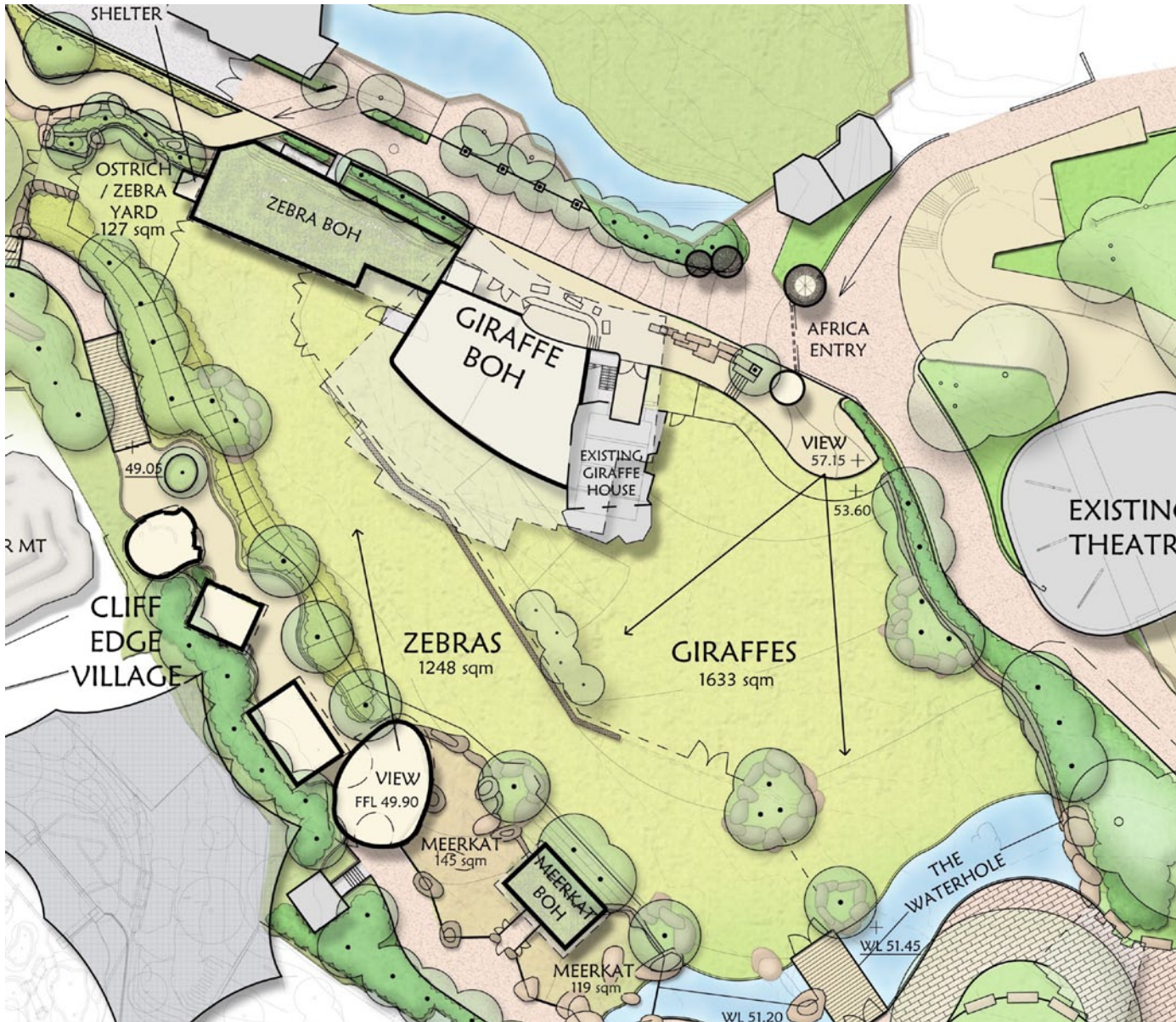


6.2 PLANTING SCHEDULES

The following descriptions provides typical planting types and number totals for each



ZONE 1 - GIRAFFE / ZEBRA SAVANNA PLANTING

TREES	
<i>Acacia mearnsii</i>	Black Wattle
<i>Acacia senegal</i>	Gum Arabic
<i>Adansonia digitata</i>	Baobab
<i>Castanea sativa</i>	Chestnut Tree
<i>Diospyros mespiliformis</i>	Jackalberry Tree
<i>Gleditsia triacanthos</i>	Honey Locust
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Robinia pseudoacacia</i>	False Acacia
<i>Vachellia farnesiana</i>	Mimosa Bush

Planting Area: NA
Trees: 36

SHRUBS	
<i>Aloe aculeata</i>	Prickly Aloe
<i>Aloe africana</i>	African Aloe
<i>Aloe barberae</i>	Giant Tree Aloe
<i>Aloe ferox</i>	Cape Aloe

Planting Area: 486 sqm
Plants @2/m2: 972

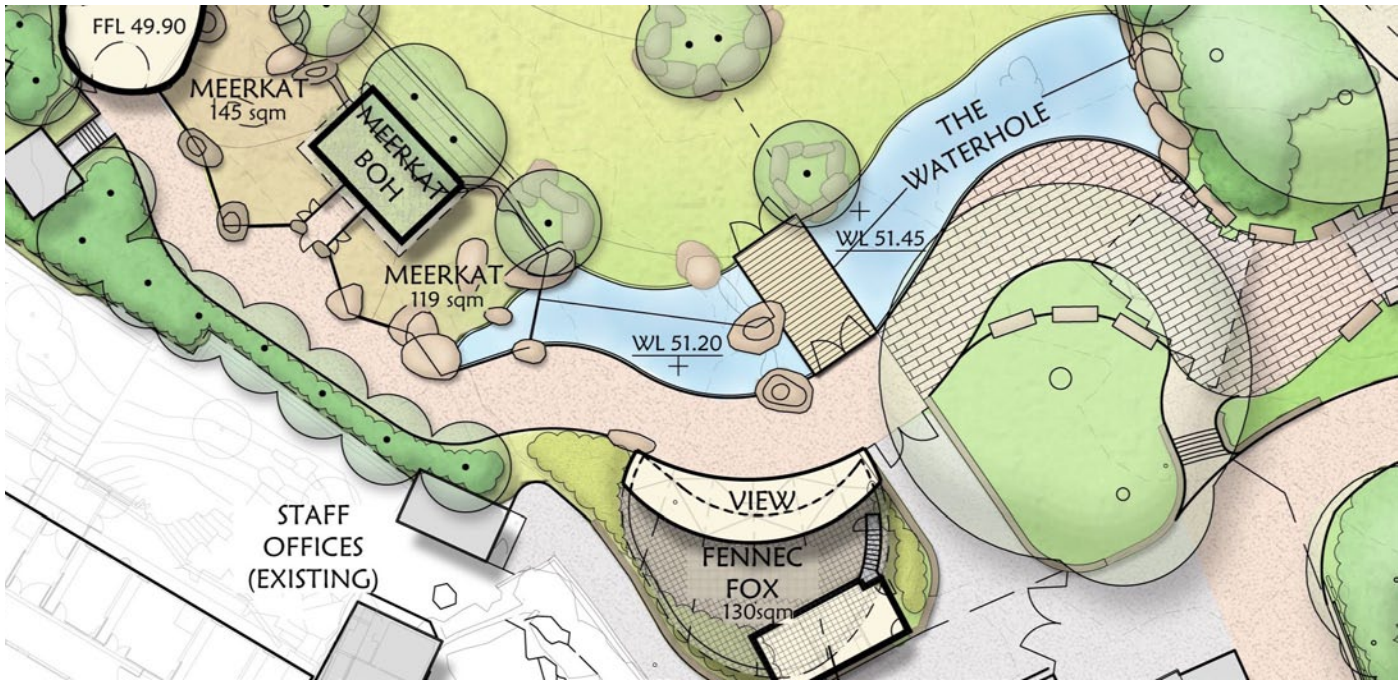
GRASSES	
<i>Carex appressa</i>	Tall Sedge
<i>Carex pendula</i>	Pendulous Sedge
<i>Cynodon spp</i>	Bermuda Grass
<i>Danthonia linkii</i>	Wallaby Grass
<i>Diets bicolor</i>	African Iris
<i>Diets grandiflora</i>	Giant Iris
<i>Diets robinsoniana</i>	Wedding Lily
<i>Diets vegeta</i>	African Butterfly Iris
<i>Pennisetum alopecuroides</i>	Swamp Fountain Grass
<i>Themeda triandra</i>	Kangaroo Grass

