



Overview of the museum site

NATIONAL ENGLISH LITERARY MUSEUM

Project Team

Client: National Department of Public Works, Port Elizabeth

Architect: Intsika Architects

Landscape Architects: Red Landscape Architects

Sustainable Building Consultants: Solid Green

Landscape Contractor: Countryline Horticulture/Bloomingdales (JV)

The main function of the National English Literary Museum (NELM) in Grahamstown, Eastern Cape, is to collect and conserve creative writing by Southern African authors in the genres of novels, plays, short stories, essays, poetry, theatre, memoirs, diaries, TV and film scripts and autobiographies. Material is collected in the format of books, study guides, theses,



Front entrance planting

literary manuscripts, press clippings and audio visual material. The NELM also ensures that the material is readily accessible, both locally and abroad.

The museum is situated on the outskirts of a built-up residential area, on a previously vacant greenfield site. It was designed with green building principles in mind and has obtained a five star Green Star Rating from the GBCSA (Green Building Council of South Africa) for its environmentally responsible and resource efficient features.

Landscape design, management and bio-diversity

Landscape architect Francois van Rooyen of Red Landscape Architects says his brief was to develop a five star rated 'green' landscape for the museum, which is visited by schools and tourists. His design philosophy celebrates four of the biomes found in Grahamstown and he has used a plant palette specifically suitable for the terrain.

Planting patterns have an organic appearance and materials were chosen with the idea in mind that the landscape is a living and evolving organism. Van Rooyen states: "When one aims to recreate nature (which took millions of years to establish) in a relatively short



Karoo biome meets grassland; a clear distinction has been created using the different planting palettes and mulch types



Landscaping plan



***Euphorbia polygona*, rescued from the N2 road construction between Grahamstown and Peddie. It is a feature in the Karoo biome.**



Landscaping on the roof garden



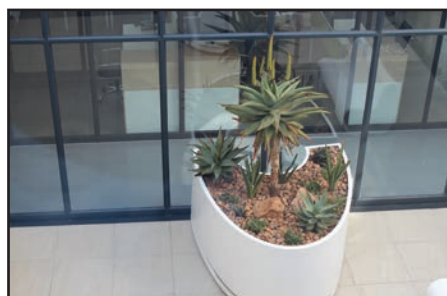
Roof garden planting comprising *Crassula*, *Salvia*, bulbs, Black-Eyed Susan and various grasses planted to mimic the natural growth of the four biomes that surround Grahamstown



A gabion wall was constructed to compensate for the gradient of the site. As opposed to a brick wall, it is more natural in appearance and therefore more complementary to the planting.



Large aloes and boulders were used to create focal points and give instant height to the planting



Courtyard pots planted with Aloes, *Sanseveria*, *Gasteria* and *Gazanias* to reflect the outdoor landscape



Pathways allow for pedestrian interaction with the biomes. Here the Karoo biome can be clearly seen.

space of time, it is necessary to plant in bulk and plant a variety of appropriate species. Over time, the landscape will then select the species most suited and adapted to the specific environment and micro climate."

The four biomes created are Karoo, Fynbos, Valley Bushveld/Albany Thicket and sub-escarpment Savanna Grassland. Each of these are found in this region and van Rooyen says that from the extensive planting list, the theme was to have different layers in the landscape comprising trees, shrubs, groundcovers, creepers and bulbs. The selection aimed to include all year flowering material and plugs that could be cultivated from seed, cuttings or sprigs in the later maintenance phase, thus creating an ongoing on-site nursery for the project.

A 1500m² roof garden forms part of the landscape, with a planting theme that complements the rest of the site, just without the trees. The roof garden was created to hide the building from the nearby residential area and a 700mm soil depth was specified due to the extreme water restrictions in place. No irrigation is to take place after site establishment and the 700mm stipulated will allow for some water retention in the dry months. After a one year growth period, irrigation will be removed from site, although van Rooyen says he has requested a turf valve system for use in extremely hot conditions.

Due to a late instruction to install a fence, the irrigation, which had already been installed, had to be re-modelled.

