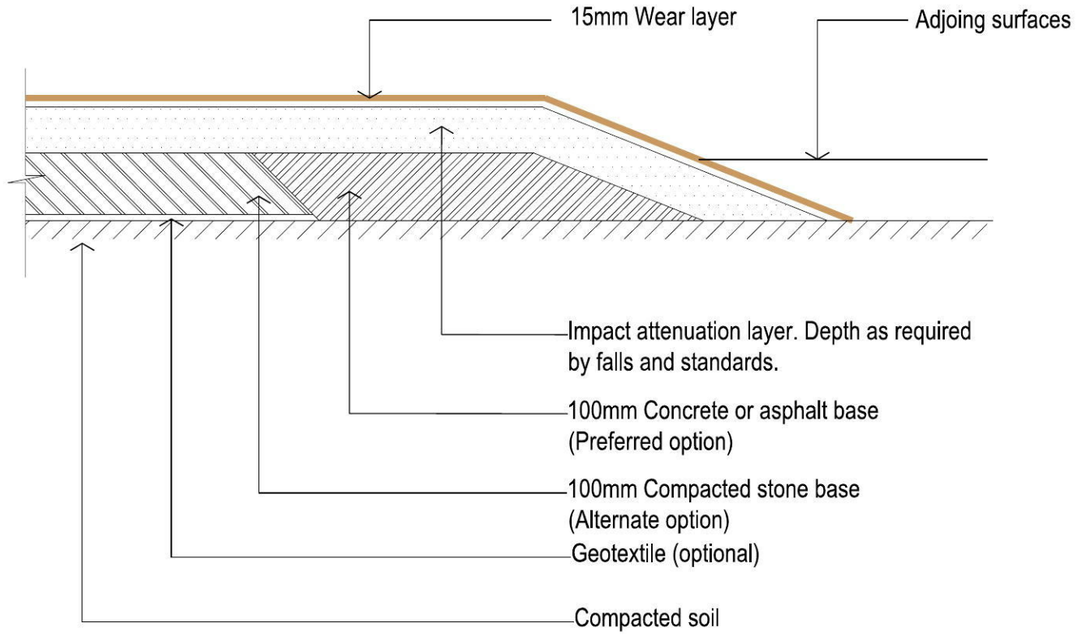


CONCRETE PAVING - 1:10 @ A3



ROLLED EDGED, RUBBER SOFTFALL- 1:10 @ A3

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TYPICAL