Planting Area: 972 sqm
Plants @6/m2: 5,830

SUCCULENTS	
<i>Agave attenuata</i>	Foxtail Agave
<i>Aloe barberae</i>	Tree Aloe
<i>Aloe ramosissima</i>	Maidens Quiver Tree
<i>Aloe thraskii</i>	Dune Aloe

Planting Area: 162 sqm
Plants @4/m2: 648

Giraffe / Zebra Total Planting Area 1,620 sqm
Total Plants 7,486



ZONE 2 - AFRICAN WATERHOLE

TREES	
<i>Castanea sativa</i>	Chestnut Tree
<i>Cunonia capensis</i>	Red Alder
<i>Diospyros mespiliformis</i>	Jackalberry Tree
<i>Harpephyllum caffrum</i>	Kaffir Plum Tree

Planting Area: NA
Trees: 20

SHRUBS	
<i>Leonotis leonurus</i>	Lions Ear
<i>Leucospermum 'Goldie'</i>	Golden Pincushion
<i>Leucospermum praecox 'Patricia'</i>	Large Tufted Pincushion

Planting Area: 152 sqm
Plants @2/m2: 304

SUCCULENTS	
<i>Agave attenuata</i>	Foxtail Agave
<i>Aloe barberae</i>	Tree Aloe
<i>Aloe ramosissima</i>	Maidens Quiver Tree
<i>Aloe thraskii</i>	Dune Aloe
<i>Encephalartos hildebrandtii</i>	Mombasa Cycad
<i>Encephalartos natalensis</i>	Natal Cycad
<i>Euphorbia trigona</i>	African Milk tree

Planting Area: 76 sqm
Plants @4/m2: 304

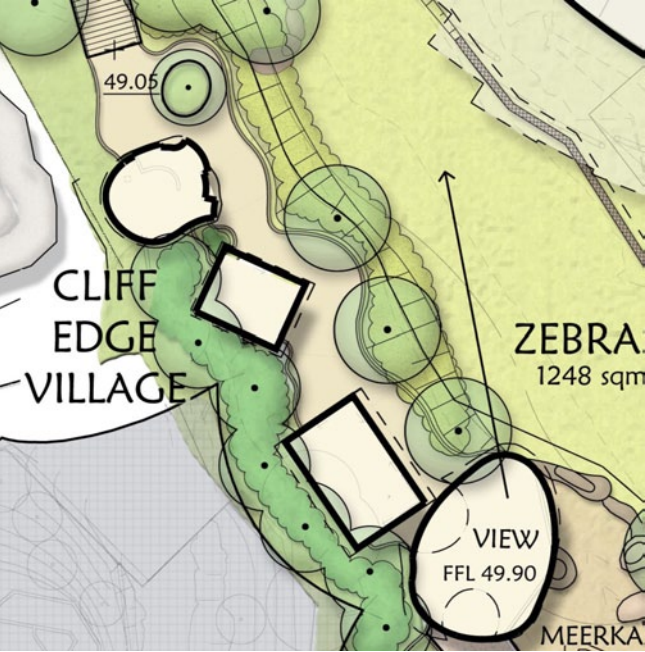
GRASSES	
<i>Carex appressa</i>	Tall sedge
<i>Carex pendula</i>	Pendulous Sedge
<i>Dietes bicolor</i>	African Iris
<i>Dietes grandiflora</i>	Giant Iris
<i>Dietes robinsoniana</i>	Wedding Lily
<i>Dietes vegeta</i>	African Butterfly Iris

Planting Area: 380 sqm
Plants @6/m2: 2,277

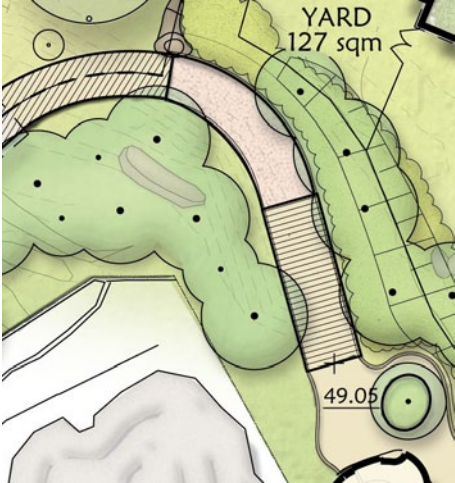
AQUATICS	
<i>Cyperus papyrus</i>	Papyrus
<i>Ipomoea aquatica</i>	Water Spinach
<i>Nelumbo nucifera</i>	Lotus Lily

Planting Area: 152 sqm
Plants@0.5/m2: 76

African Waterhole Total Planting Area 759 sqm
Total Plants 2,980



ZONE 3 - CLIFF TOP VILLAGE			
TREES			
<i>Diospyros mespiliformis</i>	Jackalberry Tree		
<i>Gleditsia triacanthos</i>	Honey Locust		
<i>Glochidion ferdinandi</i>	Cheese Tree		
<i>Harpephyllum caffrum</i>	Kaffir Plum Tree		
<i>Olea europaea 'Swan Hill'</i>	African Olive		
<i>Pachira glabra</i>	Malabar Chestnut		
Planting Area:		NA	
Trees:		20	
SHRUBS			
<i>Aloe aculeata</i>	Prickly Aloe		
<i>Aloe africana</i>	African Aloe		
<i>Aloe barberae</i>	Giant Tree Aloe		
<i>Aloe ferox</i>	Cape Aloe		
<i>Aristea ecklonii</i>	Blue Stars		
<i>Bambusa multiplex</i>	Bamboo		
<i>Dendrocalamopsis oldhamii</i>	Giant Bamboo		
<i>Leucadendron 'Jubilee Crown'</i>	Jubilee Crown Leucadendron		
<i>Leucadendron lauratum</i>	Golden Conebush		
<i>Leucadendron salignum 'Safari Magic'</i>	Conebush		
<i>Leucospermum 'Goldie'</i>	Golden Pincushion		
<i>Leucospermum praecox 'Patricia'</i>	Large Tufted Pincushion		
<i>Yushania alpina</i>	African Alpine Bamboo		
Planting Area:		136 sqm	
Plants @2/m2		271	
SUCCULENTS			
<i>Encephalartos hildebrandtii</i>	Mombasa Cycad		
<i>Encephalartos natalensis</i>	Giant Tree Cycad		
<i>Euphorbia tirucalli 'Firesticks'</i>	Pencil Bush		
<i>Euphorbia trigona</i>	African Milk tree		
<i>Senecio mandraliscae</i>	Blue Chalk Sticks		
Planting Area:		58 sqm	
Plants @4/m2		232	
Cliff Top Village Total Planting Area		194 sqm	
Total Plants		523	



