In line with the need to enhance urban biodiversity, this is a green wall or vertical garden with a marked difference; a meaningful experimental project which is being championed by the developers of the Art Mile, TomorrowCo. The Wall is planted solely with plants from a highly threatened veld type endemic to Gauteng, Egoli Granite Grassland. In days gone by, prior to urbanisation, this area of Rosebank would have been covered in this veld type.

Landscape architect and urban designer Charldon Wilken of Fieldworks Design Group comments that this intriguing wall has already “taken on a personality of its own”. It will continue to change character throughout the year and over the years. Seasonal changes are an important aspect of the wall from an ecological and aesthetic perspective. The wall is designed and planted to reflect the appearance and biodiversity value of this endangered veld type; and is in keeping with the innovative concept of the Art Mile which reflects a lifestyle centered around art.
The Art Mile extends along Keyes Avenue, Rosebank, with the well-known Everard Read and CIRCA galleries as the catalyst for this developing precinct. The newer Trumpet building, housing the established SMAC Gallery, along with the new TMRW Digital Gallery and comprising a large multi-functional exhibition space, links into the award winning CIRCA gallery which was designed by the same architects and urban designers, Studio-Mas. The Trumpet building was created for both established collectors, and young people wanting to gain a foothold in the art world. Small specialist shops, intimate cafes and restaurants allow activities to spill out on to the sidewalk, and are positioned in this almost entirely green space, with the Veld Wall located directly opposite on the extension of St Theresa's School on Keyes, while rectangles of planting provide greenery with locally indigenous plants, at this pavement level retail precinct. This stretch, which also allows for an overflow from the galleries at the monthly Art & Design Saturday, is terminated by another small, less complex, green wall. The sidewalk has a slightly broader grassland planting palette and is shaded by a double row of Wild Olive trees.

This already developed area of Keyes Art Mile has gained popularity over the last year with the developer supporting the First Thursday’s movement. Every first Thursday in the month, this portion of the street is closed to traffic and Jo’burg gathers in the public realm to appreciate the latest in art and design, to enjoy music and socialise in true street party fashion. People sharing their stories as, Wilken says, art tells its stories; as does architecture and nature.

Wilken explains that future phases of the Art Mile are at concept stage, being workshopped by the design team and that, broadly speaking, it will be a mixed use area, including a housing component. Although not pedestrianised,
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as such, the street will continue to create a platform for activities. As Wilken points out, “…it is a street and not a road”. The entire, relatively narrow “street” mile, with its wide robust sidewalks, will be paved and interesting scenes will slow traffic almost to a halt, as they do at present in the area of the Veld Wall and large-scale sidewalk sculptures. Drivers show remarkable patience on this paved area. The normal order of street use will be inverted: pedestrians will be given preference, then cyclists, then motor vehicles. Jan

Wilken comments on the ethos of integration between the different disciplines in the design team: urban design, landscape architecture, architecture, engineering, horticulture, etc. The developer is fully aware of the value of nature conservation and...
of nature as an art form. The soft and hard landscaping elements contribute to the spatial qualities of the project. Within the overarching vision for the precinct, the team has been exploring the idea of creating a story line using the grassland vegetation of Gauteng’s mining belt and showcasing vulnerable plants in each veld type, including the following: the poorly conserved Egoli Granite Grassland depicted on the Veld Wall; Soweto Highveld Grassland; Carletonville Dolomitic Grassland; and possibly other relevant veld types from the region.

A favourable micro-climate needs to be created, so that more planting can be introduced along the Mile; and the double row of trees in the first phase will be mirrored in future phases, while the street edge is likely to be treated in a similar fashion. Another aspect of the use of this Highveld grassland palette is that it will exhibit what can be achieved with locally indigenous plants in landscaping and might help to change the still common perspective of clients who favour sterile, exotic plantings.

Oscar Lockwood of Life Landscapes, the contractor that installed the Veld Wall, has observed that people are responding well to
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Wildflower Wholesale Nursery (Pty) Ltd that was established in 2004 specialises in plants that occur in the Grassland Biome in Southern Africa. Most plants in the nursery were grown from seed collected in the wild. Currently the focus is on plants that have horticultural and rehabilitation potential. Plants are also selected on their importance from a biodiversity aspect. (Not all plants occurring in the Grasslands are suitable for propagation).

Currently the nursery stocks approximately 160,000 indigenous plants of 600 different species from the Grassland Biome as well as some others that do well in this environment.

