

Hilland Environmental

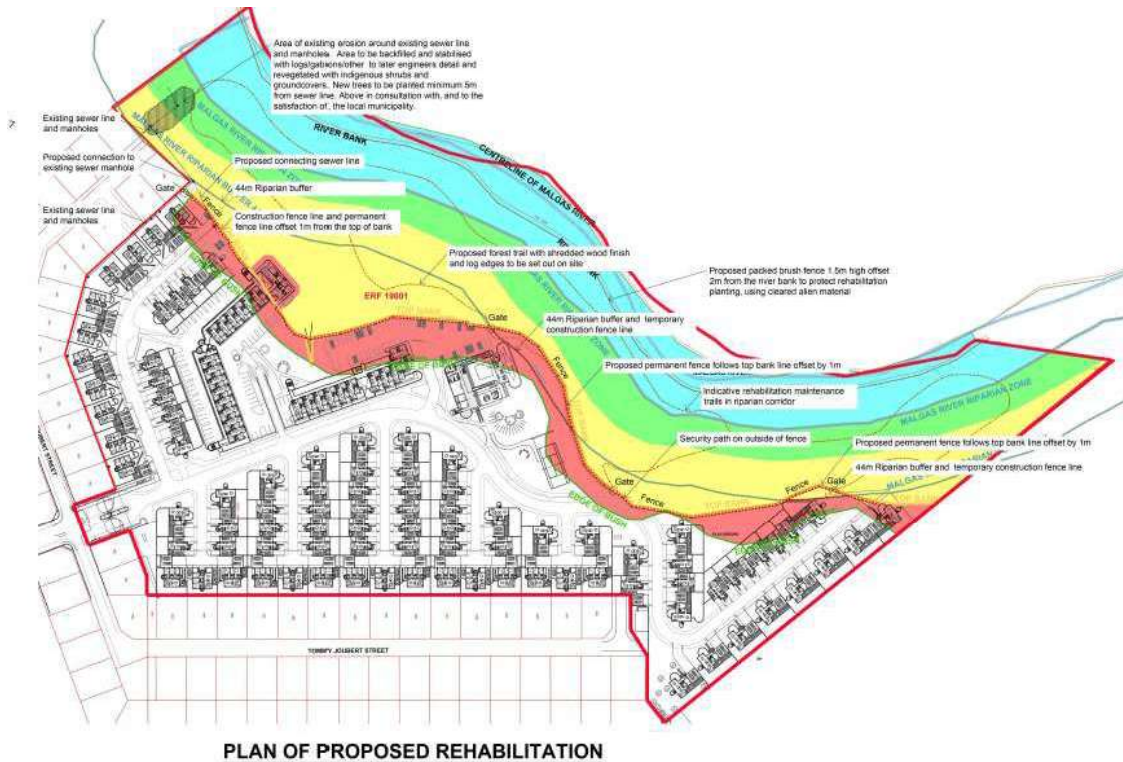
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INVASIVE ALIEN PLANT CONTROL (ACP) FOR ERF 19001, GEORGE ARBOUR ESTATE

In terms of the National Environmental Management: Biodiversity Act (NEM:BA Act No 10 of 2004, Amended October 2014) and Invasive Species Regulations (October 2014)



PLAN OF PROPOSED REHABILITATION

Compiled by	Hilland Environmental
Hilland Reference	GEO22/1176/13
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**Invasive Alien Plant Control Plan (ACP) – Erf 19001, George
Arbour Estate**

Submitted to:

DEA - Biosecurity Compliance
Stiaan Kotze

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EXECUTIVE SUMMARY

HillLand Environmental has been appointed by **Cedardale Investments (Pty) Ltd** represented by **Amit Joseph Katz**, owner of Erf 19001, as Independent Environmental Assessment Practitioners (EAPs), to facilitate an Invasive Alien Plant Control Plan (ACP) in terms of the National Environmental Management: Biodiversity Act (NEM:BA, Act 10 of 2014) for the property.

Erf 19001 (here after referred to as 'the property') is a 11.69ha erf zoned for residential development in the urban edge of George. An application in terms of NEMA is made for a residential development on a section of the property.

The habitat on-site as described by the specialist, Dr David Hoare (survey undertaken 12 March 2021):



Based on a detailed field survey to verify conditions on site, a detailed landcover and habitat mapping exercise was undertaken for the site. This identified two main habitats occurring on site, shown in the figure above. These are mapped as **Eucalyptus Forest** and **secondary grassland**. There are also transformed areas associated with George Road / Witfontein Road. The habitat assessment is important for understanding the suitability of habitat on site for various plant and animal species of concern, which usually have very specific habitat requirements.

Eucalyptus forest

The steep-sided valley associated with the Malgas River is almost entirely dominated by alien invasive species including the Gum, *Eucalyptus grandis**, which is a NEMBA Category 1b alien

invasive species. Other alien species include Black Wattle, Lantana, Bugweed and others (see list below). There are a small number of indigenous woody plants within the *Eucalyptus* grove, including *Canthium inerme* and *Gymnosporia nemerosa*. The physical conditions, location and general attributes of this area suggest that it was probably originally a form of forest in its natural state that extended as a finger down the valley from the Afromontane forests that occur in a band along the southern base of the Outeniqua Mountains. It is, however, highly degraded, and there is little to nothing remaining of this possible original vegetation.

Secondary grassland

- This area mostly forms part of the area proposed for development zone – alien clearing will therefore be actively implemented in the mostly *Eucalyptus* Forest with periodic clearing in the residential estate as disturbance of topsoil will result in stimulation of the seedbank. Follow-up control will therefore be required in open space areas, road verges, gardens etc.

The entire upland part of the site is covered with secondary grassland. This is dominated by various grass species, including *Cenchrus clandestinus**, *Eragrostis curvula*, *Sporobolus africanus* and *Stenotaphrum secundatum**, along with a variety of herbaceous weedy species, including *Arctotheca prostrata*, *Centella asiatica*, *Cirsium vulgare** (NEMBA Category 1b), *Crepis sancta**, *Cyperus polystachyos*, *Oxalis species*, *Watsonia species*, *Helichrysum patulum*, *Hypoxis villosa*, *Lobelia flaccida*, *Plantago lanceolata*, *Raphanus raphanistrum**, *Richardia brasiliensis**, *Senecio erubescens*, *Tephrosia capensis*, *Trifolium repens**, *Vicia hirsuta** and *Vicia sativa**. This species composition could occur on any unmanaged lawn in any garden in suburban George. The indigenous *Erica sparsa* occurs in patches, but is a common coloniser of previously disturbed localities. There are places that are dominated by a combination of bracken fern, *Pteridium aquilinum*, and the grass, *Paspalum urvillei** that may be indicators of slightly higher local soil moisture levels.



Drone footage over the property

To the left – secondary grassland; To the right – *Eucalyptus* forest

Development is proposed in the eastern side of the property. The western property boundary extends to the middle of the Malgas River, and the riparian zone and riparian buffer as designated by the aquatic specialist will be retained for rehabilitation purposes. The intent is to rehabilitate the riparian corridor over time to remove the alien vegetation and restore natural Afromontane riparian forest.



Proposed site plan

The rehabilitation area has been divided into three (3) management units for systematic alien clearing over the course of 14 years.

Certain of the large Gum trees will be retained under a NEMBA permit to act as canopy for the rehabilitation of the forest species and most importantly as they form part of the visual screen identified in the Visual Impact Assessment as being required to screen and soften the development area while the Afrotemperate forest is being rehabilitated. The indigenous forest will take over the screening role in the long term.

All alien species within the riparian zone will be cleared in the first phase as these cannot be retained under a NEMBA permit.