ZONE 4 - ROCKY HILLSIDE			
TREES			
<i>Diospyros mespiliformis</i>	Jackalberry Tree		
<i>Ficus lyrata</i>	Fiddle Leaf Fig		
<i>Ficus microcarpa var hilli</i>	Hills Weeping Fig		
<i>Harpephyllum caffrum</i>	Kaffir Plum Tree		
<i>Olea europaea 'Swan Hill'</i>	African Olive		
<i>Pachira glabra</i>	Malabar Chestnut		
Planting Area:		NA	
Trees:		10	
SHRUBS			
<i>Aloe aculeata</i>	Prickly Aloe		
<i>Aloe africana</i>	African Aloe		
<i>Aloe barberae</i>	Giant Tree Aloe		
<i>Aloe ferox</i>	Cape Aloe		
<i>Aristea ecklonii</i>	Blue Stars		
<i>Artemisia arborescens</i>	Silver Wormwood		
<i>Kniphofia x praecox</i>	Red Hot Pokers		
<i>Leonotis leonurus</i>	Lions Ear		
<i>Leucadendron 'Jubilee Crown'</i>	Jubilee Crown Leucadendron		
<i>Leucadendron lauratum</i>	Golden Conebush		
<i>Leucadendron salignum 'Safari Magic'</i>	Conebush		
<i>Leucospermum 'Goldie'</i>	Golden Pincushion		
<i>Leucospermum praecox 'Patricia'</i>	Large Tufted Pincushion		
Planting Area:		114 sqm	
Plants @2/m2		228	
GRASSES			
<i>Danthonia linkii</i>	Wallaby Grass		
<i>Diets bicolor</i>	African Iris		
<i>Diets grandiflora</i>	Giant Iris		
<i>Diets robinsoniana</i>	Wedding Lily		
<i>Diets vegeta</i>	African Butterfly Iris		
<i>Doryanthes palmeri</i>	Gymea Lily		
<i>Pennisetum alopecuroides</i>	Swamp Fountain Grass		
Planting Area:		76 sqm	
Plants@ 6/m2		457	
Rocky Hillside Total Planting Area		190 sqm	
Total Plants		695	



ZONE 5 - LIONS KOPJE

TREES	
<i>Diospyros mespiliformis</i>	Jackalberry Tree
<i>Eucalyptus maidenii</i>	Maidens Gum
<i>Eucalyptus microcorys</i>	Tallowood
<i>Ficus lyrata</i>	Fiddle Leaf Fig
<i>Ficus microcarpa</i> var <i>hilli</i>	Hills Weeping Fig
<i>Ficus obliqua</i>	Small Leaf Fig
<i>Ficus rubiginosa</i> f. <i>glabrescens</i>	Port Jacksons Fig
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Harpephyllum caffrum</i>	Kaffir Plum Tree
Planting Area:	NA
Trees:	20

SHRUBS	
<i>Aloe aculeata</i>	Prickly Aloe
<i>Aloe africana</i>	African Aloe
<i>Leucadendron</i> 'Jubilee Crown'	Jubilee Crown Leucadendron
<i>Leucadendron lauratum</i>	Golden Conebush
<i>Leucadendron salignum</i> 'Safari Magic'	Conebush
<i>Leucospermum</i> 'Goldie'	Goldie Pincushion
<i>Leucospermum praecox</i> 'Patricia'	Large Tufted Pincushion
Planting Area:	235 sqm
Plant @2/m2:	470

GRASSES	
<i>Cynodon</i> spp	Bermuda Grass
<i>Danthonia linkii</i>	Wallaby Grass
<i>Dietes bicolor</i>	African Iris
<i>Dietes grandiflora</i>	Giant Iris
<i>Dietes robinsoniana</i>	Wedding Lily
<i>Dietes vegeta</i>	African Butterfly Iris
<i>Doryanthes palmeri</i>	Gymea Lily
<i>Poa affinis</i>	Tussock Grass
<i>Themeda triandra</i>	Kangaroo Grass
Planting Area:	294 sqm
Plants @ 6/m2:	1,761

SUCCULENTS	
<i>Agave attenuata</i>	Foxtail Agave
<i>Aloe barberae</i>	Tree Aloe
<i>Aloe ramosissima</i>	Maidens Quiver Tree
Planting Area:	59 sqm
Plants @4/m2	235

Lions Kopje Total Planting Area	587 sqm
Total Plants	2,485



ZONE 6 - LIONS KOPJE & WOODLAND EDGEWOOD

TREES

<i>Banksia integrifolia</i>	Coastal Banksia
<i>Diospyros mespiliformis</i>	Jackalberry Tree
<i>Eucalyptus maidenii</i>	Maidens Gum
<i>Eucalyptus microcorys</i>	Tallowood
<i>Eucalyptus punctata</i>	Grey Gum
<i>Eucalyptus robusta</i>	Swamp Mahogany
<i>Ficus lyrata</i>	Fiddle Leaf Fig
<i>Ficus microcarpa</i> var <i>hilli</i>	Hills Weeping Fig
<i>Ficus obliqua</i>	Small Leaf Fig
<i>Ficus rubiginosa</i> f. <i>glabrescens</i>	Port Jacksons Fig
<i>Glochidion ferdinandi</i>	Cheese Tree
<i>Harpephyllum caffrum</i>	Kaffir Plum Tree
<i>Syzygium paniculatum</i>	Magenta Cherry

Planting Area: NA
Trees: 10

SHRUBS

<i>Aloe aculeata</i>	Prickly Aloe
<i>Aloe africana</i>	African Aloe
<i>Aloe barberae</i>	Giant Tree Aloe
<i>Aloe ferox</i>	Cape Aloe
<i>Aristea ecklonii</i>	Blue Stars
<i>Leucadendron</i> 'Jubilee Crown'	Jubilee Crown Leucadendron
<i>Leucadendron lauratum</i>	Golden Conebush
<i>Leucadendron salignum</i> 'Safari Magic'	Conebush
<i>Leucospermum</i> 'Goldie'	Goldie Pincushion
<i>Leucospermum praecox</i> 'Patricia'	Mossel Bay Pincushion

Planting Area: 241 sqm
Plants: @2/m2 483

GRASSES

<i>Carex pendula</i>	Pendulous Sedge
<i>Cynodon</i> spp	Bermuda Grass
<i>Danthonia linkii</i>	Wallaby Grass
<i>Dietes bicolor</i>	African Iris
<i>Dietes grandiflora</i>	Giant Iris
<i>Dietes robinsoniana</i>	Wedding Lily
<i>Dietes vegeta</i>	African Butterfly Iris
<i>Doryanthes palmeri</i>	Gymea Lily
<i>Pennisetum alopecuroides</i>	Swamp Fountain Grass
<i>Poa affinis</i>	Tussock Grass
<i>Themeda triandra</i>	Kangaroo Grass

