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**Chapter 6**

# **Detail Design**



Figure 6.2 Landscape sketch plan

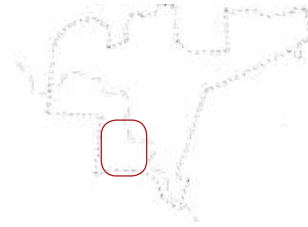


Figure 6.1 Detail design key

1. Parking
2. Arrival Plaza
3. Pause junction
4. Concert lawn and stage
5. Restaurant area and picnic lawn
6. Timber deck and bridge

The Author has chosen to focus on the southern part of the Faerie Glen Nature Reserve for the detail design chapter. This area includes the parking area, arrival plaza, pause junction, concert lawn, stage, restaurant area, timber deck and bridge.

Individual sketch plans, sections and details will be drawn up for each area as indicated in Figure 6.2.

## Material Palette

In order to create a landscape that is, and remains sustainable in the long term, materials should be used that are easily available, sourced from local manufacturers, have a low embodied energy and where possible, should be potentially recyclable. The maintenance requirement of each material was also taken into account as this also relates to the long term sustainability of a project.

Furthermore, as an aesthetic approach, materials have been chosen for their ability to withstand weathering and fade into the natural landscape thus reducing the visual impact of any intervention in the landscape on its surroundings.

**Exposed aggregate concrete paving** - Concrete paving with a fine exposed aggregate finish has been selected for the paved areas and pathways throughout this project. Organic shapes are easily paved due to the fluid nature of the material while exposed aggregate provides a non-slip finish.

Fly ash should be used in all concrete as a partial substitute for Portland cement. Fly ash is a by-product of the coal combustion process and is readily available in South Africa. Using fly ash offsets the carbon footprint by reducing the greenhouse gases emitted in the production of Portland cement. Furthermore, the addition of fly ash results in a decrease of water required in the mixing process and an improvement in the workability of the concrete.

**Nutmeg clay brick paver** - The nutmeg clay brick paver will be used to pave the road surfaces in the parking area. Clay paving bricks are locally manufactured and readily available.

**Off-shutter concrete** - Off shutter concrete will be used for the construction of the built structures. The bulk of this material grounds it firmly into the land while its versatility allows the easy construction of sculptural forms. Off-shutter concrete stains over time alluding to its age and the environmental factors acting on it.

Similarly to the exposed aggregate concrete, fly ash should be partially substituted for Portland cement.

**Precast concrete grass blocks** - The grass block reduces water runoff by



Figure 6.3 Black slate  
Figure 6.4 Exposed aggregate paving  
Figure 6.5 Nutmeg clay brick paver  
Figure 6.6 Off-shutter concrete  
Figure 6.7 Precast concrete grass block  
Figure 6.8 Red clay brick  
Figure 6.9 Sandstone tile  
Figure 6.10 Timber decking

decreasing the hard surface area of the paved surface. The block's surface area comprises roughly 75% plantable area and 25% concrete. The grass block will be used to pave parking bays in the parking and the road surface in the overflow parking.

**Red clay brick** - The red clay bricks has been chosen for its visual aesthetic and will be used for the mowing edges which define the main pathway. Red clay bricks are locally manufactured and readily available.

**Sandstone tile** - Sandstone is a soft stone that weathers easily. It has been selected as a coping tile protect the waterproofing on the planted roofs. This material has been chosen to compliment the off-shutter concrete.

**Slate** - Slate provides a strong visual contrast to the exposed aggregate paving in which it is set. Narrow slate tiles have been used to created an 'architectural kiss' where the similar materials of off-shutter concrete and exposed aggregate concrete paving meet. Slate tiles have also been used to create a shadow line on the stairs to make them more visible. Slate is readily available locally.

**Timber** - *Eucalyptus grandis* decking has been selected for the timber deck. As a category 2 invader species, *E. grandis* timber decking is readily available in locally. *Eucalyptus globulus* trees are present on the site and may be recycled in order to create sculptural furniture for the reserve.

## Planting Strategy

A sustainable planting strategy should be employed across the reserve in order to create a landscape that is, and remains sustainable for the long term. Trees, plants, and veld grass must be planted in order to offset the carbon footprint of the project.

Due to the nature of the project, a single planting palette cannot be defined for implementation across the reserve. 16 Vegetation types have been identified in the Faerie Glen Nature Reserve and these should serve as the guidelines for planting.

Plant and tree species are to be selected for each sketch plan area individually based on the predominant vegetation type of the immediate area as defined in Chapter 3.

All plant species used in this project are to be indigenous to the 'Middleveld' region. Planting is to be carried out in a naturalistic style which compliments the integration of the built structures into the landscape.

**Alien vegetation** - Alien invader species are to be manually cleared from the reserve and the areas affected should be rehabilitated in order to restore the vegetation to its pristine state. The timber from alien tree species cleared is to be recycled and used on site. Other plant material should be used as mulching unless it will negatively affect the indigenous planting.

**Lawned areas** - Grass species must be indigenous. Lawns must be kept mown and tidy and are to be irrigated with 22mm of water per week. Lawn cuttings are to be used for compost on site.

**Planted roofs** - The planted roofs will be hydroseeded with veld grass and should be irrigated with 15mm of water per week.

**Planters** - The planters are to be hydroseeded with veld grass which is interplanted with small herbaceous perennial and succulents plant species. These areas should be irrigated with 40mm of water per week.

**Trees** - Trees species are to be grown from seed in the arboretum and conservation centre then moved into the reserve once established.

**Veldgrass** - Hydroseed mixes are to be determined by the predominant



Figure 6.11 Alien invader - *Tithonia rotundifolia*  
Figure 6.12 Indigenous Lawn - *Cynodon dactylon*  
Figure 6.13 Planted roof - Forum Homini  
Figure 6.14 Planter - UJ Art Centre  
Figure 6.15 Trees - *Protea caffra*  
Figure 6.16 Veldgrass - *Melinis repens*

vegetation type that surrounds the hydroseeding area. Cut veld grass is to be used as mulching on site.