Alien invasive control plan- Arbour Estate

LEGEND

	PRE-CONSTRUCTION CLEARING OF INVASIVE SPECIES WITH LATER FELLING OF <i>Eucalyptus grandis</i>
	PRE-CONSTRUCTION CLEARING OF INVASIVE SPECIES INCLUDING <i>Eucalyptus grandis</i>
	PHASED CLEARING OF INVASIVES WITH LATER FELLING OF <i>Eucalyptus grandis</i>
	PHASED CLEARING OF INVASIVES WITH LATER FELLING OF <i>Eucalyptus grandis</i>

Timeline set out for clearing activities to be undertaken by the appointed team:

REHABILITATION ZONES AS PER PLAN

PRE-CONSTRUCTION & YEAR 13-14	0.7ha
PRE-CONSTRUCTION	1.8ha
YEAR 1-2 & YEAR 9-10	1.9ha
YEAR 3-4 & YEAR 11-12	1.2ha
INDIGENOUS FOREST ESTABLISHMENT PERIOD	

George, Townhouses Erf 19001: Environmental Rehabilitation Programme									
ACTION									
		PRE-CONSTRUCTION		POST-CONSTRUCTION (By HOA, in years)					
		(By Developer)		1-2	3-4	5-8	9-10	11-12	13-14
1)	Conservation worthy plant rescue and protection								
2)	Invasive alien vegetation clearing (excluding roots)								
3)	Actively replanting of Indigenous plants								
4)	Soil stabilisation on steep slope								
5)	Removal of Eucalyptus trees (excluding gum stump removal)								
6)	Establishing Fire Breaks (to fire specialist input)								
7)	Monitoring and follow up clearing of alien regrowth and seedlings	ON-GOING PROCESS							

REHABILITATION PROGRAMME

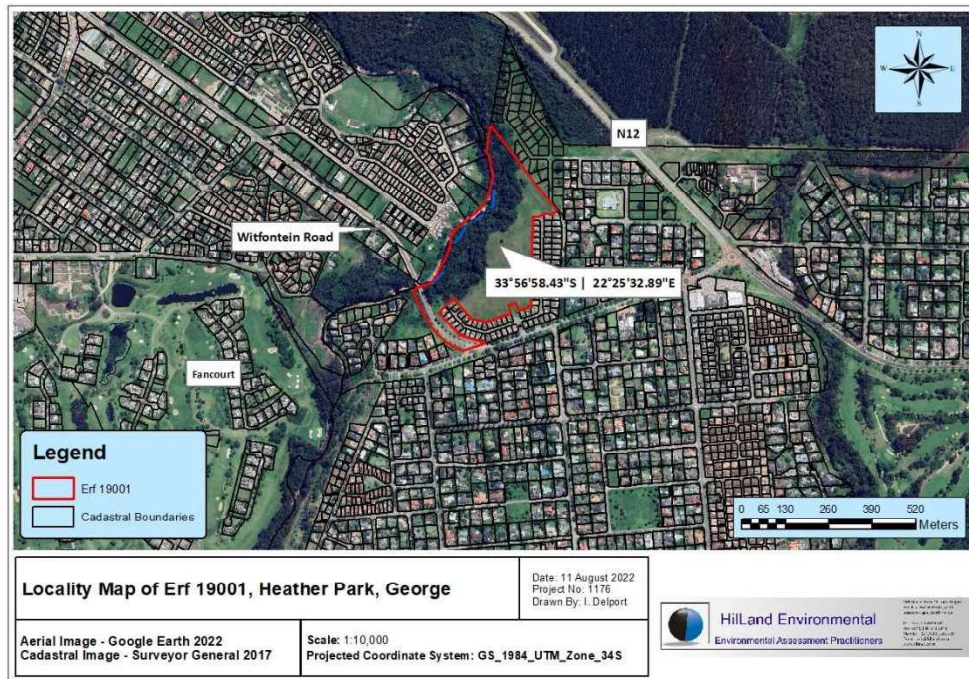
The aim is therefore to have the open space cleared and free of alien invasive vegetation within the 14-years.

Internal open space area, road verges, and gardens will be maintained free of any emerging alien seedlings as part of the maintenance and operation of the development.

INTRODUCTION AND BIODIVERSITY CONTEXT

The following control plan have been produced in terms of Section 76 of NEM:BA and monitoring, control and eradications plans guidelines (dated: 30 September 2015).

Erf 19001, 'the property' is located in the northwestern part of George – are formally known as Heather Park.



The site is accessed off Witfontein road via Tommy Joubert Street. The Malgas River forms the western boundary of the site. The entire wooded area shown in the aerial image below is a steep west-facing valley associated with this stream. The upper parts of the site are relatively flat and are located in the grassy areas, between the existing urban areas and the alien infested wooded valley.