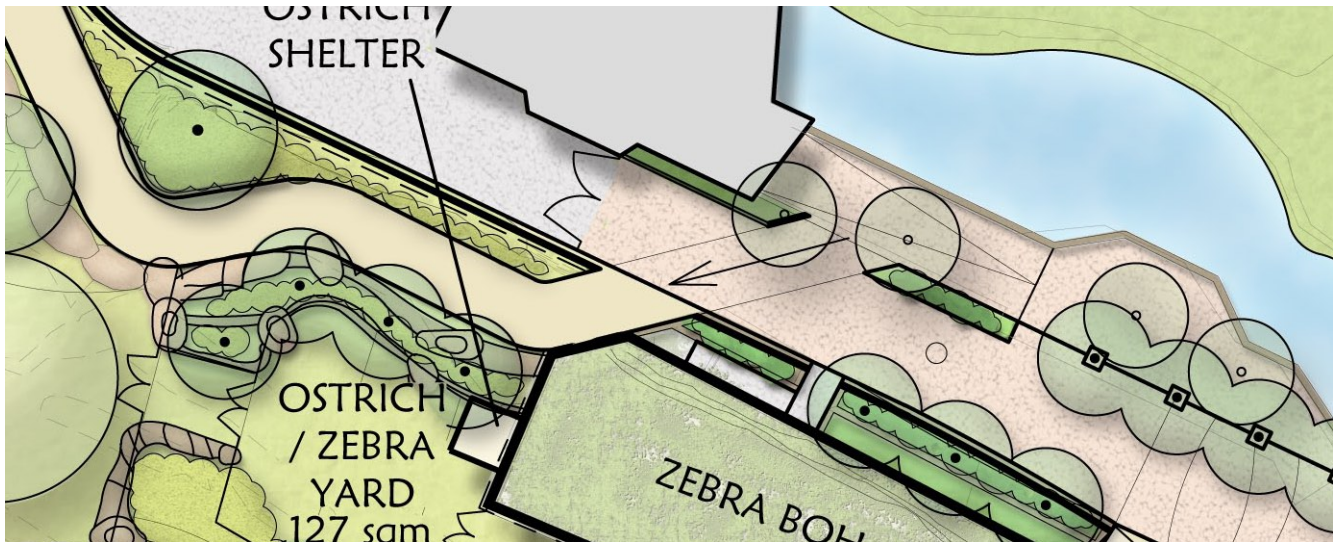
Planting Area: 302 sqm
Plants @6/m2 1,810

SUCCULENTS

<i>Agave attenuata</i>	Foxtail Agave
<i>Aloe barberae</i>	Tree Aloe
<i>Aloe ramosissima</i>	Maidens Quiver Tree

Planting Area: 60 sqm
Plants @4/m2 241

Lions Woodland Total Planting Area 603 sqm
Total Plants 2,543



ZONE 7 - EDGE OF THE FOREST

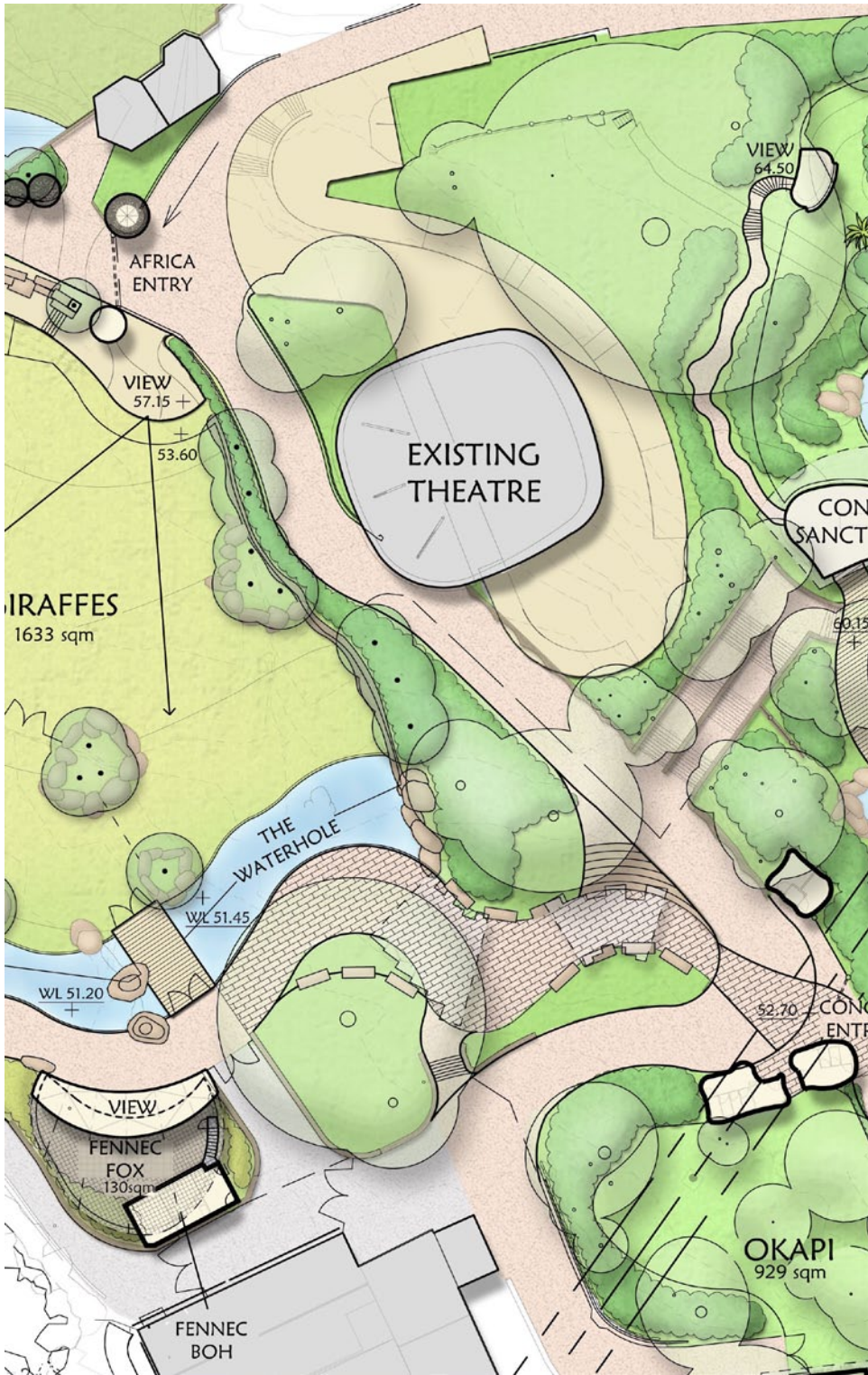
TREES	
<i>Castanea sativa</i>	Chestnut Tree
<i>Diospyros mespiliformis</i>	Jackalberry Tree
<i>Gleditsia triacanthos</i>	Honey Locust
<i>Harpephyllum caffrum</i>	Kaffir Plum Tree
Planting Area:	NA
Trees:	20

SHRUBS	
<i>Aloe aculeata</i>	Prickly Aloe
<i>Aloe africana</i>	African Aloe
<i>Aloe barberae</i>	Giant Tree Aloe
<i>Aloe ferox</i>	Cape Aloe
<i>Aristea ecklonii</i>	Blue Stars
<i>Kniphofia x praecox</i>	Red Hot Pokers
<i>Leucadendron lauratum</i>	Golden Conebush
<i>Leucadendron salignum 'Safari Magic'</i>	Conebush
Planting Area:	74 sqm
Plants @2/m2	148

GRASSES	
<i>Danthonia linkii</i>	Wallaby Grass
<i>Dietes bicolor</i>	African Iris
<i>Dietes grandiflora</i>	Giant Iris
<i>Dietes robinsoniana</i>	Wedding Lily
<i>Dietes vegeta</i>	African Butterfly Iris
<i>Doryanthes palmeri</i>	Gymea Lily
Planting Area:	93 sqm
Plant @6/m2:	555

SUCCULENTS	
<i>Aloe barberae</i>	Tree Aloe
<i>Aloe ramosissima</i>	Maidens Quiver Tree
Planting Area:	19 sqm
Plants @4/m2	74