A plant list for the reserve is attached as Appendix A.

## Irrigation Strategy

Irrigation should take place in the early morning or late evening and a drip irrigation system should be used to prevent excess evaporation of water.

Irrigation requirements:

- Intensively landscaped areas 40mm per week
- Extensively landscaped areas 15mm per week
- Lawned areas 22mm per week

Rainwater is harvested from the parking area, arrival plaza, pause junction, concert lawn, stage, restaurant area and picnic lawn. This water is stored and pumped out to irrigate the landscape.

The volume of water required for irrigation annually has been calculated as: 8116.80m<sup>3</sup>. The volume of stormwater that can be harvested annually has been calculated as: 8280.47m<sup>3</sup>.

By placing water tanks centrally in the reserve, stormwater can be harvested and used for the irrigation of the landscape. By harvesting the stormwater, runoff is decreased and the occurrence of increased flow in the Moreleta spruit is reduced

It is therefore feasible to harvest rainwater in order to irrigate the landscape.

Water harvesting calculations have been attached as Appendix B.



Figure 6.17 Drip irrigation system

## Parking Area

The main entrance and parking area has been relocated to Glenwood road. The parking area is laid out around existing vegetation clumps and takes the slope of the area into account to prevent excess shaping of road surfaces.

A total 150 parking bays are provided. Of these, 70 are formalised with grass block paved bays and brick paved roads. The other 70 bays are informal and consist of cut grass bays and grass block paved roads. An area is provided to the west of the parking area in which busses are able to turn around.

The parking is linked via pedestrian paths to the entrance plaza where seating is provided. Natural planting is used in addition to the existing vegetation clumps as a buffer to decrease the visual impact of the parking area. Pedestrian crossings are raised from the road surface and serve as traffic calming elements.

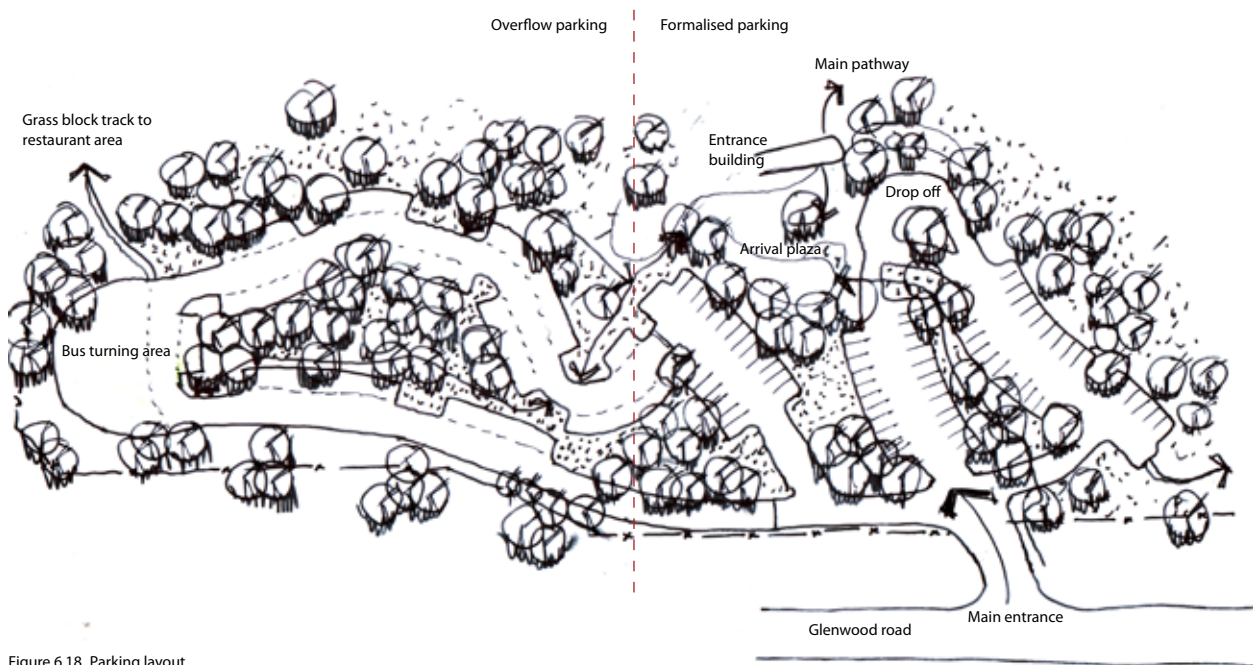


Figure 6.18 Parking layout





Figure 6.19 Parking sketch plan

## Arrival Plaza

The arrival plaza is located at the main entrance to the Faerie Glen Nature Reserve. The plaza is surrounded by bermed lawns which form a visual buffer between the plaza and the parking area. This space forms a transitional zone between the parking and the entrance to the reserve.

Seating walls are provided in the plaza for people who are waiting to meet friends or waiting to be picked up at thy drop off / pick up area.