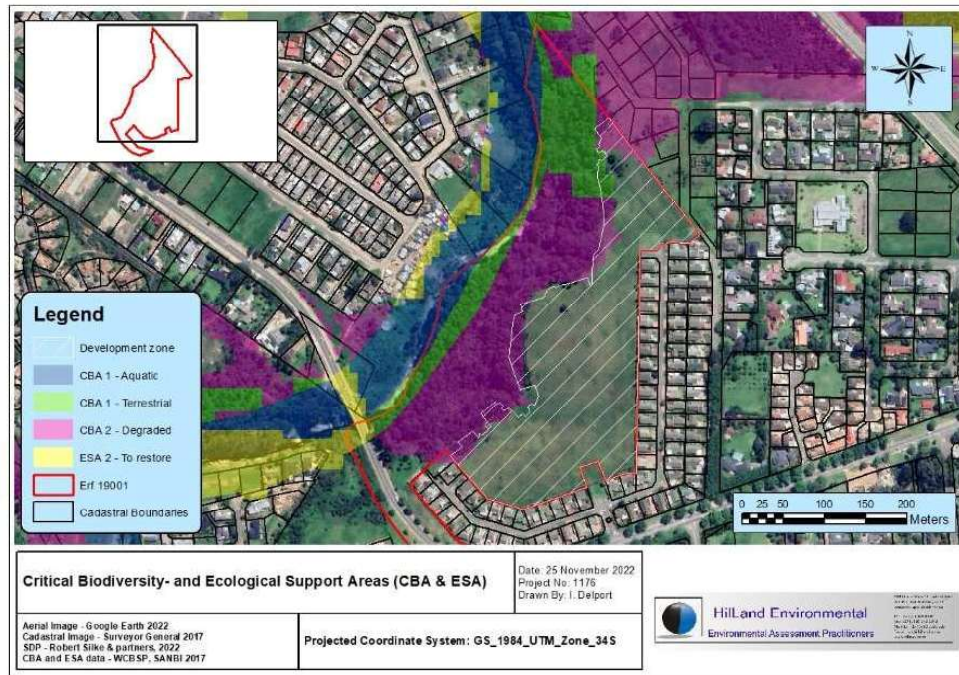
Aerial image of the property

Malgas River Riparian Zone

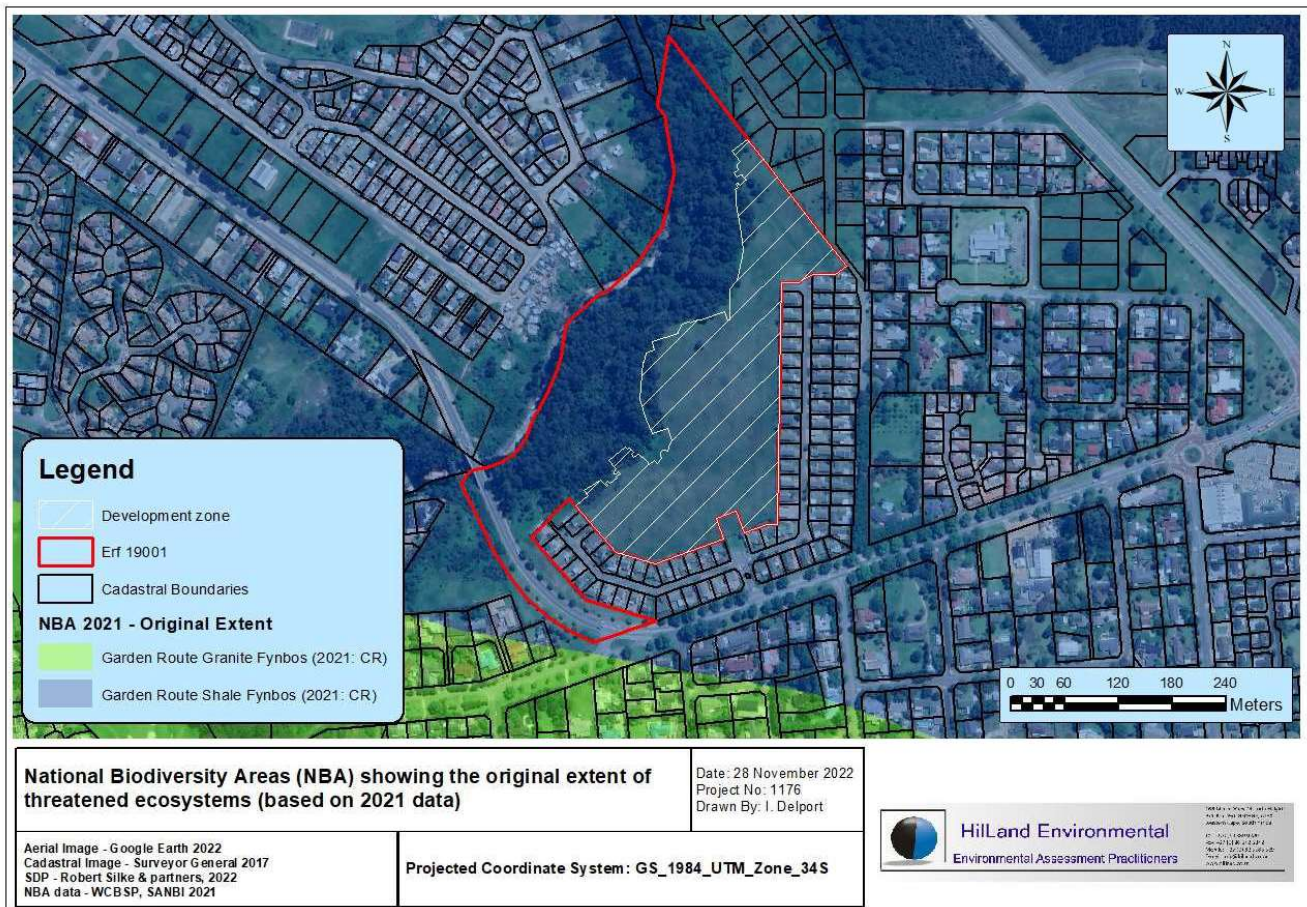
HOUSE TYPES

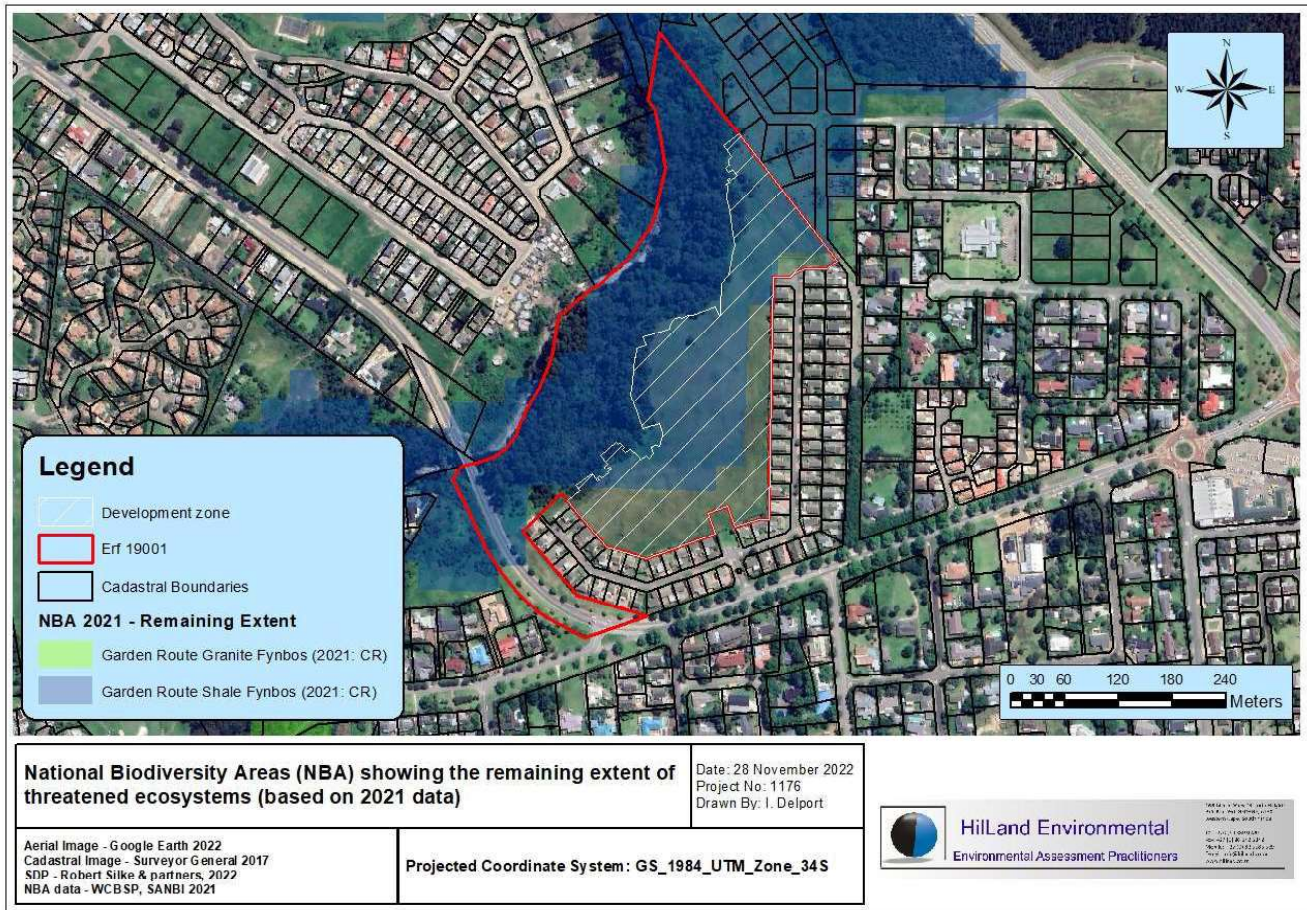
- 1-2 BEDROOM FLAT (100m²)
- 3-4 BEDROOM FLAT (150m²)
- 5-6 BEDROOM FLAT (200m²)
- 7-8 BEDROOM FLAT (250m²)
- 9-10 BEDROOM FLAT (300m²)
- 11-12 BEDROOM FLAT (350m²)
- 13-14 BEDROOM FLAT (400m²)
- 15-16 BEDROOM FLAT (450m²)
- 17-18 BEDROOM FLAT (500m²)
- 19-20 BEDROOM FLAT (550m²)
- 21-22 BEDROOM FLAT (600m²)
- 23-24 BEDROOM FLAT (650m²)
- 25-26 BEDROOM FLAT (700m²)
- 27-28 BEDROOM FLAT (750m²)
- 29-30 BEDROOM FLAT (800m²)
- 31-32 BEDROOM FLAT (850m²)
- 33-34 BEDROOM FLAT (900m²)
- 35-36 BEDROOM FLAT (950m²)
- 37-38 BEDROOM FLAT (1000m²)
- 39-40 BEDROOM FLAT (1050m²)
- 41-42 BEDROOM FLAT (1100m²)
- 43-44 BEDROOM FLAT (1150m²)
- 45-46 BEDROOM FLAT (1200m²)
- 47-48 BEDROOM FLAT (1250m²)
- 49-50 BEDROOM FLAT (1300m²)
- 51-52 BEDROOM FLAT (1350m²)
- 53-54 BEDROOM FLAT (1400m²)
- 55-56 BEDROOM FLAT (1450m²)
- 57-58 BEDROOM FLAT (1500m²)
- 59-60 BEDROOM FLAT (1550m²)
- 61-62 BEDROOM FLAT (1600m²)
- 63-64 BEDROOM FLAT (1650m²)
- 65-66 BEDROOM FLAT (1700m²)
- 67-68 BEDROOM FLAT (1750m²)
- 69-70 BEDROOM FLAT (1800m²)
- 71-72 BEDROOM FLAT (1850m²)
- 73-74 BEDROOM FLAT (1900m²)
- 75-76 BEDROOM FLAT (1950m²)
- 77-78 BEDROOM FLAT (2000m²)
- 79-80 BEDROOM FLAT (2050m²)
- 81-82 BEDROOM FLAT (2100m²)
- 83-84 BEDROOM FLAT (2150m²)
- 85-86 BEDROOM FLAT (2200m²)
- 87-88 BEDROOM FLAT (2250m²)
- 89-90 BEDROOM FLAT (2300m²)
- 91-92 BEDROOM FLAT (2350m²)
- 93-94 BEDROOM FLAT (2400m²)
- 95-96 BEDROOM FLAT (2450m²)
- 97-98 BEDROOM FLAT (2500m²)
- 99-100 BEDROOM FLAT (2550m²)
- 101-102 BEDROOM FLAT (2600m²)
- 103-104 BEDROOM FLAT (2650m²)
- 105-106 BEDROOM FLAT (2700m²)
- 107-108 BEDROOM FLAT (2750m²)
- 109-110 BEDROOM FLAT (2800m²)
- 111-112 BEDROOM FLAT (2850m²)
- 113-114 BEDROOM FLAT (2900m²)
- 115-116 BEDROOM FLAT (2950m²)
- 117-118 BEDROOM FLAT (3000m²)
- 119-120 BEDROOM FLAT (3050m²)
- 121-122 BEDROOM FLAT (3100m²)
- 123-124 BEDROOM FLAT (3150m²)
- 125-126 BEDROOM FLAT (3200m²)
- 127-128 BEDROOM FLAT (3250m²)
- 129-130 BEDROOM FLAT (3300m²)
- 131-132 BEDROOM FLAT (3350m²)
- 133-134 BEDROOM FLAT (3400m²)
- 135-136 BEDROOM FLAT (3450m²)
- 137-138 BEDROOM FLAT (3500m²)
- 139-140 BEDROOM FLAT (3550m²)
- 141-142 BEDROOM FLAT (3600m²)
- 143-144 BEDROOM FLAT (3650m²)
- 145-146 BEDROOM FLAT (3700m²)
- 147-148 BEDROOM FLAT (3750m²)
- 149-150 BEDROOM FLAT (3800m²)
- 151-152 BEDROOM FLAT (3850m²)
- 153-154 BEDROOM FLAT (3900m²)
- 155-156 BEDROOM FLAT (3950m²)
- 157-158 BEDROOM FLAT (4000m²)
- 159-160 BEDROOM FLAT (4050m²)
- 161-162 BEDROOM FLAT (4100m²)
- 163-164 BEDROOM FLAT (4150m²)