Edge of the Forest Total Planting Area	185 sqm
Total Plants	797



ZONE 8 - CENTRAL VISITOR PATH

TREES	
<i>Adansonia digitata</i>	Baobob
<i>Bauhinia punctata</i>	African Plume
<i>Brachychiton rupestris</i>	Queensland Bottle Tree
<i>Harpephyllum caffrum</i>	Kaffir Plum Tree
<i>Khaya senegalensis</i>	African Mahogany
<i>Phoenix reclinata</i>	Senegal Date Palm
<i>Sparmannia africana</i>	African Tulip Tree
Planting Area:	NA
Trees:	25

SHRUBS	
<i>Aloe barberae</i>	Giant Tree Aloe
<i>Aloe ferox</i>	Cape Aloe
<i>Aristea ecklonii</i>	Blue Stars
<i>Buddleja madagascariensis</i>	Madagascar Budleja
<i>Clerodendrum splendens</i>	Pagoda Flower
<i>Kniphofia x praecox</i>	Red Hot Pokers
<i>Leonotis leonurus</i>	Lions Ear
<i>Leucadendron laurum</i>	Golden Conebush
<i>Leucadendron salignum 'Safari Magic'</i>	Conebush
Planting Area: 123 sqm	
Plants @2/m2 245	

GRASSES	
<i>Dietes bicolor</i>	African Iris
<i>Dietes grandiflora</i>	Giant Iris
<i>Dietes robinsoniana</i>	Wedding Lily
<i>Dietes vegeta</i>	African Butterfly Iris
<i>Doryanthes palmeri</i>	Gymea Lily
Planting Area: 153 sqm	
Plants: @6/m2 918	

SUCCULENTS	
<i>Encephalartos hildebrandtii</i>	Mombasa Cycad
<i>Encephalartos natalensis</i>	Natal Cycad
<i>Euphorbia tirucalli</i> 'Firesticks'	Pencil Bush
<i>Euphorbia trigona</i>	African Milk tree
<i>Senecio mandraliscae</i>	Blue Chalk Sticks
Planting Area: 31 sqm	
Plant @4/m2 123	

Central Visitor Path Total Planting Area	306 sqm
Total Plants	1,311



ZONE 9 - CONGO FOREST / FOREST EDGE

TREES

<i>Aleurites moluccana</i>	Candlenut
<i>Bauhinia punctata</i>	African Plume
<i>Eugenia jambos</i>	Rose Apple
<i>Ficus lyrata</i>	Fiddle Leaf Fig
<i>Ficus microcarpa</i> var <i>hilli</i>	Hills Weeping Fig
<i>Ficus obliqua</i>	Small Leaf Fig
<i>Ficus rubiginosa</i>	Port Jackson Fig
<i>Hymenosporum flavum</i>	Native Frangipani
<i>Phoenix reclinata</i>	Senegal Date Palm
<i>Phoenix roebelenii</i>	Dwarf Date Palm
<i>Socratea exorrhiza</i>	Walking Palm
<i>Sparmannia africana</i>	African Tulip Tree
<i>Syzygium</i> spp	Lilly Pilly
<i>Treculia africana</i>	African Breadfruit

Planting Area: NA
Trees: 40

SHRUBS

<i>Abutilon theophrasti</i>	Velvet Leaf
<i>Actinidia deliciosa</i>	Kiwi Fruit
<i>Artemisia arborescens</i>	Silver Wormwood
<i>Artocarpus altilis</i>	Breadfruit
<i>Buddleja madagascariensis</i>	Madagascar Buddleja
<i>Clerodendrum splendens</i>	Pagoda Flower
<i>Combretum krausii</i>	Forest Bushwillow
<i>Costus lucanusianus</i> 'Sweet African'	Ginger
<i>Cunonia capensis</i>	Red Alder
<i>Dombeya tiliacea</i>	Forest Wild Pear
<i>Ensete ventricosum</i>	Abyssinian Banana
<i>Euphorbia abyssinica</i>	Desert Candle
<i>Euphorbia lactea</i>	Candelabra Plant
<i>Justicia adhatoda</i>	Malabar Nut
<i>Notelaea longifolia</i>	Mock Olive
<i>Thunbergia erecta</i>	Kings Mantle
<i>Wachendorfia thyrsiflora</i>	Read Root

Planting Area: 1,091 sqm
Plants @2/m2 2,182

GRASSES

<i>Bambusa multiplex</i>	Bamboo
<i>Carex appressa</i>	Tall sedge
<i>Carex pendula</i>	Pendulous Sedge
<i>Cynodon</i> spp	Bermuda Grass
<i>Danthonia linkii</i>	Wallaby Grass
<i>Dietes bicolor</i>	African Iris
<i>Dietes grandiflora</i>	Giant Iris
<i>Dietes robinsoniana</i>	Wedding Lily
<i>Dietes vegeta</i>	African Butterfly Iris
<i>Doryanthes palmeri</i>	Gynea Lily

Planting Area: 400 sqm
Plants 6/m2 2,400

SUCCULENTS

<i>Encephalartos hildebrandtii</i>	Mombasa Cycad
<i>Encephalartos natalensis</i>	Giant Tree Cycad
<i>Euphorbia tirucalli</i> 'Firesticks'	Pencil Bush
<i>Euphorbia trigona</i>	African Milk tree

Planting Area: 91 sqm
Plants @4/m2 364

EPIPHYTES

<i>Dendrobium canaliculatum</i>	Tea Tree Orchid
<i>Oncidium onustum</i>	Luxurious Oncidium
<i>Sophranitis brevipedunculata</i>	Short-stalked Sophranitis

Planting Area: NA
Plants @2/m2 80

VINES

<i>Podranea ricasoliana</i>	Pink Trumpet Vine
<i>Tecoma capensis</i>	Cape Honeysuckle

Planting Area: 182 sqm
Plants @2/m2 364

AQUATICS

<i>Aponogeton distachyos</i>	African Water Hawthorn
<i>Cyperus papyrus</i>	Papyrus

Planting Area: 55 sqm
Plants @2/m2 109

Congo Forest Total Planting Area 1,819 sqm
Total Plants 5,539



ZONE 10 - GORILLA FOREST

TREES

<i>Aleurites moluccana</i>	Candlenut
<i>Archontophoenix cunninghamiana</i>	Bangalow Palm
<i>Bauhinia punctata</i>	African Plume
<i>Elaeocarpus reticulatus</i>	Blueberry
<i>Eugenia jambos</i>	Rose Apple
<i>Ficus lyrata</i>	Fiddle Leaf Fig
<i>Ficus microcarpa</i> var <i>hilli</i>	Hills Weeping Fig
<i>Ficus obliqua</i>	Small Leaf Fig
<i>Ficus rubiginosa</i>	Port Jackson Fig
<i>Flindersia</i> sp. [<i>schottiana</i>]	Cudgerie
<i>Pandanus kirkii</i>	Screw Pine
<i>Pandanus utilis</i>	Stilt Palm
<i>Phoenix canariensis</i>	Canary Island Palm
<i>Phoenix reclinata</i>	Senegal Date Palm
<i>Phoenix roebelinii</i>	Dwarf Date Palm
<i>Tristanopsis laurina</i>	Water Gum

Planting Area: NA
Trees: 25

SHRUBS

<i>Abutilon theophrasti</i>	Velvet Leaf
<i>Artemisia arborescens</i>	Silver Wormwood
<i>Artocarpus altilis</i>	Breadfruit
<i>Buddleja madagascariensis</i>	Madagascar Budleja
<i>Clerodendrum splendens</i>	Pagoda Flower
<i>Combretum kraussii</i>	Forest Bushwillow
<i>Costus lucanusianus</i> 'Sweet African'	Ginger
<i>Cunonia capensis</i>	Red Alder
<i>Dombeya tiliacea</i>	Forest Wild Pear
<i>Ensete ventricosum</i>	Abyssinian Banana
<i>Euphorbia abyssinica</i>	Desert Candle
<i>Thunbergia erecta</i>	Kings Mantle
<i>Wachendorfia thyrsiflora</i>	Read Root