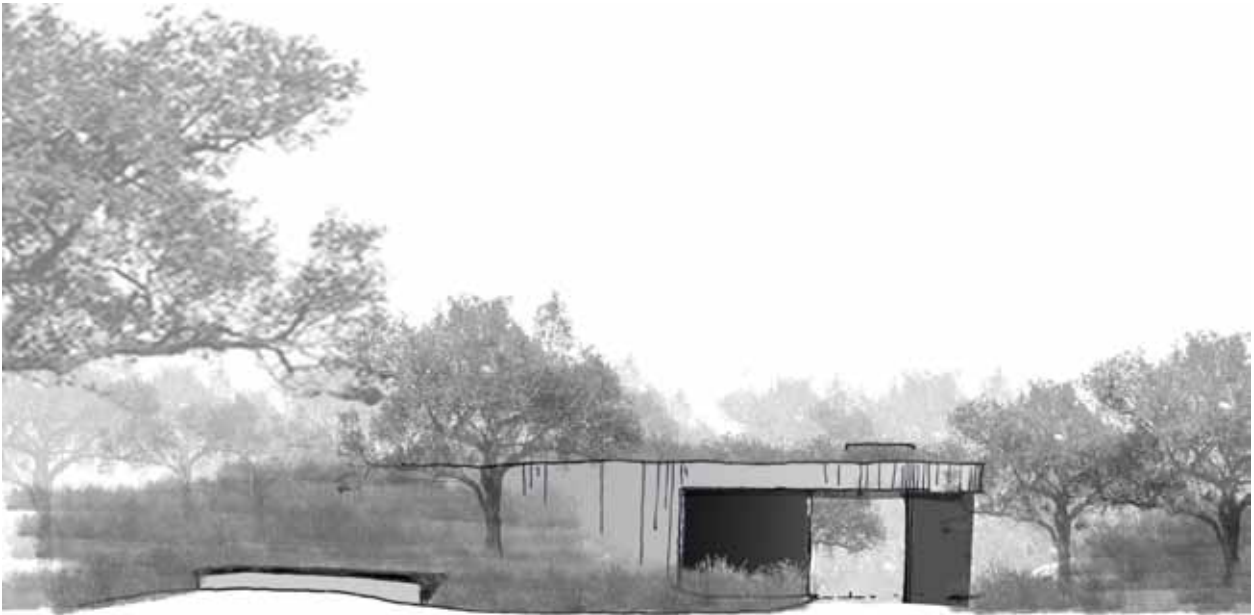


Figure 6.20 Entrance building



Figure 6.21 Arrival plaza sketch plan



Figure 6.23 Detail A1 - Paving connection  
Scale 1:20

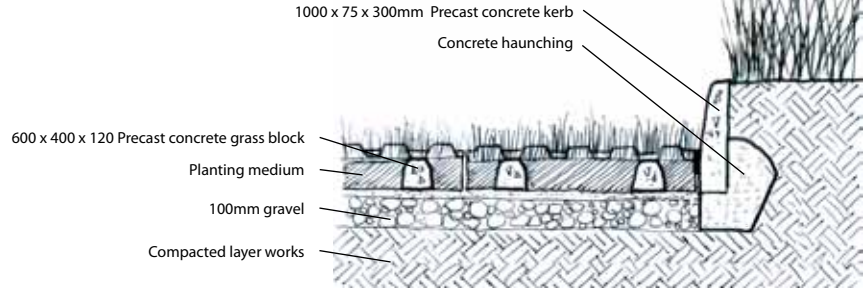


Figure 6.24 Detail A1 - Kerb detail  
Scale 1:20



Figure 6.22 Section A - A through parking and arrival plaza

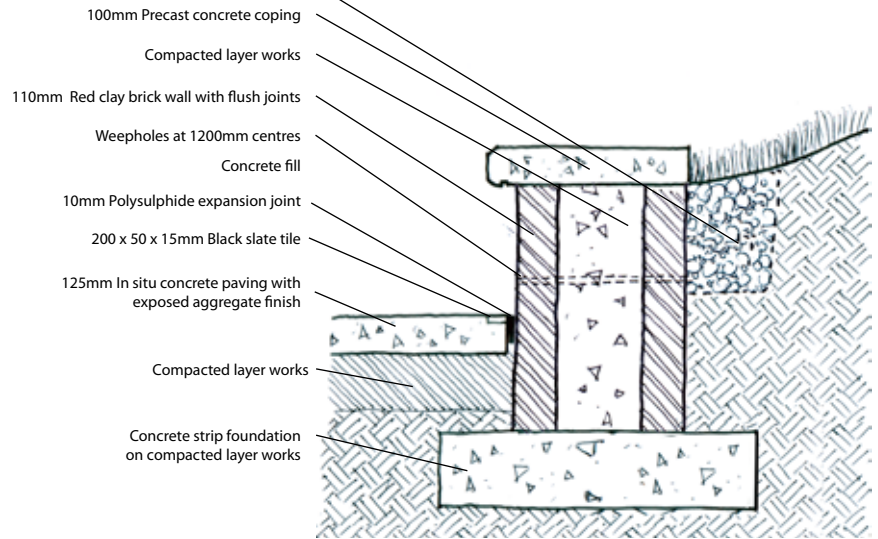


Figure 6.25 Detail A3 - Seating wall  
Scale 1:20



## Pause Junction

This area forms the junction at which the path splits to either the restaurant area or the concert lawn. The space is located on the edge of a dense grouping of trees, which add to the sense of place and feeling of enclosure. When approaching the space from the main entrance, a ramp is positioned in such a way to open up the view to the Bronberg Ridge with every successive step until you reach the upper level (Figure 6.26).



Figure 6.26 Pause junction ramp

Information about the reserve is displayed on the curved wall in order to allow visitors to understand and familiarise themselves with the reserve. This information includes details about the current ecological issues, activities in the reserve and information on the latest land art installation. The information conveyed to the visitor on this wall should be seen as a teaser of what the reserve holds in store for those who are prepared to spend some time and explore.

