Lindsay Napier architect

LANapier PrArch PGDip MIA P.O.Box 474 3650
email :lanapier@mindscope.co.za tel 083 6608521

20 February 2023

CONTRACT : 1X-45513- DURBAN CENTRAL BEACHFRONT CONSULTING SERVICES FOR REI

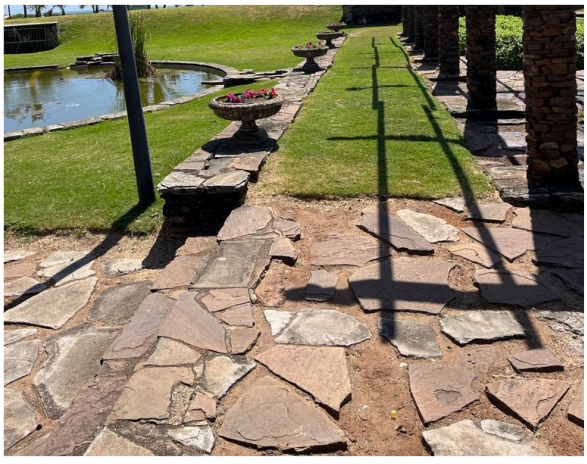
NSTATEMENT OF INFRASTRUCTURE @ DURBAN SUNKEN GARDENS BAY OF PLENTY AMPHITHEATRE

The need for structural and aesthetic repairs in the gardens is borne out of compliance and accessibility of a public park, the existing materials have either outlived their lifespan or failed due to the highly corrosive environment. The proposals in this report endeavour to meet the compliance standards and to propose materials that will be low-maintenance and be able to withstand the corrosive environment.

In considering the existing materials and construction methods of the hard landscaping elements that need repair and restoration in the garden, the layering of materials that have been replaced over time needs to be considered as well as the original intent of the architect and craftsmen.

Below is a summary of each material or element and proposals for a suitable method of repair or replacement. Approval of these should become the reference point for future repair and restorations in the maintenance programme.

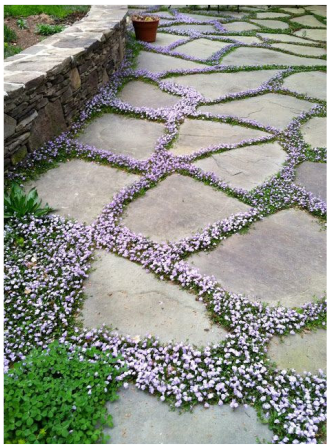
1. PATHWAYS



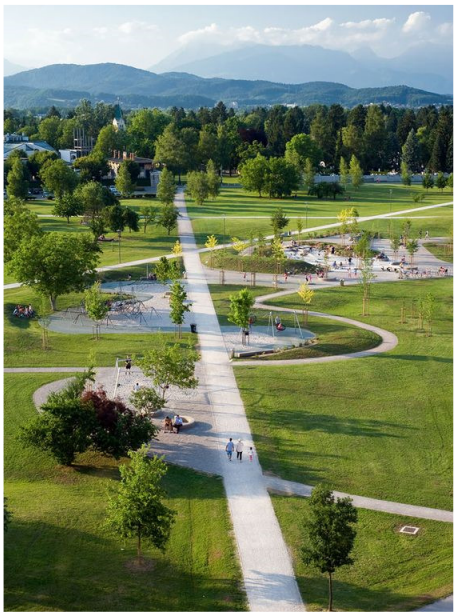
Paths are constructed of natural stone slabs laid on sand with gaps between slabs. Historical images show that the gaps were planted with grasses and ground cover, but all plant matter has been removed or killed by weedkillers, leaving gaps filled with sandy soil. This has created an uneven surface for walking. A cement has been added in places to close the gaps, this has been unsuccessful as they have broken away and come loose.
The surface is not wheelchair or pram-friendly and an elderly person would not find it easy to walk on these paths.