DETAILS

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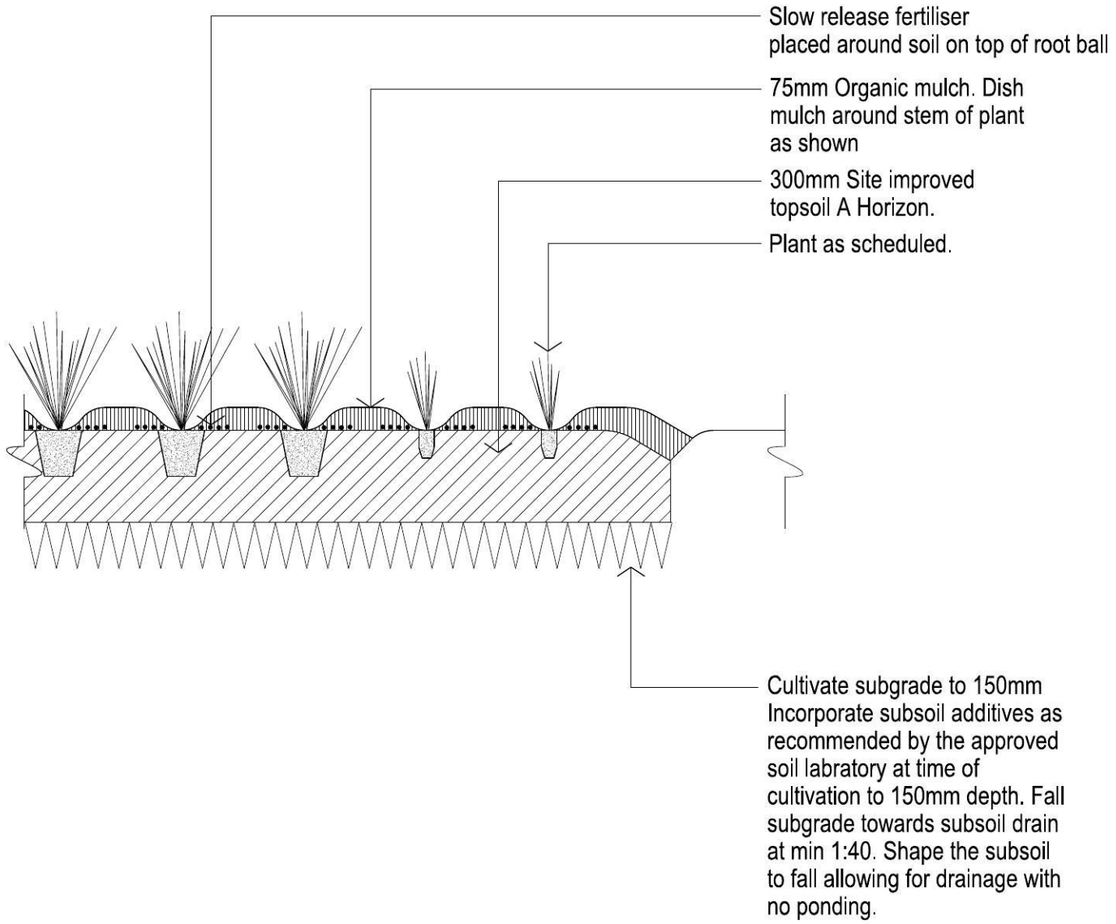
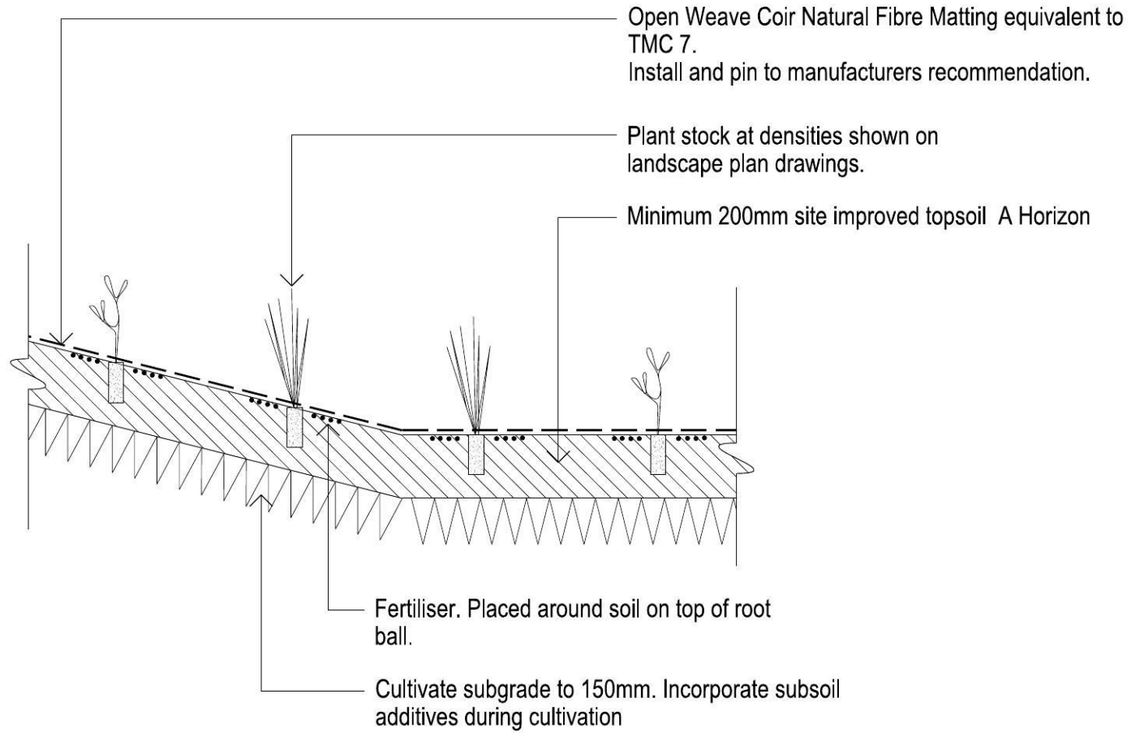