Wildflower Wholesale Nursery supplies plants to landscape architects, property developers, estates and contractors.

The owners are Dr. Johan Wentzel, who is a geohydrologist by profession and his wife Annette. Both have been dedicated on a full time basis to the nursery for the past twelve years.

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this unconventional vertical garden. The silvery white and pink tufts and plumes of different grasses waving in the breeze, and the great variety of plants that are relatively unknown to the average gardener, have caught the attention of the more observant passerby. It is hoped that the school children of St Theresa’s will be able to increase their knowledge of nature and ecosystems, through the Veld Wall’s potential as an educational tool in their biology and in their art classes.

The planted wall assists with the insulation of the school, as is the nature of vertical gardens on buildings, making the classrooms cooler in summer and warmer in winter. It also helps to curb the glare off the façade of the Trumpet building.

There are 5970 plants on the full extent of the Veld Wall which was installed in two phases. Care was taken, at the insistence of developer Anton Taljaard, not to go beyond the confines of species found in Egoli Granite Grassland. He knew this was a pilot project and yet had the courage to take the risk, with the possibility of both installation and maintenance challenges. The core or backdrop of the planting comprises grass species, while small shrubs, perennials, succulents and climbers serve as infill: little splashes of colour and different leaf forms and the interesting climbers on wire cables. Initial research was done by Wilken on the plants that occur in this veld type but there was also extensive consultation with nurseryman Johan Wentzel of Wildflower Nursery...with his first career having been that of a geologist and his nursery comprising mainly grassland plants...which helped to expand the basic list to include a larger variety both in scale and type.

Wentzel relates: “It is generally accepted that Egoli Granite Grassland is underlain by granite that produces a nutrient-poor sandy soil. However, it is not that simple, as scattered throughout the area are remnants of the so-called greenstones, some of the oldest rocks on earth. These are mainly serpentines that produce a much richer soil than granite. Dykes and quartzitic linear structures of hydrothermal origin are also present and
these inhibit groundwater flow. In the end, although there were many possible choices, it was availability that finally dictated the plants we used.”

The long section of the Veld Wall has a western to slightly north-western aspect and virtually all the plants on the wall are sun loving. In little pockets of shade created by larger plants or shade cast by pavement trees or the Trumpet building, some shade-loving grasses and bulbs have been introduced to the complex mix.

Closer observation of the wall reveals the herbaceous and bulbous plants in flower. The green-flowered *Eucomis autumnalis* (Pineapple Flower), the bright yellow daisies (on their long stems) of *Haplocarpa scaposa* (False Gerbera/Melktou), both have long flowering periods... and are available commercially. *Freesia grandiflora* and *Freesia laxa* produce dainty pinkish-red flowers in winter and are plants which favour shady spots; while *Thunbergia neglecta* is a creeper with creamy-white flowers. The small grassland *Gladiolus crassifolia* (Thick-leaved Gladiolus) has flowers in colours varying from pale pink to reddish-pink and purple. It blooms from late summer into autumn. *Gladiolus elliotii* is another of the diverse grassland bulbs with flowers of a milky white or bluish background that is closely speckled with tiny pink or maroon spots, and flower stalks that are more upright than the previously mentioned gladiolus species.

Large black and yellow carpenter bees have been spotted, attracted to the pollen of the *Chlorophytum* species both on the wall and in the sidewalk plantings. This plant has snow-white star-like flowers and protruding bright yellow stamens, and is buzz pollinated by these specialised bees which make their nests in wood. The legs of the bees envelope the stamens and through energetic buzzing shake the pollen loose. The coppery coloured Garden Acraea has been seen looking for nectar from flowering plants such as the much favoured *Scabiosa columbaria* (Wild Scabiosa) on the wall. Aloe species from Egoli Granite Grassland have been planted on the wall, including the endangered *Aloe peglerae* (Turk’s Cap), which is a small stemless species with leaves curving inwards. This species,
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which produces its single dull red flower spike in winter, is on the Red List of endangered species and needs ex-situ protection as it is nearing extinction. It is hoped that nectar-feeding sunbirds will visit the Veld Wall to sup from the aloe and poker (Kniphofia) species.