The green roof maximises the environmental quality of the building and xeriscaping has been implemented as a deliberate and environmentally conscious decision.

Lesley Lynch, on behalf of Countryline Horticulture, says the initial placement of soil on the roof proved to be a challenge, as did obtaining the right consistency throughout to allow for adequate permeability. Also, the area behind the site had not been backfilled and the height to the roof was considerable. As the area's rainy season had begun, the subsoil had a very high clay and silt content, which made it impossible to move any vehicles on site due to the muddy conditions. This took two days to dry out, which hampered initial progress, particularly with the placement of soil on the roof.

In the designing stages of the project, a topsoil management plan was developed to guide the contractor to separate impacted soil and protect it from degradation, erosion or from being inadvertently mixed with fill or waste. After construction, the protected topsoil was spread over impacted areas to a minimum depth of 200mm and maximum 600mm. At least 75% of all protected topsoil remains on site.

Landscape installation

This was undertaken as a joint venture by Countryline Horticulture and Bloomingdales, appointed to install soil placement, planting, stepping stones, mulches to demarcate the different biomes, pots, garden benches and irrigation – the latter being temporary for the initial establishment of



The roof garden was created to represent the four biomes. It has established well and attracts insects and birdlife.

the landscape. It is a RainBird automated system and the water source is municipal.

All plants sourced and used for the project had to be grown within a specified radius, which proved challenging considering the plant palette.

Lynch explains that since Grahamstown lies at an intersection of four different climatic zones, its weather is unpredictable and all four seasons can be experienced in a day. This variable climate supports a widely diverse flora (excluding that of a desert) and all the major vegetation types are found within a 150km radius of the town. For each biome, a different planting palette was used.

Biome 1, Cape fynbos, grows in a 100-200 km belt, stretching from the west coast to the south east coast. With Vanrhynsdorp as its north-western limit, the fynbos tails off near Grahamstown. This is the smallest biome represented, covering an area of 522 m² on site. South Africa's conservation of fynbos is critical to the survival of this botanical "treasure", and vegetation includes proteas, ericas and restios. To make the biome clearly visible, a coarse red bark mulch was used, and the following were some of the species planted: *Eriocephalus africanus*, *Rhus incise*, *Erica*, *Chrysanthemoides*, *Felicia*, *Diospyros scabrida*, *Othonna*, *Geranium*, *Helichrysum*, *Arctotis*, *Euphorbia mauritanicum*, *Orbea*, *Watsonia*, *Nerine*, *Oxalis*, *Aristea*, *Protea* spp.

The Albany/Subtropical thicket (biome 2) grows in the well-drained soils of the Great Fish River, Sundays and Gamtoos river valleys of the Eastern Cape. This is the largest biome on site, covering an area of 3065 m² and the thickets contain many endemic plants, particularly various *Euphorbia* species. Within the Grahamstown area one finds *Portulacaria afra*, *Crassula ovata*, *Pappea capensis*, *Aloes* and *Schotia afra*, and the following were planted to denote this biome: *Harpephyllum caffrum*, *Eckbergia capensis*, *Podocarpus falcatus*, *Dodonaea*, *Buddleja*, *Putterlickia pyracantha*, *Rhus undulata*, *Chrysanthemoides*, *Carissa*, *Plumbago*, *Tecoma*, *Salvia*, *Chrysocoma*, *Selago*, *Felicia*, *Aloe ferox*, *A. striata*, *A. thraski*, *Portulacaria*, *Scadoxus*, *Haemanthus*, *Tulbaghia*, *Babiana*, *Plectranthus*, *Pelargonium*, *Agapanthus*, *Selago*. Grasses included *Themeda*, *Panicum* and *Digitaria*. A local, light brown woodchip was used to demarcate this biome.