MASS PLANTING SHRUB AND GROUND COVERS- 1:20 @ A3



MASS PLANTING ON STABILISED BANK 1:20 @ A3

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TYPICAL DETAILS

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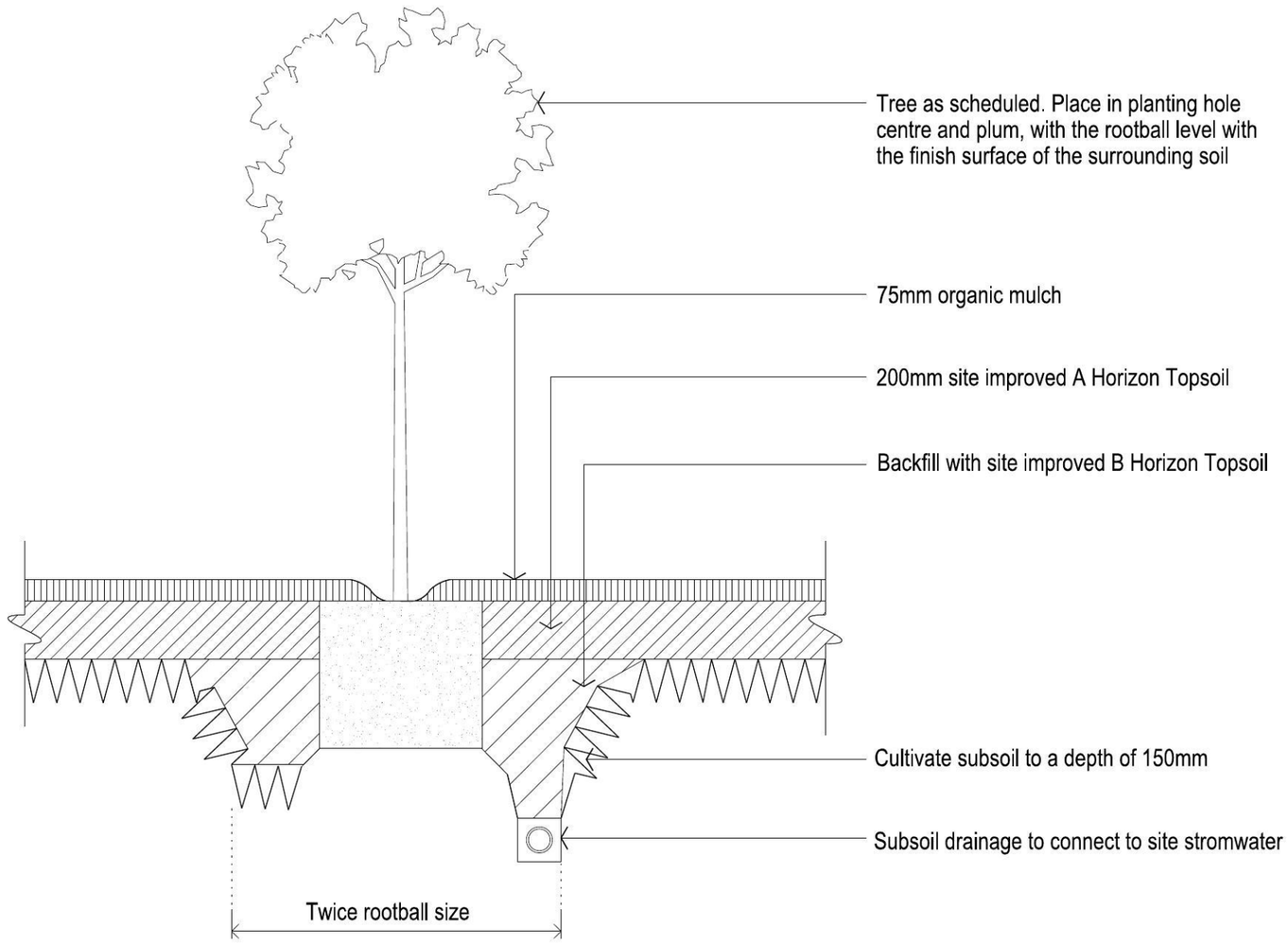