The grasses used as the backdrop planting are largely located in the first phase which receives the most sun and where the Gro-Wall installation wraps around the corner onto the north-facing section. These make a wonderful showing throughout most of the year. Wentzel says choosing the grasses was quite a challenge, as the smaller grass species that were tried initially proved to be too small and were simply overwhelmed by larger plants. Medium-sized grasses with interesting inflorescences, flowering and seeding at different times from spring into early winter, proved more successful. Some of these also take on attractive autumn colours. It is hoped that the grass seeds will attract bird species such as Bronze Mannikins, Weavers and Tawny-flanked Prinias, and that birds may also nest in this well-protected wall. Grass species comprise the attractive Sporobolus festivus (Red Dropseed) with its red-tinged delicate inflorescence and the closely related Sporobolus staphianus (Fibrous Dropseed) which is more densely tufted. The well-known Rooigras (Themeda triandra), which flowers from October to July with its distinctive clusters of spikelets, takes on a red-brown colour late in the season. The smaller Snowflake Grass (Andropogon eucomis) makes a glittering display on the wall; while Melinus nerviglumis (Bristle-leaved Red-Top) is very interesting with its blue-green foliage and shiny inflorescences fading from dark purple to white. This grass is sometimes called ‘pink crystals’ in the landscaping industry.

Climbers twining up steel cables fixed to the Gro-Wall structure are another aspect of the planting, originating largely from narrow planters at street level. Amongst these are the fast growing Wild Grape species (Rhoicissus tridentata) which produces fleshy, grape-like fruits that should attract birds; the severely threatened Bowiea volubilis (Knolklimop/Climbing Lily), an unusual creeper that has no true leaves and harvests light for photosynthesis from its inflorescences; and the glorious Flame Creeper (Combretum microphyllum) which provides a stunning, massed display of crimson flowers in spring. The latter plant attracts various insects and is the larval host plant for certain butterfly species; while nectar-feeding birds are also enticed by the flowers.

Wilken emphasises that the biodiversity value of the Veld Wall is considered as important as its aesthetic value.

Greg Martin of Life Landscapes says the weight of the entire Veld Wall – Gro-Wall system, potting mix, irrigation system and the plants – is approximately 32 tons. The engineer of the school building has confirmed that the structure will hold the full weight of the Veld Wall. Each module of the Gro-Wall Vertical Garden System, supplied by Pula Water Systems, has been bolted directly onto the

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masonry with robust wall plugs. Modules accommodate a set of three plant pots and are 680mm in width. Martin explains that between the window frames of the building, the modules were cut down to two plant pots of 460mm in width. The Veld Wall wraps around the corner of the school, utilising single sections of a standard module.

Plant pots can be clipped in and out for maintenance or plant replacement purposes. At this stage, April 2018, some of the pots are still visible, particularly in the second phase of planting but once the entire wall is mature, the Gro-wall infrastructure should be fully concealed. Plants ranging from 2-3ℓ were used on the wall, anything bigger would not fit into the plant pots. The potting mix supplied by Turfnet, which produces vermiculture (earthworm) products, comprises 15% of their vermicast pellets blended with a thick mulch and a fine compost.

According to Wilken, the loss of some of the smaller grasses could also have resulted from an irrigation dripline that did not fully reach the root zone. The dripline in the second phase was extended so that water reaches the root zone directly. In autumn, watering is only required at 2min/day and watering will be at an even lower rate in winter, according to the climatic patterns of the summer rainfall region of Gauteng. Additionally, larger plants were chosen for the second phase.

Maintenance of this complex pilot project is a challenge and is being done by trial and error. Life Landscapes are the maintenance contractors. The wall will need to be observed closely over time to ascertain irrigation needs and other requirements. It is planned that all the grasses will be cut back on an annual basis at the end of winter. Some weeds were removed from Phase 1 during the construction of Phase 2. A ‘cherry picker’ is used to maintain the wall. A grass inclined to dominate has already been removed from the wall, along with some of the smaller grasses that were being overwhelmed. Wentzel says that dominance, although a natural phenomenon, is certainly a possibility that needs to be closely observed over time. At selection stage, those plants known to have this tendency or which were otherwise unsuitable were not included in the planting palette, such as the pioneering species, Melinis repens (Natal Red-Top) which produces large quantities of seed; and plants with tap roots or large rootstocks. Smaller plants and plants that would remain greener for longer were preferred.

“Some plants may not survive,” says Wentzel. “In nature plants grow in different soils and have different water requirements, and this is very difficult to cater for in a system that is irrigated at a certain rate, and where the ‘soil’ mix is the same in all the plant pots.”

This dynamic project will change personality over time and the project team is eagerly observing the behavior of this innovative Veld Wall. ADM will hopefully be able to report on the process in future issues, as suggested by Lockwood of Life Landscapes.

Text and photographs by Carol Knoll