Planting Area: 628 sqm
Plants @2/m2 1,256

GRASSES

<i>Bambusa multiplex</i>	Bamboo
<i>Carex appressa</i>	Tall sedge
<i>Carex pendula</i>	Pendulous Sedge
<i>Cynodon spp</i>	Bermuda Grass
<i>Dietes grandiflora</i>	Giant Iris
<i>Dietes robinsoniana</i>	Wedding Lily
<i>Dietes vegeta</i>	African Butterfly Iris
<i>Poa affinis</i>	Tussock Grass

Planting Area: 441 sqm
Plants @6/m2 2,645

6.3 PLANT SIZES

The following descriptions provides typical planting types and number totals for each character area:

TYPICAL TREE/PLANT SIZES

TREE PLANTING

Height (m)	Spread (m)	Density	Pot Size
15m	4 m	As shown	200 litre
12m	9-12m	As shown	100 litre
8m	8 x 5m	As shown	100lt
6m	6 x 6m	As shown	300mm pot

SHRUB PLANTING

Height (m)	Spread (m)	Density	Pot Size
1m	1.0m	2/m2	150mm pot
1.5m	1.5-2.0m	2/m2	200mm pot
2-3m	1-2m	2/m2	25L
3-5m	3m	1/m2	25L
4-7m	3.0 - 4.0m	1/m2	25L
6-10m	4m	1/m2	25L
10-15m	5-8m	-	100L

GROUNDCOVERS

Height (m)	Spread (m)	Density
<0.4m	0.4m	6/m2
0.5 - 1.2m	0.5-1m	6/m2

GRASSES

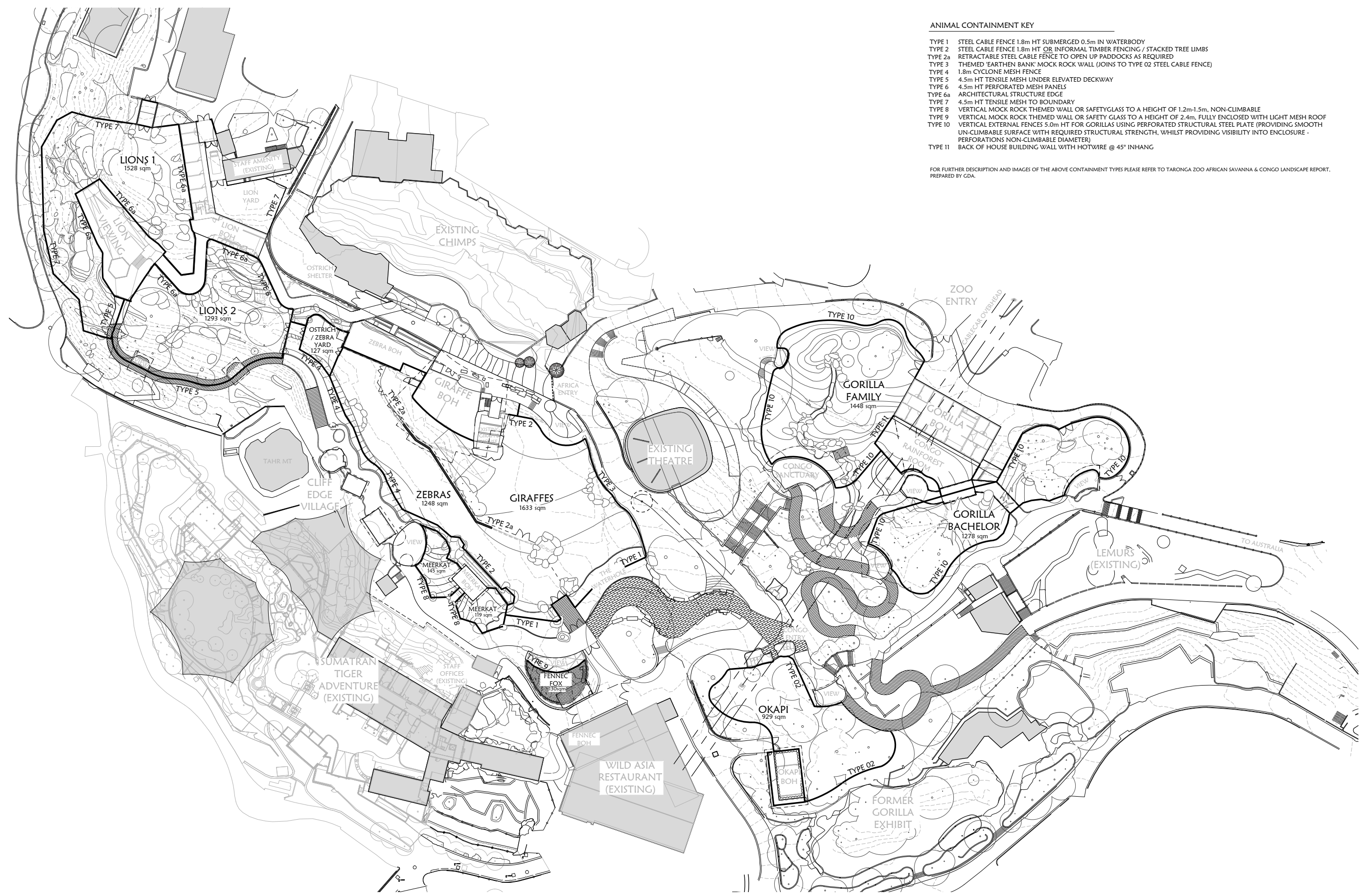
Height (m)	Spread (m)	Density
0.3m	0.3 x 0.3m	6/m2
0.5 - 1.2m	0.5-1m	6/m2
0.6-1.2m	1.2 - 1.8m	2/m2

PLANTING SUMMARY

	QUANTITY
TREES	226
SHRUBS	6,559
GRASSES	18,653
SUCCULENTS	2,220
AQUATICS	251
VINES	364
EPIPHYTES	80
TOTAL SITE PLANTS	28,352
TOTAL SITE PLANTING AREA	7,365 sqm

7.0 ANIMAL CONTAINMENT

The following descriptions provide an thematic overview of the main exhibit area



ANIMAL CONTAINMENT KEY	
TYPE 1	STEEL CABLE FENCE 1.8m HT SUBMERGED 0.5m IN WATERBODY
TYPE 2	STEEL CABLE FENCE 1.8m HT OR INFORMAL TIMBER FENCING / STACKED TREE LIMBS
TYPE 2a	RETRACTABLE STEEL CABLE FENCE TO OPEN UP PADDOCKS AS REQUIRED
TYPE 3	THEMED 'EARTHEN BANK' MOCK ROCK WALL (JOINS TO TYPE 02 STEEL CABLE FENCE)
TYPE 4	1.8m CYCLONE MESH FENCE
TYPE 5	4.5m HT TENSILE MESH UNDER ELEVATED DECKWAY
TYPE 6	4.5m HT PERFORATED MESH PANELS
TYPE 6a	ARCHITECTURAL STRUCTURE EDGE
TYPE 7	4.5m HT TENSILE MESH TO BOUNDARY
TYPE 8	VERTICAL MOCK ROCK THEMED WALL OR SAFETYGLASS TO A HEIGHT OF 1.2m-1.5m, NON-CLIMBABLE
TYPE 9	VERTICAL MOCK ROCK THEMED WALL OR SAFETY GLASS TO A HEIGHT OF 2.4m, FULLY ENCLOSED WITH LIGHT MESH ROOF
TYPE 10	VERTICAL EXTERNAL FENCES 5.0m HT FOR GORILLAS USING PERFORATED STRUCTURAL STEEL PLATE (PROVIDING SMOOTH UN-CLIMBABLE SURFACE WITH REQUIRED STRUCTURAL STRENGTH, WHILST PROVIDING VISIBILITY INTO ENCLOSURE - PERFORATIONS NON-CLIMBABLE DIAMETER)
TYPE 11	BACK OF HOUSE BUILDING WALL WITH HOTWIRE @ 45° INHANG