PROPOSALS

1. Pebble inlay between flagstones in high traffic areas
https://leessupascapes.co.za/paving/
www.Pinterest.com

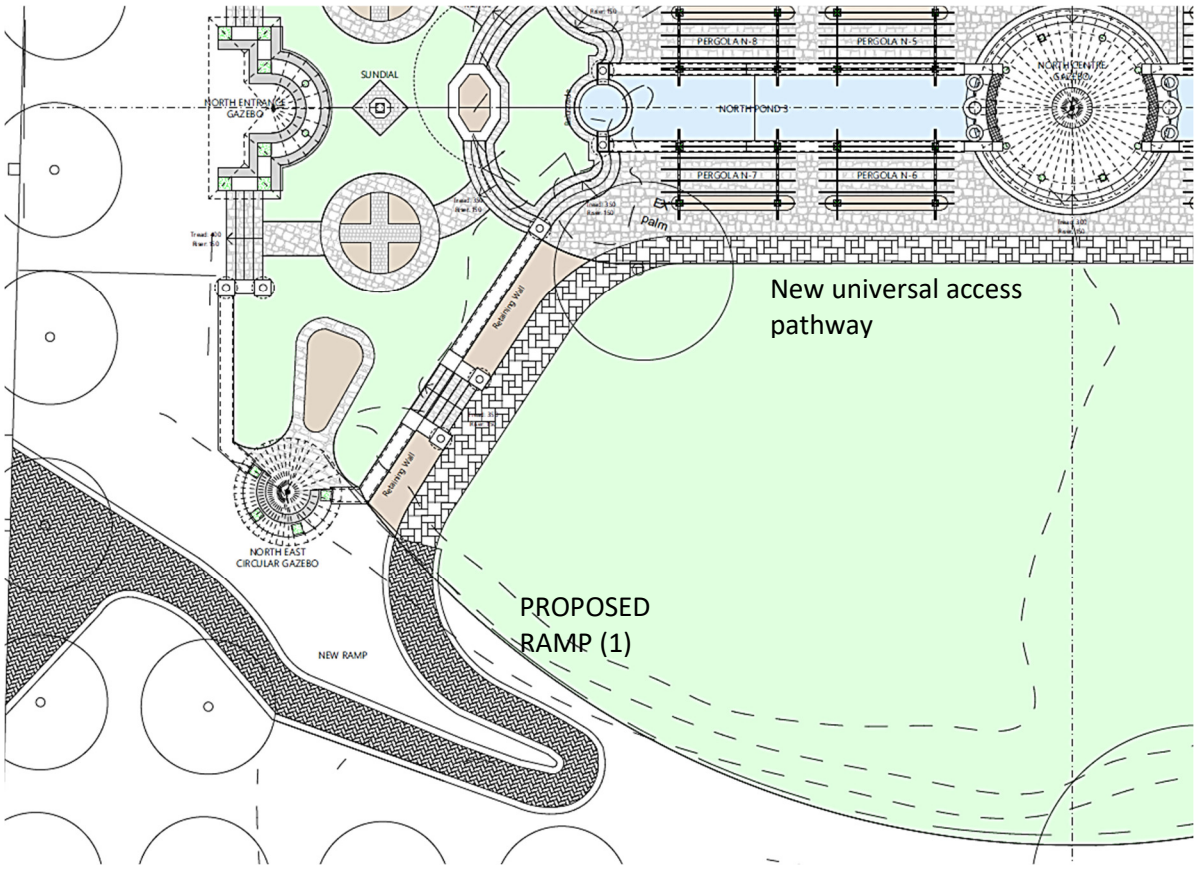


2. Groundcover (in selected areas)



3. Universal Access pathways for prams, elderly, wheelchairs, toddler bikes.
The gardens are arranged on a series of terraces with the lowest level approximately 2m below the amphitheatre level. The amphitheatre is accessed by a ramp on the North end.

The existing stone pathways in the lowest terrace should be supplemented with a wheelchair-friendly path of a similar finish to the ramp. It is recommended to remove a 1,2m wide strip of the flag-stone path and replace with an exposed-aggregate path. The displaced stone can then be used for the restoration of steps and paths elsewhere in the garden.



PROPOSED RAMP (detail drawing of the North Garden)
Ramps with handrails (for wheelchair users, persons requiring assistance and for parents with prams) are proposed for both gardens, inserted into the existing grass bank of the North Garden and the existing planted terraces of the South Garden. The surface of the ramps could follow the spec of the amphitheatre ramp ie. brick paving or exposed aggregate concrete of the promenade.