- 165-166 BEDROOM FLAT (4200m²)
- 167-168 BEDROOM FLAT (4250m²)
- 169-170 BEDROOM FLAT (4300m²)
- 171-172 BEDROOM FLAT (4350m²)
- 173-174 BEDROOM FLAT (4400m²)
- 175-176 BEDROOM FLAT (4450m²)
- 177-178 BEDROOM FLAT (4500m²)
- 179-180 BEDROOM FLAT (4550m²)
- 181-182 BEDROOM FLAT (4600m²)
- 183-184 BEDROOM FLAT (4650m²)
- 185-186 BEDROOM FLAT (4700m²)
- 187-188 BEDROOM FLAT (4750m²)
- 189-190 BEDROOM FLAT (4800m²)
- 191-192 BEDROOM FLAT (4850m²)
- 193-194 BEDROOM FLAT (4900m²)
- 195-196 BEDROOM FLAT (4950m²)
- 197-198 BEDROOM FLAT (5000m²)
- 199-200 BEDROOM FLAT (5050m²)
- 201-202 BEDROOM FLAT (5100m²)
- 203-204 BEDROOM FLAT (5150m²)
- 205-206 BEDROOM FLAT (5200m²)
- 207-208 BEDROOM FLAT (5250m²)
- 209-210 BEDROOM FLAT (5300m²)
- 211-212 BEDROOM FLAT (5350m²)
- 213-214 BEDROOM FLAT (5400m²)
- 215-216 BEDROOM FLAT (5450m²)
- 217-218 BEDROOM FLAT (5500m²)
- 219-220 BEDROOM FLAT (5550m²)
- 221-222 BEDROOM FLAT (5600m²)
- 223-224 BEDROOM FLAT (5650m²)
- 225-226 BEDROOM FLAT (5700m²)
- 227-228 BEDROOM FLAT (5750m²)
- 229-230 BEDROOM FLAT (5800m²)
- 231-232 BEDROOM FLAT (5850m²)
- 233-234 BEDROOM FLAT (5900m²)
- 235-236 BEDROOM FLAT (5950m²)
- 237-238 BEDROOM FLAT (6000m²)
- 239-240 BEDROOM FLAT (6050m²)
- 241-242 BEDROOM FLAT (6100m²)
- 243-244 BEDROOM FLAT (6150m²)
- 245-246 BEDROOM FLAT (6200m²)
- 247-248 BEDROOM FLAT (6250m²)
- 249-250 BEDROOM FLAT (6300m²)
- 251-252 BEDROOM FLAT (6350m²)
- 253-254 BEDROOM FLAT (6400m²)
- 255-256 BEDROOM FLAT (6450m²)
- 257-258 BEDROOM FLAT (6500m²)
- 259-260 BEDROOM FLAT (6550m²)
- 261-262 BEDROOM FLAT (6600m²)
- 263-264 BEDROOM FLAT (6650m²)
- 265-266 BEDROOM FLAT (6700m²

In accordance with the Western Cape Biodiversity Spatial Plan (WCBSP, 2017), small areas of the development area have been mapped forming part of natural Critical Biodiversity Area (CBA 1), degraded CBA 2 and terrestrial Ecological Support Area (ESA 1).



In accordance with the 2021 Gazetted National Biodiversity Areas (NBA) the property forms part of critically endangered Garden Route Shale Fynbos.





The vegetation on the property has been assessed by the specialist as part of the environmental application process as described above.

Property details

Property number	Erf 19001
Land use	Undeveloped residential zoned erf
Size	11.69Ha
Contact person	Cedardale Investments (Pty) Ltd represented by Amit Joseph Katz
GPS	33°56'58.43"S 22°25'32.89"E

There is no remaining natural habitat on site. The Eucalyptus grove acts ecologically like a form of forest but is highly degraded. Nevertheless, there is a long-term option to restore indigenous forest to this area, which would restore greater ecological functionality and promote indigenous biodiversity.