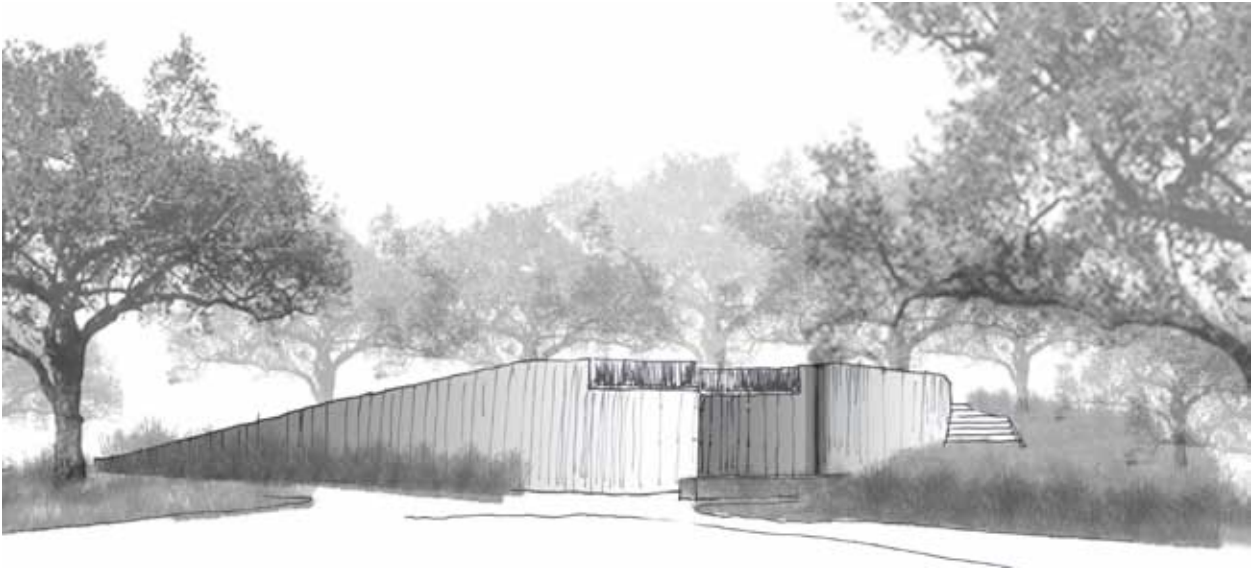


Figure 6.27 Pause junction



Figure 6.28 Pause junction sketch plan



Figure 6.30 Section B - B through pause junction



Figure 6.29 Section C - C through pause junction



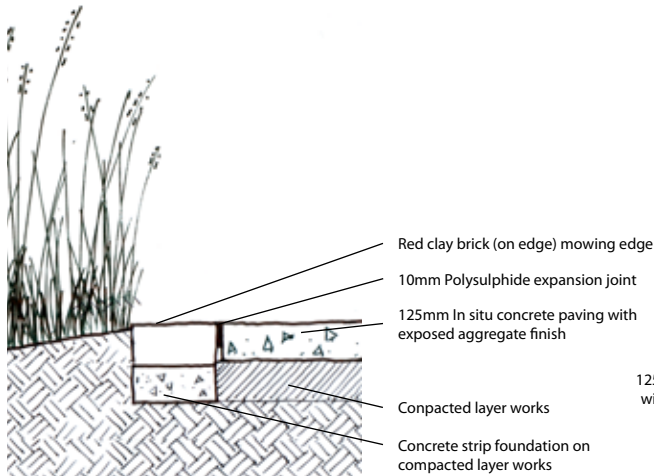


Figure 6.31 Detail B1 - Mowing edge  
Scale 1:20

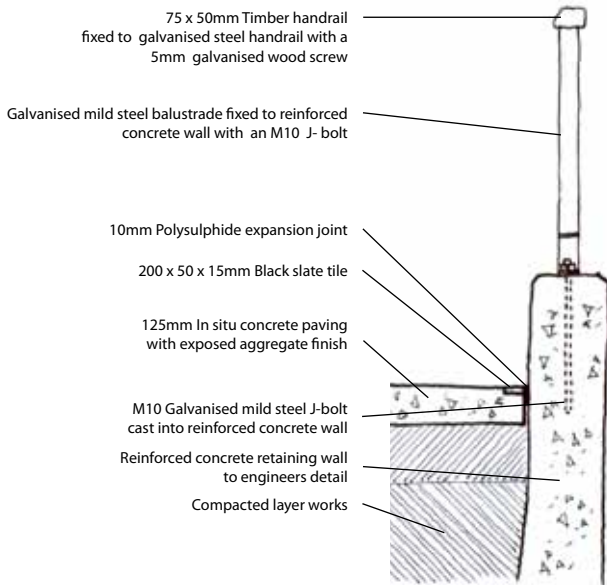


Figure 6.32 Detail B2 - Balustrade fixing  
Scale 1:20

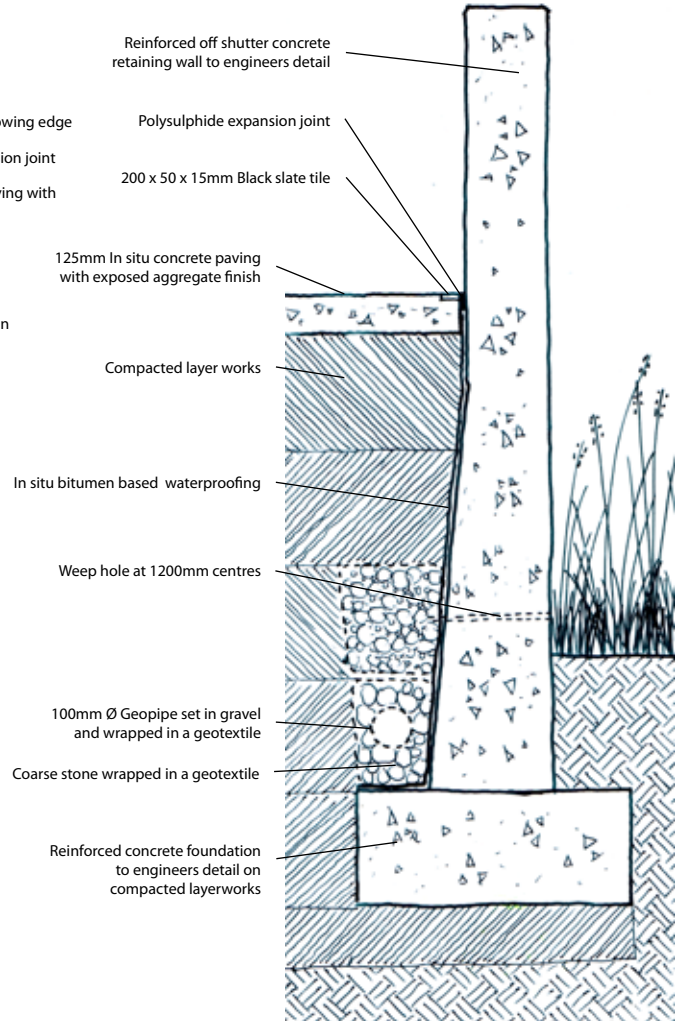


Figure 6.33 Detail C1 - Retaining wall  
Scale 1:20

## Concert Lawn and Stage

The concert lawn is an informal venue catering for music performances to audiences of up to approximately 350 persons. Seating walls created an informal terraced picnic lawn on which trees provide shade for the audience (who are welcome to bring along their own umbrellas). A plaza area acts as a foyer in which small stands can be erected for the sale of food if necessary. Ablution facilities are located in a 'landscaper' building to the south-west of the lawn.

The stage is designed as a sculptural object in the landscape. Grounded by heavy concrete walls, it sits nestled into an existing clump of trees. A light structure provides a frame on which indigenous creepers grow and