TREE IN MASS PLANTING - 1:20 @ A3

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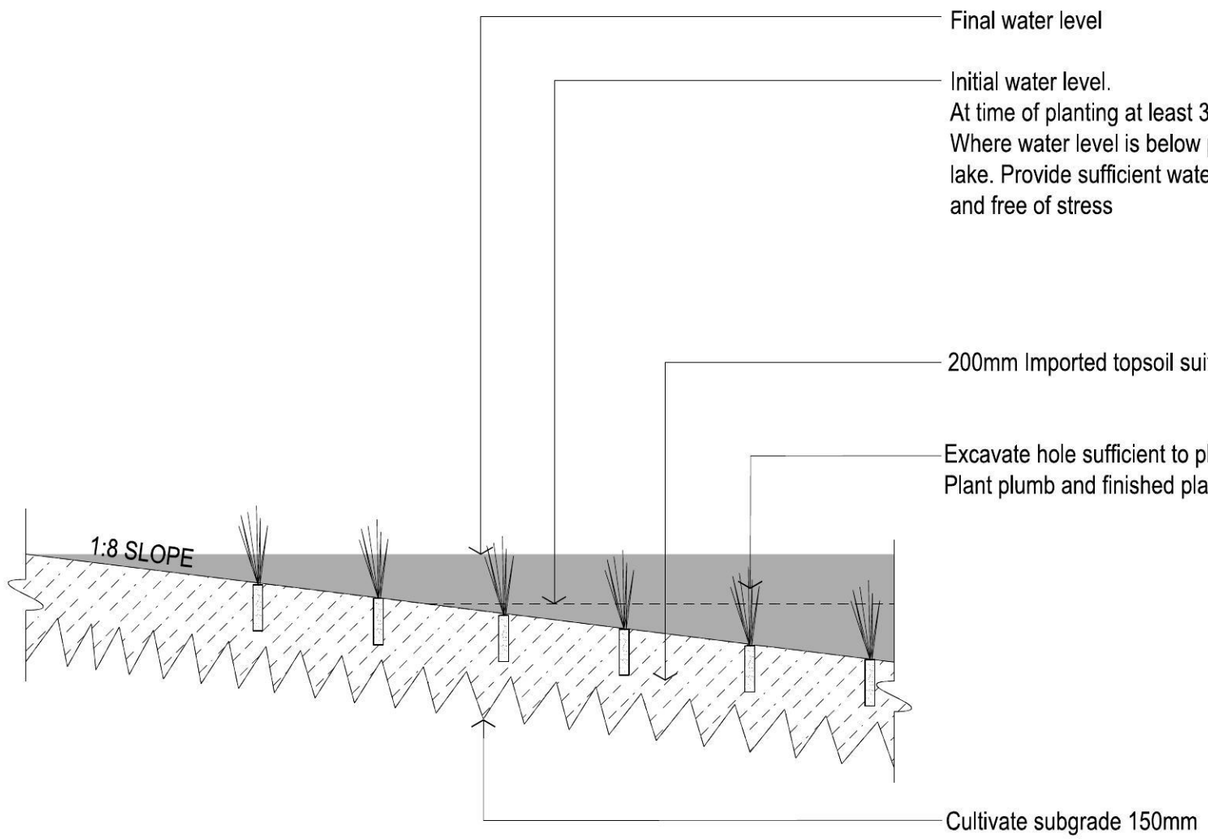

NOTE:

Macrophyte planting needs to be timed with growing time, planting time and availability of water for the lake. Water levels into the Macrophyte

MACROPHYTE PLANTING - 1:20 @ A3

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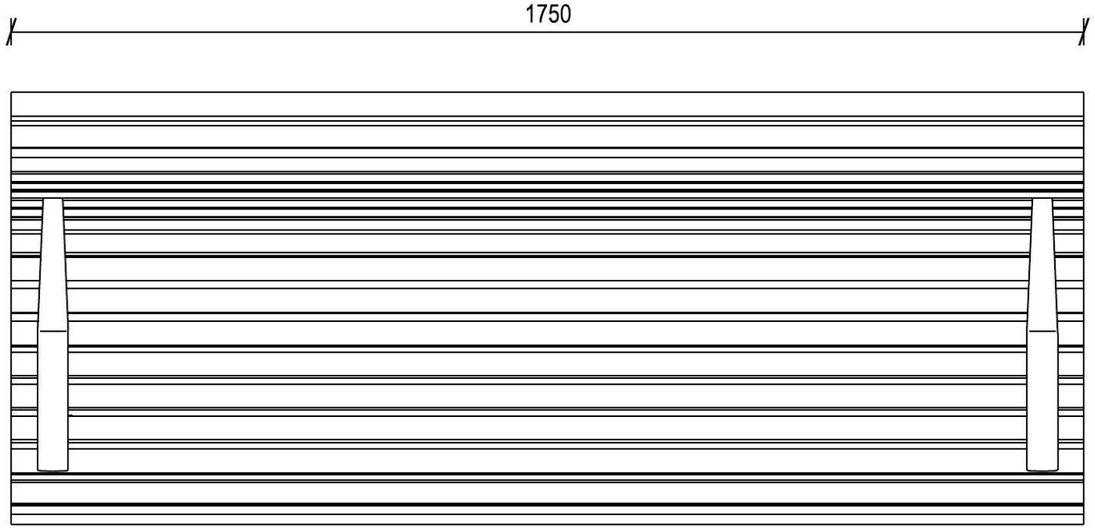
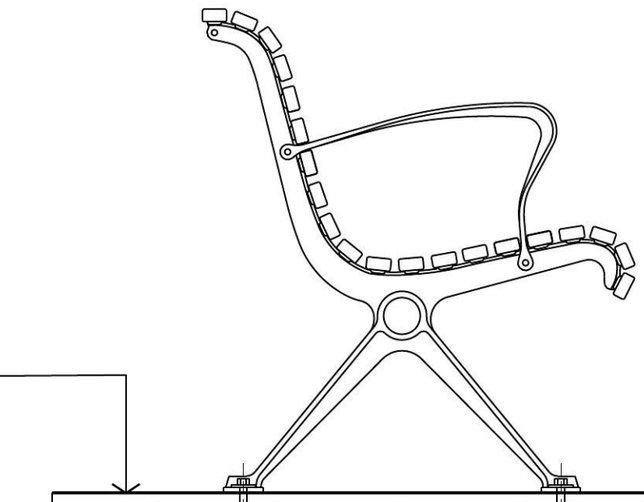