It is currently designated as a combination of CBA1 and CBA2 which in terms of potential ecological function are, therefore, designated as sensitive (high), although they contain little

to no indigenous biodiversity and would otherwise be rated as low – they do form an important ecological linking corridor and with rehabilitation have the potential to restore some ecosystem services, pattern and process.



Eucalyptus forest



View of the valley from the top of the slope



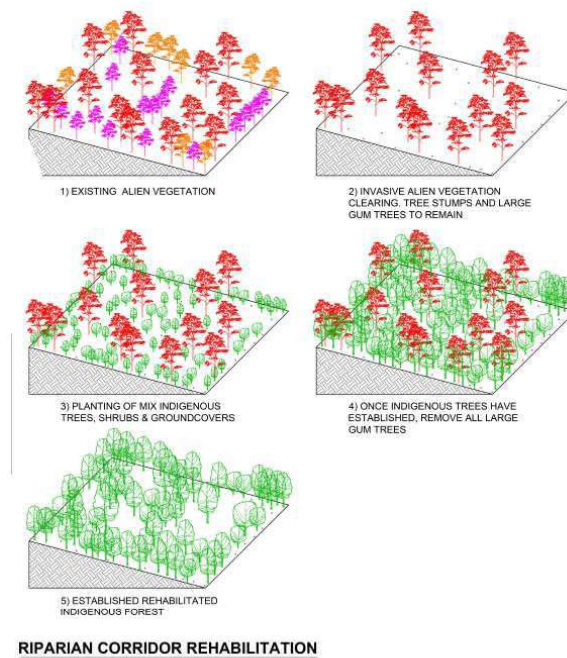
Eucalyptus forest

PURPOSE AND SCOPE OF THIS CONTROL PLAN

The purpose of this plan is to address the clearing and control of alien invasive plants and reduction of the fuel load in the rehabilitation zone and ongoing internal management as part of the operation of the development.

The rehabilitation area will be cleared over a course of 14 years as specified in the rehabilitation management plan done by Planning Partners, 2022 (as indicated above).

Large Gum trees will act as a canopy cover for forest rehabilitation and that will be thinned out over time as presented in the image below:



Once clearing has been undertaken within each management unit, clearing activities must start again. Follow-up control within each management unit must be implemented every 6 months, this includes the removal of dead wood and moribund vegetation.

Brush stacking in windrows along the contours using the smaller branches will take place in order to protect the slope from erosion while waiting for vegetative cover to return. The bulk of the alien material will be commercially harvested to offset the costs of alien clearing. Smaller timber will be used for firewood. All remaining branches will be stacked in the grassy section for chipping to be retained and composted and used as a mulch. No burning is envisioned due to the proximity to the residential areas that surround the site.

It should be noted that in the event of a wildfire, there will be mass alien seedling germination as they are stimulated by fire and more regular follow-up control will be required after the fire to control the mass emergence.

ALIEN INVASIVE PLANT SPECIES PRESENT ON THE PROPERTY

The National Environmental Management: Biodiversity Act (NEM: BA) listed invasive alien plant (IAP) species present on the property were recorded (table below) according to scientific-, common-names and the category listed in the NEM: BA Alien and Invasive Species list (October 2014). These species can be prioritized in accordance with the category (1a, 1b, 2 & 3, described in more detail below) in which it is listed as and the potential risk of invasion.

Recommendations will be given (also refer to Annexure A) on the control of alien invasive vegetation present on the property and a monitoring programme will be implemented in order to detect new and/or secondary invasions.

The alien invasive species list will be updated frequently to include any new and/or secondary infestations as and when detected within these management units.

NEM:BA listed (October 2014) alien and invasive species present within the surveyed area, the category they fall into, estimated cover (%), level of prioritization (high-8/10, medium 4/10 and low 0/10) and the risk of invasion

Plant species	Common name	NEM:BA category
<i>Acacia mearnsii</i>	Black Wattle	2
<i>Acacia melanoxylon</i>	Blackwood	2
<i>Cirsium vulgare</i>	Spear thistle	1b
<i>Datura stramonium</i>	Thorn apple	1b
<i>Eucalyptus grandis</i>	Gum	1b
<i>Hedychium coronarium</i>	White ginger lily	1b
<i>Lantana camara</i>	Lantana	1b
<i>Solanum mauritianum</i>	Bugweed	1b
<i>Cestrum laevigatum</i>	Inkberry	1b
<i>Pinus</i> species	Pine sp	2

*Please note there may be other NEM:BA listed plant species present within the surveyed area. This table needs to be updated as new/different species are detected.

Description of NEM:BA Categories: 1 (a and b), 2 and 3

NEM:BA Category	Description
Category 1 (a and b) Immediate eradication required	Invasive species falling under this category are prohibited plants, i.e. are illegal to grow or keep and must be controlled / eradicated. These plant species possess characteristics that can prove harmful to humans and/or have a detrimental impact on the environment, people or the economy. These plant species are only allowed in biological control reserves that are designed for the breeding of bio-control agents. Road reserves are not considered biological control reserves and as such these species need to be removed from such area unless specifically permitted to be there.
Category 2 Permit required	Invasive species falling under this category are planted with a commercial or utility value. These species have certain useful qualities, which include the commercial use of for timber, animal fodder, food, soil stabilisation etc. The species falling under this category are only permitted in demarcated areas, under controlled conditions and in bio-control reserved. However, they are not permitted within 30 m of 1:50 year floodline or a watercourse or wetlands unless it is authorised by the National Department of Water Affairs. Road reserves are not considered demarcated areas or control conditions and as such these species need to be removed from such area unless specifically permitted to be there.
Category 3 Certain prohibitions applicable	These species are primarily 'exotic' or ornamental horticultural plants that escaped from residential gardens. These species may not be planted and propagative material may not be traded (except where the appropriate permits are in place). Eradication of these species is not required- except within 30 m of 1:50 year floodline or a watercourse or wetlands (i.e. category 3 plants in riparian areas are treated as Category 1b). The spread of these species must be prevented.

Various weedy species were also noted on site and they will be removed during the landscaping process.

*Cenchrus clandestinus** (kikuyu) is the dominant grass in the field and is likely to remain and come up in the garden areas. It will be controlled and attempts to remove it will be made in the riparian zone.

ERADICATION METHODS

Various control methods can be applied to each listed alien invasive species, please refer to the below table and Annexure A.

The following is important to note:

- It is important to ensure that no **heavy machinery (bulldozer or excavators)** is allowed for the clearance of alien invasive vegetation. – exception to this will be the commercial tree harvesting equipment required to remove the gum trees which are in excess of 30m height with a girth of over a meter in places. Roots will however not be removed and all stumps will be treated with herbicide.
- Cut vegetation is to be used for brush-wood-fences, excess cut vegetation is to be removed by hand and stockpiled in the grassy field for chipping. Wood suitable for firewood will be stacked and removed.



PROPOSED PACKED BRUSH FENCE 2m FROM RIVER BANK TO PROTECT REHABILITATION PLANTING

- Seedlings pulled out can be left to decompose. Where seedling cover is in a blanket form, herbicide foliar application can be considered if the indigenous regrowth is less than 1%.
- Large gum trees in the riparian zone are to be removed / ring barked as no permit will be granted for these trees in the riparian area.
- Certain of the large gum trees in the remainder of the rehabilitation area (riparian buffer zone) are to be kept as a canopy cover for the forest rehabilitation and as a visual screen and they will be systematically removed over the 15-year period. To increase the effectiveness of the visual screen, the trees may be pruned so that they coppice and thicken out.
- Rehabilitation measure should be taken in order to avoid any erosion within all management units using the cut vegetation. This will be done by placing the brush packed windrows along the contours to prevent vertical movement up and down the slope.