provide shade for the performers while the Renosterkop provides a graceful backdrop to the ensemble. A grass block track provides vehicular link between the stage and the parking area for deliveries.

A berm holds the space by enclosing the south-eastern corner of the lawn as the trees become more sparse and the natural groundline falls away.

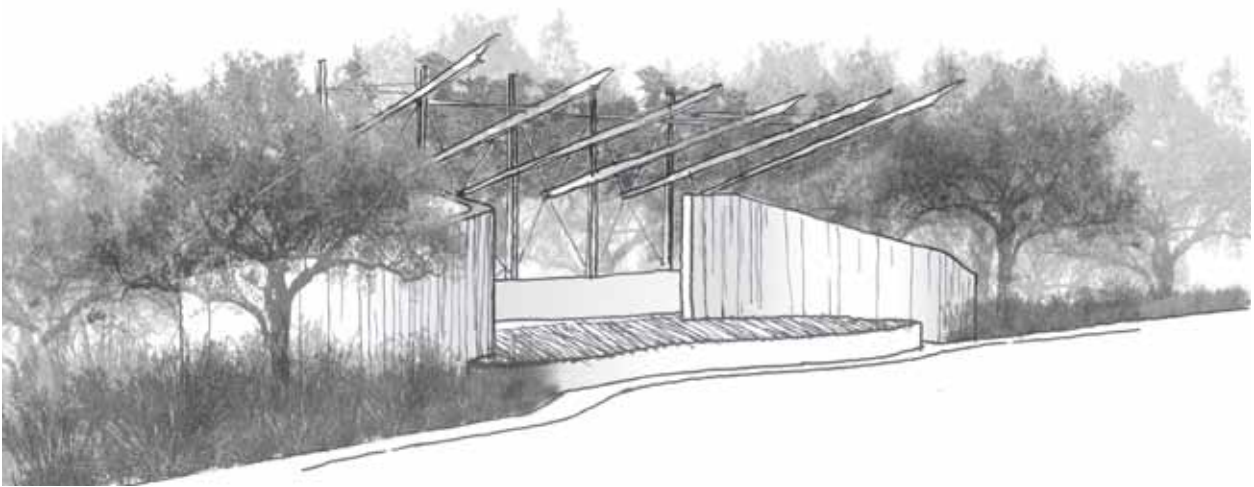


Figure 6.34 Stage



Figure 6.35 Concert lawn sketch plan

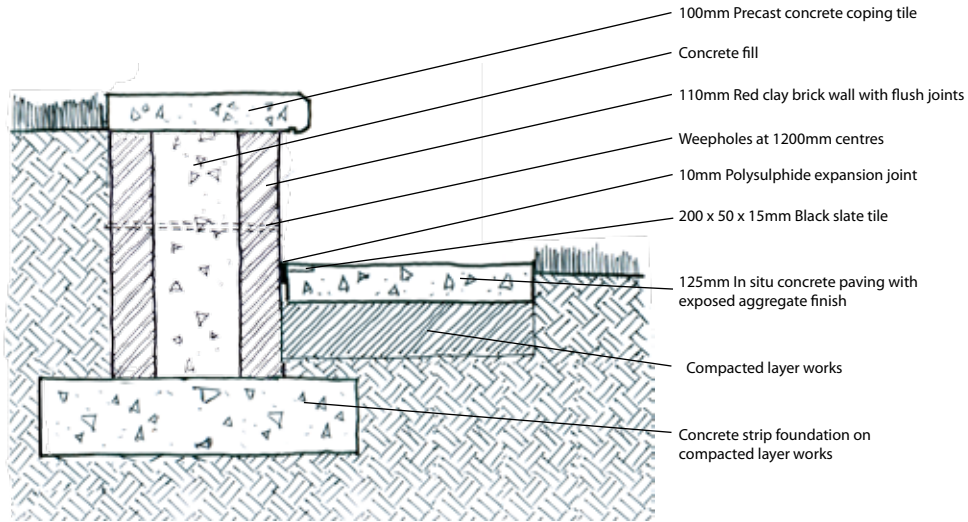


Figure 6.37 Detail D1 - Seating wall  
Scale 1:20



Figure 6.36 Section D - D through concert lawn



## Restaurant Area and Picnic Lawn



Figure 6.38 Entrance to plaza space

The 'landscaper' building is carefully located to remain hidden from the visitor almost up to the point at which you enter the plaza space in front of the kiosk between two retaining walls (Figure 6.38). The building is also positioned to gain maximum advantage of the view towards the Bronberg Ridge.

The building houses a small restaurant, a kiosk and ablution facilities. A large sculpted picnic lawn with children's play equipment stretches before the building which sits snugly within the landscape which grows over, under and 'through' it.