2. PERGOLA COLUMNS :

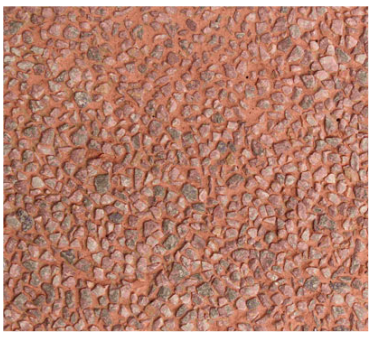
The original pergola columns were constructed of a reinforced cast concrete pillar, clad with dark brown fragments of shale, each fragment was embedded in cement. The columns and other decorative elements (eg. the baskets) were assembled off site and brought to the gardens to be erected and fixed in place. Historical pictures show attractive vines and plants growing up and around the columns, as was the intention of the designer.

Unfortunately, the attractive finish of the shale cladding has caused the pergola posts to degrade. The cladding pieces were assembled around a slender column, allowing water to flow between the stone and into the concrete, which on reaching the reinforcing bars caused corrosion and spalling. Subsequent attempts at replacement or replication of the posts have been unsuccessful and are aesthetically jarring, as a result.

Therefore a new column design in proposed, matching in diameter and equal in height to the original columns. The proposed finish to the columns is an exposed-aggregate (similar to Smartstone example below). The finish must provide enough of a “key” for plants to attach themselves and a brown colour that will blend with the existing shale and stone.

The new columns will be by sample approval.

All existing (original) columns are to be assessed for structural integrity and those identified as sub-standard are to be replaced with the new approved design. Columns that were replaced with rendered “fake-stone” finish are to be replaced.



3. PERGOLA BEAMS :

The pergola beams appear to have been replaced with timber jointed with bolts and metal plates. The metals have corroded and the beams have degraded. Timber beams have also been removed and used for fire-wood.

A maintenance-free and sustainable alternative has been sought. A few composite products using either aluminium or recycled plastics have been researched :

PRODUCT 1 : Eva-Last Architectural beams

https://www.eva-last.co.za/products/pergola/
Jessica Nel jessican@eva-last.com

Lifespan architectural beams offer design versatility and increased span thanks to their specialised aluminium core that makes for easier installation at height. The outer coating of low-maintenance bamboo composite resists biodegradation, corrosion, and harsh weather, and offers built-in UV protection for durability.

Lifespan architectural beams offer the span capability of much heavier, solid beams thanks to their built-in aluminium core. This core significantly enhances the dimensional and flexural stability of the beam, while the Eva-tech bamboo composite coating provides a realistic timber aesthetic, as well as resistance to severe climatic and biodeterioration conditions.

PRODUCT 2 : Newtech Wood Beams
http://www.newtechwood.co.za/decorative-beams.html

NewTechWood's UltraShield® beam profiles are a family of innovative products that look like natural timber but require no maintenance. Designed to handle the harshest African conditions. The composite timber-look beams provide a more natural and fade resistant alternative to aluminum and timber slats, that add a modern feature to any architectural façade or pergola. Installs vertically or horizontally with variable gaps.

PRODUCT 3 : Nowatech composite plastic beams
https://nowatech.green/pergola-and-cladding/
email : connect@nowatech.green
cheryl@nowatech.green

Nowa Tech is manufactured in South Africa and offers local factory support. Nowa Tech offer a number of profiles in five colours.

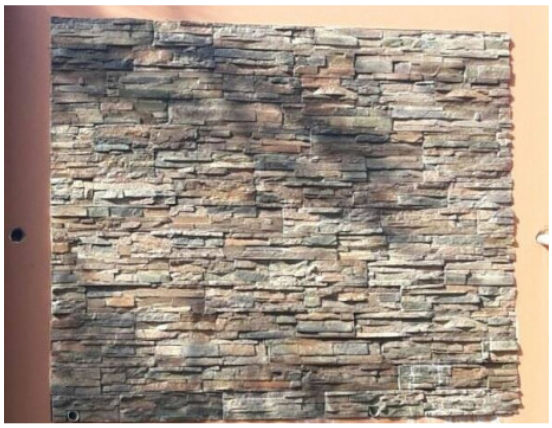
4. STONEWALLS :

Stone Cladding

Tuscany Paving
https://www.tuscanypaving.co.za/gallery/]

Split-face stone cladding (Durastone-KwaDukuza))
https://www.durastone.co.za/stone-cladding-products/split-face-stone-cladding/

Smartstone cladding



Ez Fit cladding (Durastone) and Castle-stone cladding (Durastone)

Garden kerbs and edges (Smartstone)

Benches :
The existing timber or stainless steel benches are being vandalised so concrete is suggested.
Precast, shapes to be taken on site to radii of the gazebos.

Flower Pots :
https://oldworld.co.za/johannesburg-precast-concrete-products/