Invasive species present on the property, the NEM:BA category they fall into and the method of clearing that must be implemented (WFW, 2012)

Plant species	Common name	NEMBA category	Clearing methods to implement
<i>Acacia mearnsii</i>	Black Wattle	2	Sprouting tree Seedling • Hand pull • Foliar spray Young • Lopping / pruning with herbicide application • Removal with tree-popper Adult • Bark strip with herbicide application • Cut stump/frill with herbicide application
<i>Acacia melanoxylon</i>	Blackwood	2	Sprouting tree Seedling • Hand pull • Foliar spray Young • Lopping / pruning with herbicide application Adult • Bark strip with herbicide application • Cut stump/frill with herbicide application
<i>Cirsium vulgare</i>	Spear thistle	1b	Herbaceous species All ages • Hand pull • Foliar spray
<i>Datura stramonium</i>	Thorn apple	1b	Herbaceous species All ages • Hand pull Foliar spray
<i>Eucalyptus grandis</i>	Gum	1b	Sprouting tree Seedling • Hand pull • Foliar spray Young • Lopping / pruning with herbicide application Adult • Cut stump/frill with herbicide application
<i>Hedychium coronarium</i>	White ginger lily	1b	Herbaceous species All ages • Cut and spray with herbicide
<i>Lantana camara</i>	Lantana	1b	Herbaceous species Young • Foliar spray Adult • Cut and spray with herbicide
<i>Solanum mauritianum</i>	Bugweed	1b	Herbaceous species Young • Foliar spray Adult • Cut and spray with herbicide
<i>Cestrum laevigatum</i>	Inkberry	1b	Seedling • Hand-pull Adult

			• Cut and spray
<i>Pinus</i> species	Pine species	1b	Seedlings • Hand pull Young • Hand-pull • Removal by tree popper Adult • Cut stump

**Please refer to Annexure A for the list of herbicides that should be used*

OBJECTIVES AND ACTIONS

OBJECTIVE 1: CONTROL INVASIVE PLANT INFESTATION

The main aim of this objective is to bring the plant infestation on the property under control within 14 years.

Desired state for invasive alien plants on the property

Category	Desired state by 2037
Category 1 b trees	- All mature trees to be ring barked or removed. - All the management units are in maintenance. - Overall infestation does not exceed 10% of the property. (These will include seedlings and re-sprouting trees (mainly Gums). (Acacia species will be under control with the correct control methods while pine species will be under control as they do not re-sprout following correct clearing methods).
Category 1b herbaceous species	Less than 2% of the property
Category 1b annual species	Less than 2% of the property
Category 2 species	Permit application will be submitted for these species occurring on the property. This will allow the landowner to be in possession of the existing trees while alien clearing is being undertaken over the course of 14 years. Species subjected to the permit: - Black Wattle - Blackwood - Gum

To achieve this objective, the developer and HOA (responsibility for clearing indicated on rehabilitation plan) should have a budget secured and available to implement alien clearing on the property over a course of 14 years. Clearing activities should be undertaken in accordance with this ACP and timeframes set out for each management unit.

OBJECTIVE 2: PREVENTATIVE ACTION

The aim of this objective is to put measures in place to prevent the introduction of any new NEMBA listed alien invasive species onto the property, and from spreading from the property to neighbouring properties. As such, the following actions must be implemented by the landowner:

- **No** listed invasive and alien plant species shall be **planted**/introduced on the property (this includes in the development area);
- All invasive and alien plants **MUST** be monitored;
- Effective rehabilitation should take place in disturbed areas and prevent any unnecessary disturbances;
- Areas bordering onto neighbouring land will be prioritised for control to prevent existing invasive plants from spreading beyond the boundaries of these property and to prevent alien species on neighbouring land from re-infesting the site; &
- DFFE assistance will be required to pressure adjacent landowners to control their alien species;
- These prevention measures are known to the owner / developer and will be communicated to the respective buyers, manager / HOA of the estate.

OBJECTIVE 3: EARLY DETECTION AND RAPID RESPONSE (EDRR) AND ERADICATION

The aim of this objective is to put measures in place whereby new and secondary invasive species are detected early and removed before establishing sustainable populations and start spreading (Early Detection and Rapid Response).

EARLY DETECTION AND RAPID RESPONSE AND ERADICATION ACTIONS

- Regularly survey the property to detect any new or emerging listed invasive plant species;
- Learn more about the SANBI programmes and register as a spotter where applicable;
- Report category 1a species immediately to the Department of Environmental Affairs/Provincial Conservation Agency/Local Municipality/South African National Biodiversity Institute (SANBI) EDRR programme and ask for assistance with the control of the species;
- Do not allow emerging or new species to produce seeds or off-spring, or start growing vegetative, act immediately by removing them;
- Update the species list by including these species and indicate where on the property they were located; &
- Ensure bio-controls are in place where available to assist in the control efforts
- Increase surveillance in the areas after the species were controlled to quickly remove re-sprouting plants or seedlings.

TARGETS AND TIMELINE

Timeline as indicated in the rehabilitation plan:

REHABILITATION ZONES AS PER PLAN

PRE-CONSTRUCTION & YEAR 13-14	0.7ha
PRE-CONSTRUCTION	1.8ha
YEAR 1-2 & YEAR 9-10	1.9ha
YEAR 3-4 & YEAR 11-12	1.2ha
INDIGENOUS FOREST ESTABLISHMENT PERIOD	

George, Townhouses Erf 19001: Environmental Rehabilitation Programme									
ACTION									
		PRE-CONSTRUCTION	POST-CONSTRUCTION (By HOA, in years)						
		(By Developer)	1-2	3-4	5-8	9-10	11-12	13-14	
1)	Conservation worthy plant rescue and protection								
2)	Invasive alien vegetation clearing (excluding roots)								
3)	Actively replanting of Indigenous plants								
4)	Soil stabilisation on steep slope								
5)	Removal of Eucalyptus trees (excluding gum stump removal)								
6)	Establishing Fire Breaks (to fire specialist input)								
7)	Monitoring and follow up clearing of alien regrowth and seedlings	ON-GOING PROCESS							

REHABILITATION PROGRAMME

The property can also be guided by SMART goals (Specific, Measurable, Assignable, Realistic and Time-bound), which is summarised in the table below.

SMART goals for the control of listed invasive species in the management unit compartment

Group	Species	Specific goal	Measurable goal	Assignable goal	Realistic goal	Time-bound goal
Plants	All alien invasive species on the property	Reduce total area infested	Area completely cleared	Work will be done by the gardener	Budget secured to ensure that all invading species can be cleared on the property by 2037	Infestation down by 70% within a year (2032), 100% by 2037.

RESPONSIBILITIES AND REQUIREMENTS

The density of alien invasive plants that will be removed will depend on the work speed and effectiveness of the employee assigned to this project. It is anticipated that a contractor will be appointed to undertake the initial harvesting and clearing and thereafter it will be managed by the developer and then the HOA.

All clearing must be done in accordance with the approved methodology as indicated in this report and Annexure A. It is the responsibility of the developer or HOA (as the case may be) to ensure that the employees implement the correct methodology and that a record is kept on the progress of the alien clearing and use of herbicides.

MONITORING AND EVALUATION

It is of utmost importance that control efforts are monitored, a summary of the monitoring framework can be seen in the table below. It is important to note that other alien species and more weedy elements like castor oil, thorn apple, spear thistle etc. may become evident over time in the disturbed areas and will need to be controlled by hand pulling. The continual evaluation will aid in identifying such species and adding them to the control plan.