The restaurant area is shaded by a planted pergola and provides a view to the Bronberg Ridge as it rises up before you. A grass block track provides access for vehicles to the delivery area behind the restaurant from the main parking lot.

A sculpted lawn provides an area for families to picnic in small shaded pockets while children run and play. A playing berm provides a slide, tunnel, balancing poles and hanging bars to entertain the children while the parents relax under a tree, or at the restaurant.

A kiosk provides visitors with the option of stopping for a quick drink and snack en-route up to, or back from the lookout decks. The kiosk also stocks a limited range of nature related books and merchandise.

Ablution facilities are provided and consist of gents and ladies areas (each with a disabled stall and a baby changing station) and a communal hand washing area.

A nature trail leads off from the eastern side of the plaza and runs along the Moreleta spruit.

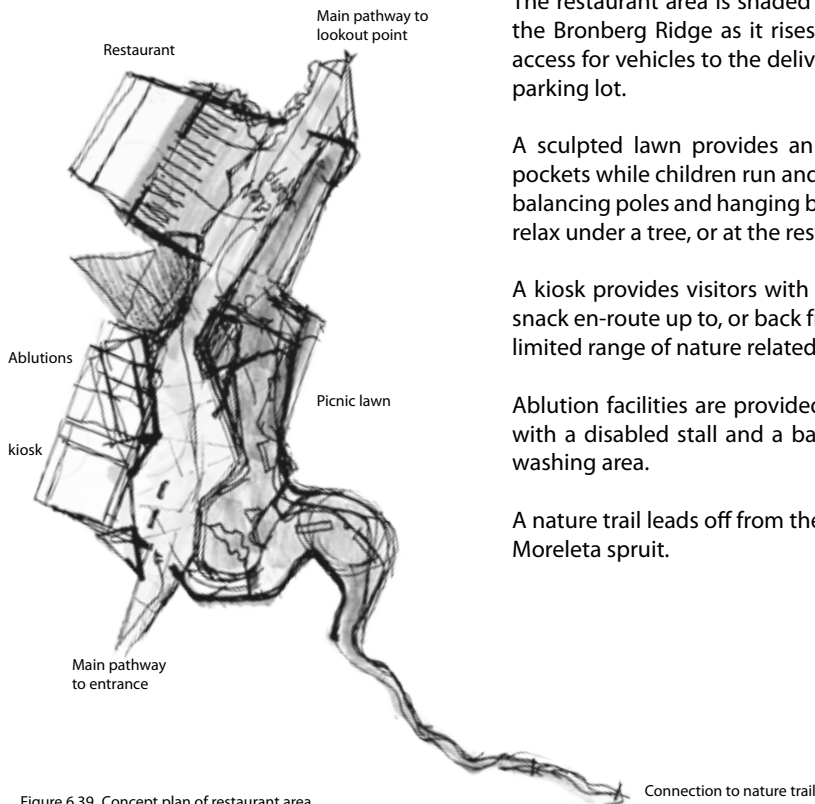