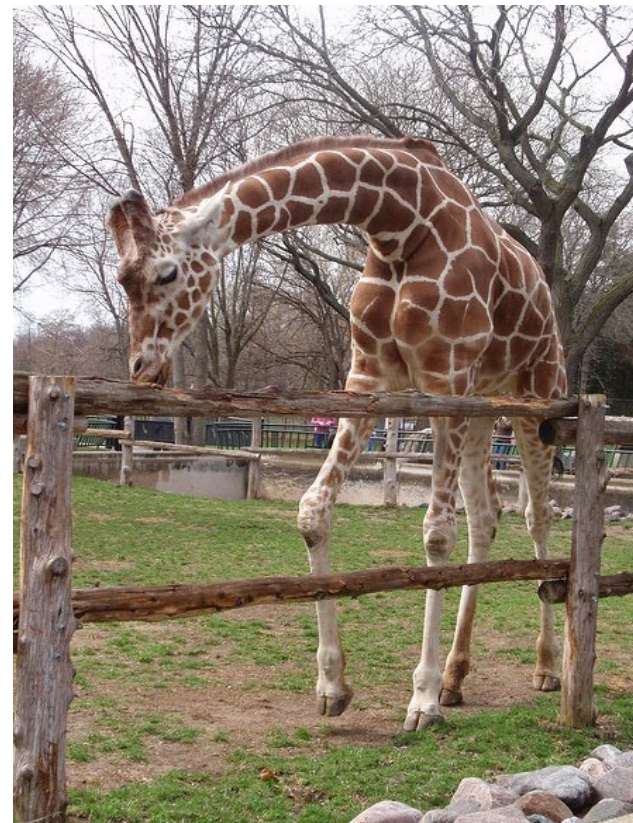
FOR FURTHER DESCRIPTION AND IMAGES OF THE ABOVE CONTAINMENT TYPES PLEASE REFER TO TARONGA ZOO AFRICAN SAVANNA & CONGO LANDSCAPE REPORT, PREPARED BY GDA.

7.0 ANIMAL CONTAINMENT

The following descriptions provide an thematic overview of the main exhibit area:



Giraffe/Zebra perimeter fencing - (Above) informal fallen logs disguise fence behind, (Below) typical cable fence Type 2 and (Middle) natural tree log fence/corral & (Left) 1.5m ht Cable fence for Zebra



RESTRAINT FENCE TYPES

Type 1 - steel cable fence 1.8m ht submerged 0.5m in water

Type 2 - steel cable fence 1.8m ht or informal timber fencing/stacked tree limb /trunks.

Type 2A - Retractable steel cable fence to open up paddocks

Type 3 - Mock rock themed earth bank, joins Type 2 steel cable fence

Type 4 - Black cyclone mesh 1.8mht restraint with sloping rock filled depression in front of fence.

GIRAFFE (Type 1/2/2A/3/4)

- Vertical external fences 1.8m height for the Giraffe, with horizontal 6mm steel cables at 600mm intervals. With the enclosure waterhole, the fence will be located central to the waterbody, which will have a depth of 150mm to 500mm.

ZEBRA (Type 1/2/2A/4)

- Vertical external fences 1.8m height, with horizontal 6mm steel cables at 400mm intervals. Shared with Giraffe

OSTRICH (Type 2/4)

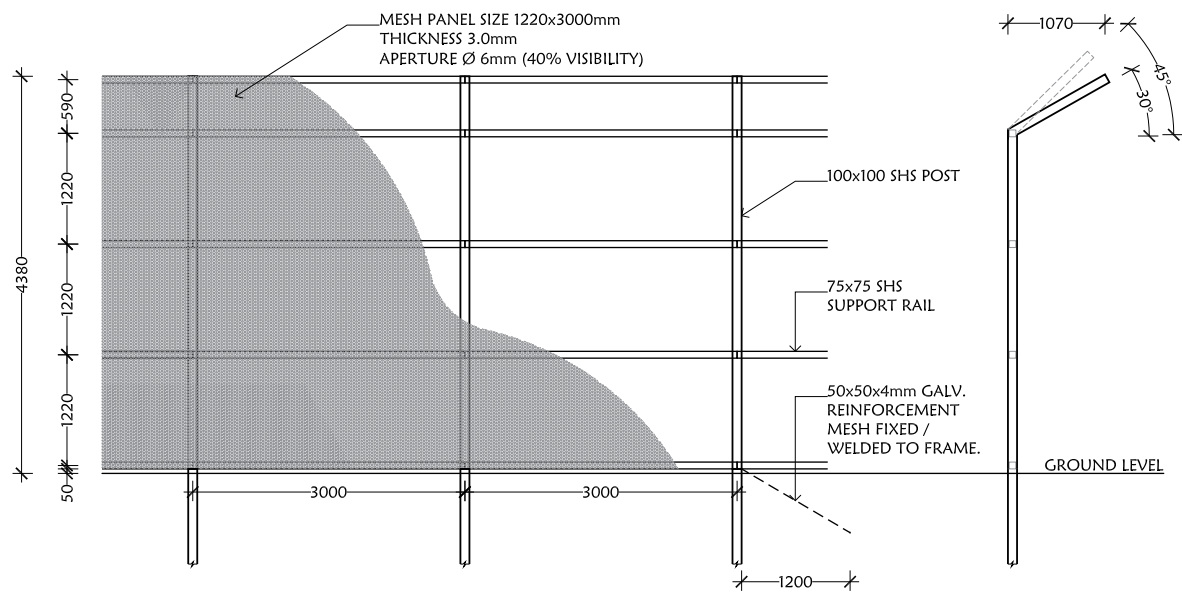
- Vertical external fences 1.8m height for the Giraffe, with horizontal 6mm steel cables at 600mm intervals. Shared with Giraffe.

OKAPI (Type 2)

- Vertical external fences 1.5m height, with horizontal 6mm steel cables at 400mm intervals. Fencing type the same as for zebra.



Gorilla enclosure perforated steel mesh walls at WORZ.



NOTE: WEIGHT OF CAPTIVE GORILLA = 200kg

All Exhibits and off-exhibit holding areas are designed to provide the highest level of security for this species. Great care has been taken in placement of landscaping and exhibit furniture to avoid the possibility of use by Gorilla/Lion to reach areas in where visitors, or staff may be injured.

Consideration should include prevention of animals jumping from one landscaping element to another in order to reach a location otherwise out of reach. No matter what containment material is used, the composition of the material and the external coatings applied must be non-toxic, non-irritating, and non-traumatic.

Walls/Fences: The jumping ability of Lions and Gorillas should be not to be underestimated, and vertical jump walls (dry moats or exterior walls) in enclosures lacking a top should be tall enough to prevent jumping or climbing out.