Monitoring framework

WHAT	FREQUENCY	HOW	RESPONSE
How effective are the control methods?	4-6 months after every operation	Survey and look for re-growth in areas	Continue with suggested methodology and adapt as necessary
Do the infestation levels decrease?	Annually	Survey area, including records of densities and species. Photographic evidence should be taken	Continue with clearance and adapt intervals as needed
How much herbicides were used?	After every operation	Herbicide records should be kept, see Annexure A, Table in sections above	Keep track of the costs and ensure that the right amounts are being used to minimize waste
Does the indigenous vegetation recover in the cleared areas?	Annually	Survey area for indigenous vegetation, keeping track of the variety of species. Photographic evidence can be useful	An increase in indigenous vegetation (high recovery) - control methods are effective. If not - look at clearing methods, clearing intervals or consult an expert
How many jobs were created?	After every operation	Timesheets	Keep it on records
How many person days (PD) were spent per operations	After every operation	Timesheets	Keep track of cost and assist with planning and budgeting. Determine cost per person-day (PD)

REFERENCES

Invasive species of South Africa. 2018. *Invasive species of South Africa*. [ONLINE] Available at: <http://www.invasives.org.za/> [Accessed 26 August 2019]

WFW. 2018. WFW Species Herbicide list v2.9. [ONLINE] Available at: <http://www.dwaf.gov.za/wfw/Control/> [Accessed 27 August 2019]

DEADP. 2018. Guidelines for monitoring, control and eradication plans as required by Section 76 of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA) for species listed as invasive in terms of Section 70 of this Act.

ANNEXURES

ANNEXURE A: CONTROL METHODS

The following Annexure deals with the initial clearance activities along with the proposed methodology. It assumes the following:

- That the recommended methodology that is proposed below are followed.
- That the funding allows for short- and long-term commencement of the tasks.
- No thorough provisions have been made for natural occurrences for instance wildfires, floods and droughts.
- That person(s) undertaking the task of clearance and control are suitably trained and experienced.

Depending on species, age/size of the plant and growth form, the following methods can be used for the initial clearance of the alien invasive plants:

Hand pulling

This method is the removal on alien invasive plants by hand; it is important to ensure that the roots are also removed. This method can be applied to areas that are sparsely invaded and seedlings present within each unit.

Foliar spraying

This method is the usage of spray equipment, such as a knapsack sprayer, to spray alien invasive plants one meter in height or that is still at a young age. The foliage/leaves of the plants should be sprayed by the herbicide-water mixture up until it starts to run off. This method is most effective early mornings on a wind-still day. It is important that the correct protective equipment (PPE) (refer to Annexure C) should be worn at all times and the proper methodology should be followed. For the use of the correct herbicides, refer to the below table.



Herbicide application to foliage of alien invasive plants (conservation contracts northwest, 2018)

The following Table should be completed to maintain usage record.

Herbicide control sheet to be filled in by the landowner

Herbicide Control Sheet							
Manageable Unit:						Hectares:	
Date	Herbicide (name)	Herbicide (name)	Herbicide (name)	Herbicide (name)	Herbicide (name)	Actipron	Dye

Mechanical control methods**Felling**

Trees with a stem diameter of more than 200 mm can be felled with a chainsaw, the remaining stump should be treated with an herbicide application immediately after cutting. All felled tree stumps should be cut into manageable log sizes and be transported manually out of the area (store as firewood). Large stumps can be kept within the units for erosion control and natural decay.

Manual control methods

Trees with a stem diameter of less than 200 mm can be cut down with a chainsaw / bow saw / skill saw, whereas stems with a diameter of less than 100 mm can be cut down with a lopper or can be pulled out using a tree popper. These trees must be cut as low as possible to the ground, as low as 10 cm or lower.

Herbicide cut stump treatment

A two-litre spray marker can be used for small trees and knapsacks for larger trees. The herbicides should be applied to the stumps immediately after felling/cutting (see below figure).

**Herbicide application to stump directly after felling / cutting (DEADP, 2018)****Frilling**

This method uses a bush knife/axe to make angled cuts downwards into the trees' cambium layer (see below figure for an example of a frilled tree). Cuts should be made around the entire

stem. Herbicide is applied to the cutline with a marker dye to show where herbicide has been applied.



Frilled tree (DEADP, 2018)

Ring barking

For this method the bark of the tree is stripped from the bottom (below ground level) to a height of 0.75 - 1 m, by using bush knives or hatchets. If this method is not possible, due to exposed root systems or crevices in the stem, a combination of bark removal and stem treatments should be followed. Herbicide application should follow where the species is known to coppice.



Ring barking of tree (Invasive Species of South Africa, 2018)

Follow up clearing

The preferred method for follow up clearances is **hand-pulling** and **foliar spray**. Follow-up clearance should occur at different times/stages as stipulated in the plan. Large trees that are considered too big for hand-pulling, tree popping or foliar spray, can be cut down, slashed or ring barked – ring barking of larger trees is preferred in ofrested areas to reduce the damage caused by trying to remove the trees and in areas where they are left to increase the perching sites for raptors.

Potential herbicides that can be utilised on surveyed alien invasive species

Species name	Common name	Growth form	Method for clearing to implement	Herbicide to be applied	Common name of herbicide to be applied
Acacia mearnsii	Black wattle	Seedling	Hand pull	No herbicide needed	Confronti, Astira
		Seedling	Foliar spray	Fluroxypyr 200 g/L EC	Tomahawk, Valoxypyr, Starane
				Glyphosate (as ammonium salt) 680 g/kg WG	Roundup max
				Glyphosate (as isopropylamine salt) 360 g/L SL	Glyphosate 360, Mamba, Springbok, Ciplasate, Enviroglyphosate
				Glyphosate (as potassium salt) 450g/L SL	Roundup turbo
				Glyphosate (as isopropylamine salt) 480 g/L SL	Mamba max, Seismic
				Glyphosate (as sodium salt) 500g/kg WG	Glyphosate 500, Kilo
				Triclopyr (as butoxy ethyl ester) 240 g/L EC	Ranger
				Triclopyr (as triethyl ammonium) 120 g/L + Aminopyralid 12 g/L	Confronti super
				Triclopyr (as butoxy ethyl ester) 480 g/L EC	Garlon, Triclon, Viroaxe
				Triclopyr (as butoxy ethyl ester) 240 g/L + Aminopyralid 30 g/L	Garlon max
				Fluroxypyr 80 + Picloram 80 g/L ME	Plenum
				Glyphosate (as potassium salt) 500 SL	Touchdown forte hitech
				Fluroxypyr 80 + Picloram 80 g/L ME	Plenum
			Lopping / Pruning	Imazapyr 100 g/L SL	Chopper, Hatchet
				Picloram (as potassium salt) 240g/L SL	Access, Browser
				Triclopyr (as amine salt) 360 g/L SL	Lumberjack, Timbrel
Adult				Triclopyr (as triethyl ammonium) 120 g/L + Aminopyralid 12 g/L	Confronti super
			Bark strip	No herbicide needed	
			Cut stump / Frill	Fluroxypyr 80 + Picloram 80 g/L ME	Plenum
				Imazapyr 100 g/L SL	Chopper, Hatchet
				Picloram (as potassium salt) 240g/L SL	Access, Browser
				Triclopyr (as amine salt) 360 g/L SL	Lumberjack, Timbrel
				Triclopyr (as triethyl ammonium) 120 g/L + Aminopyralid 12 g/L	Confronti super
				Triclopyr (as triethyl ammonium) 120 g/L + Aminopyralid 12 g/L	Confronti super