PLAN - 1:10 @ A3

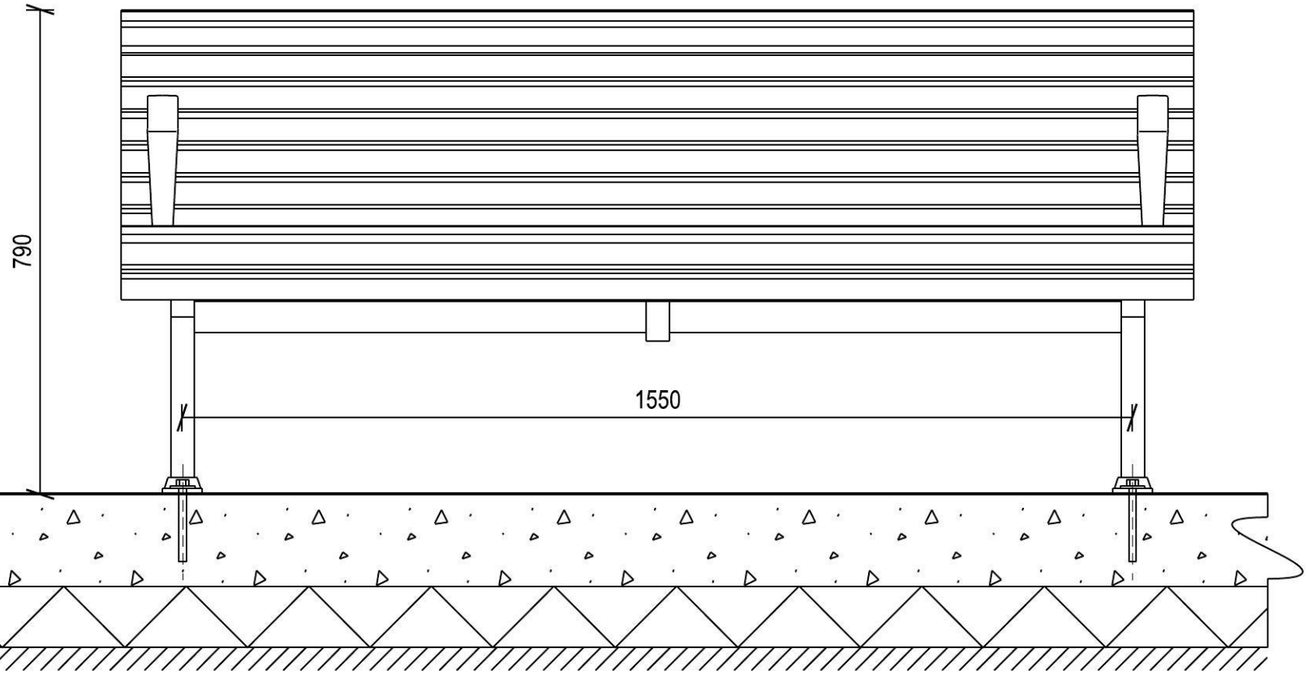
Materials:
Frame: Powder coated in British Paint (Black Orbit)
Panel Material: Silverwood Modwood panels

Concrete paving

Fastener by installer (Dynabolt M12 x 120mm recommened)



GALLERIA SEATING - 1:10 @ A3



FRONT ELEVATION PLAN - 1:10 @ A3

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Jordan Springs • Melaleuca Park & Eastern Lake

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TYPICAL DETAILS

16/09/15 Issue E

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