Figure 6.39 Concept plan of restaurant area



Figure 6.40 Restaurant area sketch plan

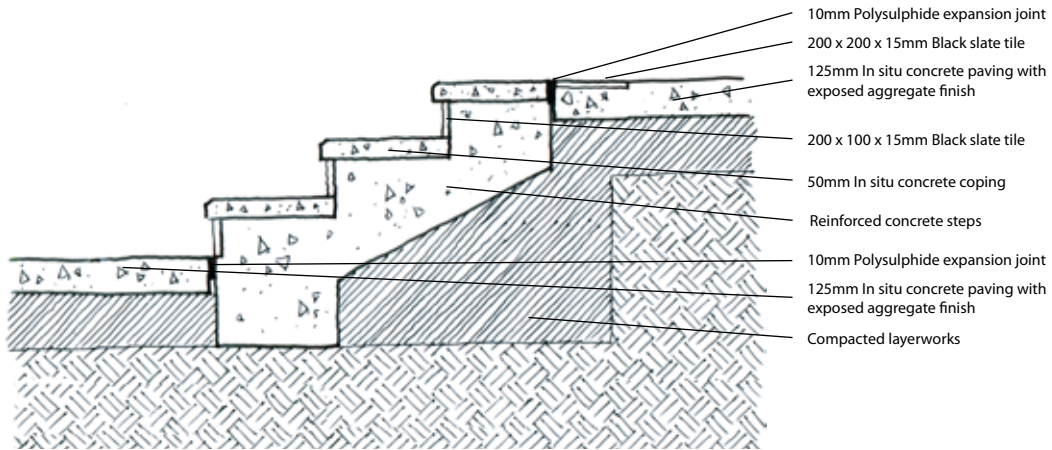


Figure 6.42 Detail E1 - Steps  
Scale 1:20



Figure 6.41 Section E - E through restaurant area



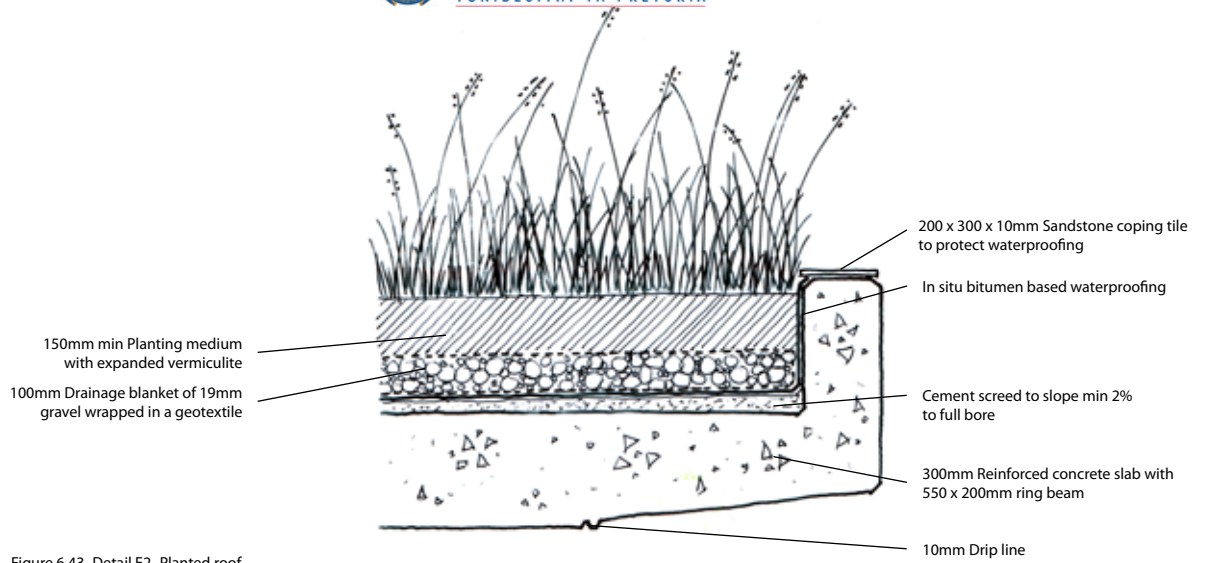
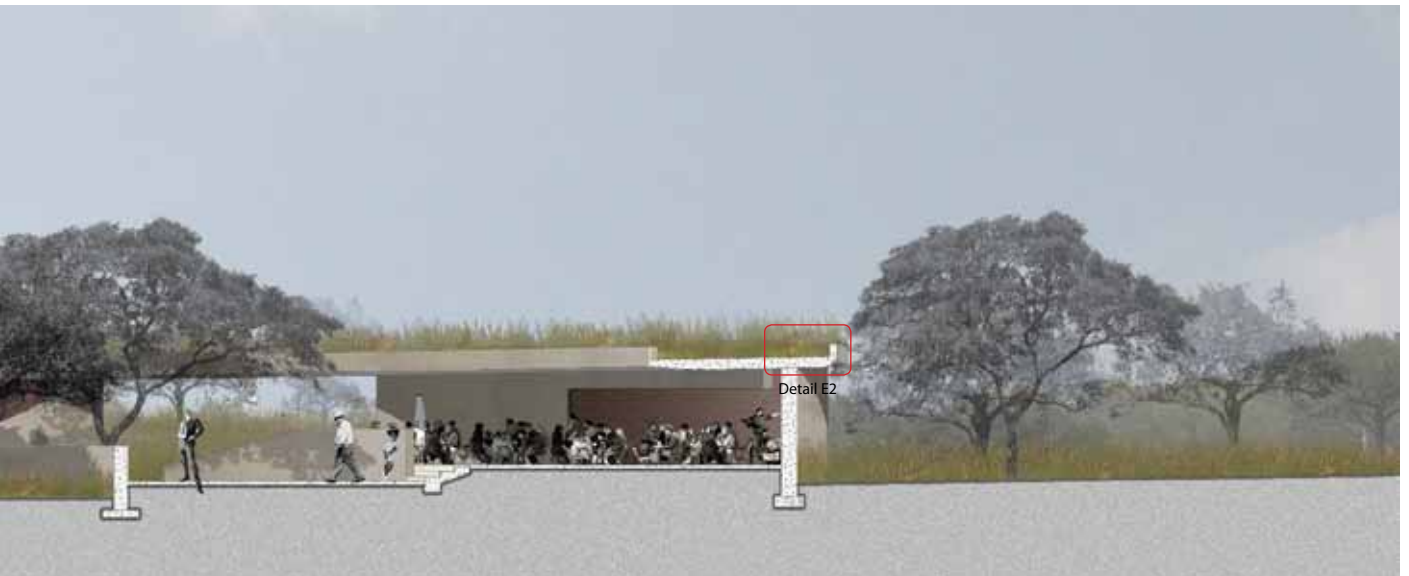


Figure 6.43 Detail E2 -Planted roof  
Scale 1:20



## Timber Deck and Bridge

The deck and bridge provide the main crossing of the Moreleta spruit on the main pathway between the restaurant area and lookout points. The deck spans the 1 in 50 year flood line which is included in the zone of highest ecological sensitivity.

A small pause area on the deck, separated by planting provides a place to sit and gaze over Weaver pool towards Renosterkop from a shaded bench. If you catch it at the right time of the day, you may see the reflection of Renosterkop on the surface of the water.

A concrete bridge spans the spruit. Its retaining walls are guarded by gabions and reno-mattresses from damage due to increased flow in the spruit caused by storms.