The sub-Savanna grassland, biome 3, is one of the largest in southern Africa and the third largest in the Grahamstown area, covering an area of 2170 m² on the site. It is characterised by a grassy ground layer and a distinct upper layer of woody plants. Most of the Savanna vegetation types are used for cattle and game grazing, hence the vast number of game farms and parks in the area. Some of the species planted to recreate this biome were: *Acacia karoo*, *Protea subvestita*, *Gazania krebsiana*, *Felicia muricata*, *Sutera cultivars*, *Asparagus virgatus*, *Polygala virgata*, *Aloe maculata*, *A. striatula*, *Myrsine Africana*, *Leonotus leonuris*, *Eucomis autumnalis*, *Haemanthus humilis*, *Scilla natalensis*, *Bulbine narcissifolius*, *Kniphofia uvaria*, *Boophane distiche*, *Encephalartos frederici-guillolmi*, *Scabiosa columbaria*, *Thunbergia capensis*, *Aristea cognata*, *Lobelia erinus* var. *bellidiformis*, *Chrysocoma tenuifolia*. Grasses include *Themeda triandra*, *Eragrostis capensis*, *E. curvula*, *Digitaria diagonalis*, *Aristida junciformis*, *Cynodon dactylon*, *Cymbopogon marginatus*. A dark brown bark chip was used as mulch to demarcate this area.

Biome 4, the Karoo/sub-desert biome, is notable for the world's richest flora of succulent plants and harbours about one third of the world's approximately 10 000 species. The region is extremely rich in geophytes, with about 630 species. It is represented as the second largest biome on the site, covering 2260m². The following material was planted: *Acacia karoo*, *Diosyros lycioides*, *Ehretia rigida*, *Buddleja salvifolia*, *Grewia occidentalis*, *Artemesia*

afra, *Felicia filifolia*, *F. muricata*, *Gazania krebsiana*, *Pachypodium succulentum*, *Aloe aristata*, *Euphorbia mauritanica*, *Crassula* spp., *Cotyledon* spp., *Gasteria*, *Portulacaria afra*, *Bulbine abyssinica*, *Babiana hypogaeal*, *Trotonia karoica*, *Ammocharis coranica*, *Moraea polystachya*. The mulch used is an orange rock/gravel, sourced from the local karoo biome area around Grahamstown.

Lynch says that sourcing the plant material required proved challenging as there are few local nurseries and plants normally grown do not comprise what was specified in the planting palette. She had to arrange for the nurseries to grow what was required about 18 months before the installation.

A further challenge was that due to the size of *Podocarpus* trees, a crane jack had to be hired to install them. Since there was a long distance to span, the crane jack was not adequate and a trolley jack was used instead. Gumpoles were used to lower the trees into the holes.

Local labour was mainly used, allowing for skills development training to be done in the community. There are now three people maintaining the site, one of which has been trained in irrigation installation by one of Countryline's senior irrigation installers. As a result of the training, he is now able to maintain and rectify any damages encountered.

Sustainability : Energy and Environmental Strategy

Energy strategies have been implemented to reduce the overall consumption of the building and the behaviour of occupants and users of the building are critical to reducing its energy consumption. The following are some of the numerous initiatives taken to improve the energy and environmental quality of the building:

- an electronic building management system actively controls the effectiveness of building services. It is integrated into the building to monitor and report on energy and water consumption;
- the building consists of mechanically air conditioned and naturally ventilated spaces to achieve air quality requirements;
- high frequency ballasts are installed in all occupied spaces to avoid flickering associated with fluorescent lighting. Provision has been made for individual spaces to be separately controlled, making it easier to light only occupied areas and thus saving on energy;
- the building has been designed to allow for 60% of the occupied area to have uninterrupted views of the external environment, which in turn improves the building and daylight quality;
- sustainability initiatives are implemented and displayed as learning resources for visitors and users of the building. This educates them about potable water savings, energy use, greenhouse gas emissions and green roof efficiency;
- water strategies have been implemented to reduce the use of potable water through efficient design of building systems and the accurate monitoring of water consumption. This is monitored by water meters provided for all major water uses and an automated mechanism can detect leaks, ensuring that water is not wasted;
- a waste recycling storage area has been established to encourage recycling of resources used within the building to reduce waste going to landfill. Cardboard, paper, glass, plastic and metals are recycled and waste is monitored to accurately record what is taken off the premises. **iso**

Information and photos supplied by Red Landscape Architects, Solid Green and Lesley Lynch on behalf of Countryline Horticulture