Current requirements for proposed new exhibits for the African Savannah / Congo Precincts :

- A minimum 4.5 m (height with a 45 degree turnback at 1.0m length/overhang for the Lion and Gorilla enclosures – facing into enclosure. However, the type of barrier must be considered when determining necessary height. Themed rock walls may be easier for animals to climb if not designed with sufficient negative relief. Hotwire is not to be used as a form of primary containment and should not be used to compensate for inadequate primary barriers, although it is sometimes used as a supplemental deterrent to climbing. Mesh will be fixed to a submerged concrete plinth edge
- Outdoor enclosures using wire fence perimeters should consider the nature of the soils. Lions can dig up sprinklers or other objects. If soft soils are present, where a fence stops at the substrate along a perimeter a 1 metre length reinforced mesh apron is to be fixed to the bottom extending into the exhibit as a dig barrier. It can also be also be attached to a concrete beam footing.

EASTERN LOWLAND GORILLA (Type 10)

- Vertical external fences 5.0m height for the Gorillas (4.5m with 1.0m 45 degree overhang) using a perforated structural steel plate, as used in the gorilla enclosure at WORZ. This allows a smooth unclimbable surface with structural strength to withhold a fully grown male gorilla.

The perforated mesh also provides visibility into the enclosure. Perforations are non climbable. It is proposed that the lower 2.0m of the fence is a solid panel to give the gorilla privacy, with perforated surface above.

8.0 ANIMAL CONTAINMENT

The following descriptions provide an thematic overview of the main exhibit area:



Lion tensile mesh fencing



Fennec Fox enclosure with mesh or glass viewing front, and lightweight mesh roof

LIONS (Type 5/6/ 6A/7)

- Vertical external fences 4.5m height , with 1.0m 45 degree overhang, for lion the 'Tiger Mesh' product will be used, as seen in the current Sumatran Tiger Adventure enclosures – tensile steel mesh, cable structure clad by blackened Carl Stahl X-Tend stainless steel wire mesh - (Types 5/6/7)
- Underside of elevated deck to enclosure 2, X-tend tensile mesh to underside of deck with horizontal arm extension for electric hot wires - (Type 5).
- At overhangs for the main fence structure secondary barriers such as electric/hot wires to reduce access to the tensile wire, and the configuration will be effective in containing the animals kept in the enclosure - (Types 5/6/7)
- Back of House enclosed yard - 75 X 50mm apertures - bars 5mm thickness weldmesh panels, with 45 degree angle overhang with electric hot wires - (Type 7)
- Architectural structures - Viewing Structure between Enclosures 1 & 2 - Curved structures will have 45 degree angle overhang with electric hot wires (Type 6A).

MEERKAT (Type 8)

- Vertical mock rock themed wall or safety glass to a height of 1.2m – 1.5m ht, Non climable.

FENNEC FOX (Type 9)

- Vertical mock rock themed wall or safety glass to a height of 2.4 ht, fully enclosed with light rodent/bird proof steel mesh roof and sides. Mesh size 20mmx20mm, gauge 0.2mm.



Meerkats - elevate above the ground and make visual barriers transparent

8.0 SURFACE TREATMENT

The following descriptions provide an thematic overview of the main exhibit area





Pathway circuit for giraffes



Existing sandstone outcrops and shelves prevalent on the Lion enclosure site

ANIMAL SURFACE TREATMENT

To provide each animal species with a varying enclosure surface that encourages natural activities that can be found in their natural habitats.

GIRAFFE, ZEBRA, OSTRICH & OKAPI

A captive giraffe can spend a greater time standing than a wild giraffe, particularly in zoos. To prevent the problem of overgrown hooves, a hard abrasive surface is recommended for giraffe, but not to dominate the total area of the enclosure.. The surface needs to be non-slip. The following will be used in the proposed enclosure surfaces:

- Textured concrete bases
- Crushed gravels, decomposed granite, granitic sand, asphalt and loose sand spread over concrete.
- Sandy soils with grassy cover, slightly elevated above main traffic routes.
- In some areas EDM rubber surfaces could be trialed.

The abrasive surface is not required throughout the exhibit, but recommended for the main walkways, areas where feeding takes place and areas of heavy traffic. ie maintenance access ways. On pathways soft decomposed mulch could be used loosely.

LIONS

Prime habitat for lions is rocky Kopje and open woodlands of the savannah below, with thick grassland, and brush habitat. These area will provide good shelter for the lion and encourage greater activity due to the diverse nature of the proposed habitat.

Current needs are open areas, grassy areas, and some sort of raised area for them to lie in the sun. They need shady areas too so they can get out of the sun. The area will have good drainage so that it is not muddy as lions are used to very dry ground. The proposed enclosure is unique with its diversity in landform, with flat elevated areas and sandstone rock ledges of varying heights. In Enclosure One has an existing Kopje woodland edge providing shade and retreat. Pathways will be cut into the enclosure where it is rocky to allow access for older lions. Substrate will consists of deep soils to allow growth of grasses and herbs, and also cooler to lie on.



Typical rainforest floor proposed for both the gorilla and okapi., with open clearings



Lion Enclosure 1 - has an existing woodland edge, on a steep sandstone scarp edge, which provides shade and retreat. Pathways will be cut into the enclosure areas where it has steep inclines to allow access for older lions. Substrate will consist of deep soils to allow growth of grasses and herbs, and also cooler for the lion to lie on.

Lion Enclosure 2 - is more elevated with existing sandstone ledges, which will reflect lion 'Kopje' country'. In the African savannah the softer metamorphic rocks of the rock surface have worn away, with the uneven top of the rock layer being exposed, forming kopjes. The rock is cracked by the repeated heating and cooling under the African sun, and weathered into interesting shapes by the wind. Most kopjes are round or have round boulders on them due to "spherical weathering". It is intended to imitate this unique topography, with the addition of sandstone ledges to provide areas for the lions to bask in the sun and also provide protection from inclement weather. Deep soils will be provided for pockets of open grassland and shrub planting, with the addition of decomposed mulch and gravel surfaces to provide a surface for enrichment activities.

GORILLA, OKAPI

The tropical rainforest floor layer, or forest floor, is the ground layer of this biome. It lies beneath the emergent, canopy and understory layers, which is the reason why almost no sunlight reaches this area. The gorilla enclosure will accommodate this type of habitat with open grassy clearings. Much of the floor can be a layer of decomposed organic forest mulch. The proposed soils will be deep and of a highly organic nature to encourage a dense ground cover of grasses, herbs and leafy plants.

Mulched trails will be created throughout the enclosure to encourage movement. The enclosure will have a hilly habitat, where a large stand of palms are located for shade and can withstand 'rough treatment' by the gorilla.





Sandy soil mixture encourages foraging and digging for both the Meerkat and Fennec Fox



MEERKAT AND FENNEC FOX

The Meerkat is located in front of the zebra / giraffe grassland enclosure, with a mock rock sandstone rock edge providing separation. The exhibit is elevated 500mm+, with a rocky landscape with tunnels and termite mounds. To encourage foraging for food, basking in the sun or digging tunnels in their exhibit, sandy substrate is the ideal medium. Meerkats by nature are very inquisitive and enjoying exploring new things, therefore hollow logs and root systems are integrated into the enclosure, with further enrichment items designed to keep the group physically and mentally stimulated.

All rocks will have foundations, to prevent injury to meerkats tunnel collapse. Allow 500mm depth substrate with a weldmesh floor to prevent escape.

Fennec fox will have the same substrate and habitat enrichment, a rock dune habitat with wind blown eroded cave shelters. Fennecs Foxes are nocturnal animals, though they also love to play in the warm sand and bask on objects warmed by the sun. Fennec Foxes are strong diggers, digging long tunnels and good climbers so the enclosure must adequately house them securely. Provide a substrate of sand, gravel and clay content, to hold mix together.