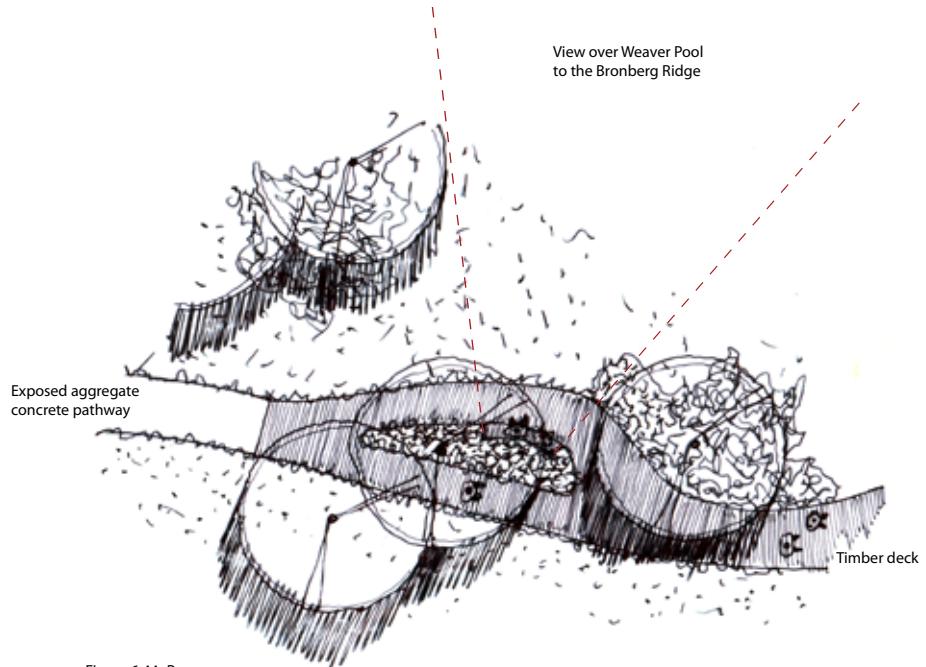


Figure 6.44 Pause area



Figure 6.45 Deck and bridge sketch plan

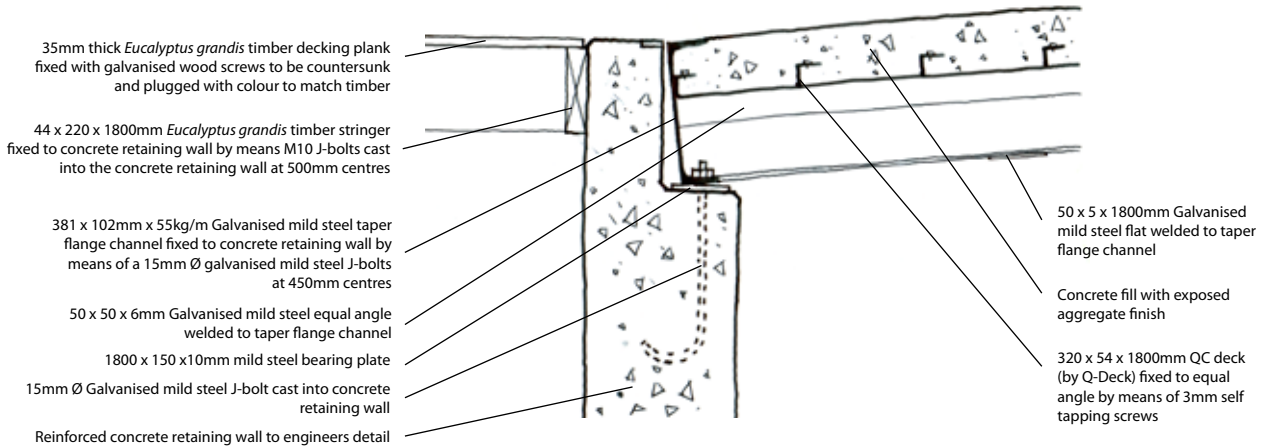


Figure 6.47 Detail F1 - Timber deck and bridge connection  
Scale 1:20



Figure 6.46 Timber deck and bridge sketch plan

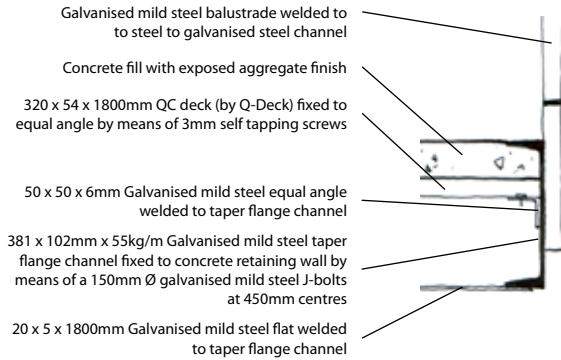


Figure 6.48 Detail section F2 through bridge edge  
Scale 1:20

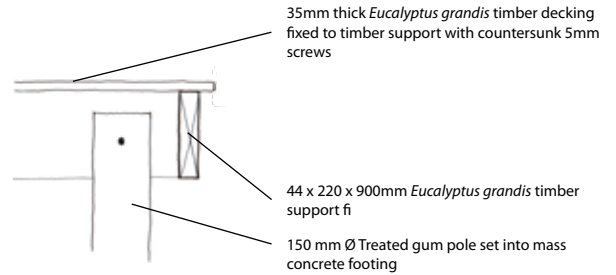


Figure 6.49 Detail F3 - Timber deck edge  
Scale 1:10



## Sustainability Rating

The Sustainable Building Assessment Tool (SBAT) was used in order to generate a sustainability rating for the proposed intervention at the Faerie Glen Nature Reserve. The SBAT rating system was developed to support sustainable development in the context of developing countries and sets out 15 objectives under the headings of economic, social and environmental that should be aimed for in buildings (CSIR, 2007).

The SBAT rating system is designed to deal with habitable buildings and thus cannot be applied purely to the landscape. In this case, it has been used to assess the 'landscaper' structures proposed by the author.

The project achieved the following ratings out of 5:

Social:	4.6
Economic:	3.7
Environmental:	3.7

The project achieved an overall sustainability rating of 4.0 out of 5 which classifies the interventions as 'good'.

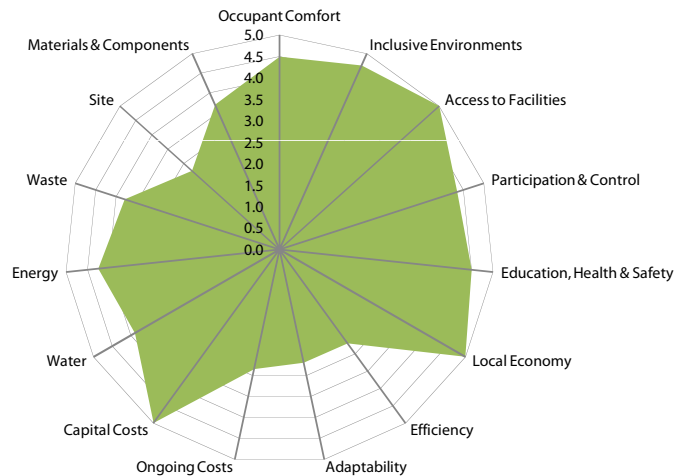


Figure 6.50 SBAT rating for Faerie Glen Nature Reserve