Eucalyptus	Gum	Seedling	Frill	Basal stem	Cylindrobasidium laeve	Stumpout
					Picloram (as potassium salt) 240g/L SL	Access, Browser
					Triclopyr (as butoxy ethyl ester) 480 g/L EC	Garlon, Triclon, Viroaxe
		Seedling	Hand pull	Foliar spray	No herbicide needed	
					Fluroxypyr 80 + Picloram 80 g/L ME	Plenum
					Imazapyr 100 g/L SL	Chopper, Hatchet
					Metsulfuron methyl 500g/kg WP	Nikanor
					Metsulfuron methyl 600g/kg WP	Brushoff
					Picloram (as potassium salt) 240g/L SL	Access
					Triclopyr (as butoxy ethyl ester) 240 g/L EC	Ranger
		Young	Lopping / Pruning		Triclopyr (as butoxy ethyl ester) 480 g/L EC	Garlon, Triclon
					Clopyralid 90 + Triclopyr (as amine salt) 270 g/L SL	Confront, Astra
					Fluroxypyr 80 + Picloram 80 g/L ME	Plenum
					Glyphosate (as ammonium salt) 680 g/kg WG	Roundup Max
	Glyphosate (as isopropylamine salt) 360 g/L SL				Glyphosate 360	
	Glyphosate (as potassium salt) 450g/L SL				Roundup turbo	
	Glyphosate (as potassium salt) 500 SL				Touchdown forte hitech	
	Glyphosate (as sodium salt) 500g/kg WG				Glyphosate 500, Kilo	
	Imazapyr 100 g/L SL				Chopper, Hatchet	
	Metsulfuron methyl 500g/kg WP				Nikanor	
	Adult	Cut stump / Frill		Metsulfuron methyl 600g/kg WP	Climax, Brushhoff	
				Picloram (as potassium salt) 240g/L SL	Access, Browser	
				Triclopyr (as butoxy ethyl ester) 240 g/L EC	Ranger	
				Triclopyr (as amine salt) 360 g/L SL	Lumberjack, Timbrel	
				Glyphosate (as isopropylamine salt) 360 g/L SL	Glyphosate 360	
				Clopyralid 90 + Triclopyr (as amine salt) 270 g/L SL	Confront, Astra	
				Fluroxypyr 80 + Picloram 80 g/L ME	Plenum	
Glyphosate (as ammonium salt) 680 g/kg WG				Roundup Max		

				Glyphosate (as isopropylamine salt) 360 g/L SL	Glyphosate 360
				Glyphosate (as potassium salt) 450g/L SL	Roundup turbo
				Glyphosate (as potassium salt) 500 SL	Touchdown forte hitech
				Glyphosate (as sodium salt) 500g/kg WG	Glyphosate 500, Kilo
				Imazapyr 100 g/L SL	Chopper, Hatchet
				Metsulfuron methyl 500g/kg WP	Nikanor
				Metsulfuron methyl 600g/kg WP	Climax, Brushhoff
				Picloram (as potassium salt) 240g/L SL	Access, Browser
				Triclopyr (as butoxy ethyl ester) 240 g/L EC	Ranger
				Triclopyr (as amine salt) 360 g/L SL	Lumberjack, Timbrel
				Glyphosate (as isopropylamine salt) 360 g/L SL	Glyphosate 360
			Cut Stump	Triclopyr (as butoxy ethyl ester) 480 g/L EC	Garlon, Triclon
			Frill	Picloram (as potassium salt) 240g/L SL	Access, Browser
				Triclopyr (as amine salt) 360 g/L SL	Lumberjack
		Young	Foliar spray	Clopyralid 90 + Triclopyr (as amine salt) 270 g/L SL	Confront, Astra
				Fluroxypyr 80 + Picloram 80 g/L ME	Plenum
				Picloram (as potassium salt) 240g/L SL	Access, Browser
		Young	Foliar spray	2,4D (as dimethylamine salt) 480g/L SL	2,4-D amine
				Chlorimuron ethyl (as sulfonl urea) 500g/kg WP	Extreme, Nikanor
				Glyphosate (as sodium salt) 500g/kg WG	Glyphosate 500, Kilo, Muscle up
				Glyphosate (as isopropylamine salt) 180 g/L SL	Glyphosate 180
		Adult	Soil application	Tebuthiuron 250g/L + Bromacil 250g/L SC	Bundu
		Seedling	Hand pull	No herbicide needed	
		Seedling	Foliar spray	Fluroxypyr 80 + Picloram 80 g/L ME	Plenum
				Imazapyr 100 g/L SL	Chopper, Hatchet
				Metsulfuron methyl 500g/kg WP	Nikanor
				Metsulfuron methyl 600g/kg WP	Brushhoff
				Picloram (as potassium salt) 240g/L SL	Access
				Triclopyr (as butoxy ethyl ester) 240 g/L EC	Ranger
				Triclopyr (as butoxy ethyl ester) 480 g/L EC	Garlon, Triclon

	Young	Lopping / Pruning	Clpyralid 90 + Triclopyr (as amine salt) 270 g/L SL	Confront, Asfra
			Fluroxypyr 80 + Picloram 80 g/L ME	Plenum
			Glyphosate (as ammonium salt) 680 g/kg WG	Roundup Max
			Glyphosate (as isopropylamine salt) 360 g/L SL	Glyphosate 360
			Glyphosate (as potassium salt) 450g/L SL	Roundup turbo
			Glyphosate (as potassium salt) 500 SL	Touchdown forte hitech
			Glyphosate (as sodium salt) 500g/kg WG	Glyphosate 500, Kilo
			Imazapyr 100 g/L SL	Chopper, Hatchet
			Metsulfuron methyl 500g/kg WP	Nikanor
			Metsulfuron methyl 600g/kg WP	Climax, Brushhoff
			Picloram (as potassium salt) 240g/L SL	Access, Browser
			Triclopyr (as butoxy ethyl ester) 240 g/L EC	Ranger
			Triclopyr (as amine salt) 360 g/L SL	Lumberjack, Timbrel
			Glyphosate (as isopropylamine salt) 360 g/L SL	Glyphosate 360
	Adult	Cut stump / Frill	Clpyralid 90 + Triclopyr (as amine salt) 270 g/L SL	Confront, Asfra
			Fluroxypyr 80 + Picloram 80 g/L ME	Plenum
			Glyphosate (as ammonium salt) 680 g/kg WG	Roundup Max
			Glyphosate (as isopropylamine salt) 360 g/L SL	Glyphosate 360
			Glyphosate (as potassium salt) 450g/L SL	Roundup turbo
			Glyphosate (as potassium salt) 500 SL	Touchdown forte hitech
			Glyphosate (as sodium salt) 500g/kg WG	Glyphosate 500, Kilo
			Imazapyr 100 g/L SL	Chopper, Hatchet
			Metsulfuron methyl 500g/kg WP	Nikanor
			Metsulfuron methyl 600g/kg WP	Climax, Brushhoff
			Picloram (as potassium salt) 240g/L SL	Access, Browser
			Triclopyr (as butoxy ethyl ester) 240 g/L EC	Ranger
			Triclopyr (as amine salt) 360 g/L SL	Lumberjack, Timbrel
			Glyphosate (as isopropylamine salt) 360 g/L SL	Glyphosate 360
			Triclopyr (as butoxy ethyl ester) 480 g/L EC	Garlon, Triclon
			Cut Stump + diesel	

<i>Hedychium coronarium</i> <i>Lantana camara</i>	White ginger lily	Adult	Frill	Picloram (as potassium salt) 240g/L SL	Access, Browser
				Triclopyr (as amine salt) 360 g/L SL	Lumberjack
	Lantana	Young	Cut & Spray Foliar spray	Imazapyr 100 g/L SL	Chopper, Hatchet
				Fluroxypyr 80 + Picloram 80 g/L ME	Plenum
				Glyphosate (as ammonium salt) 680 g/kg WG	Roundup max
				Glyphosate (as isopropylamine salt) 360 g/L SL	Glyphosate 360
				Glyphosate (as potassium salt) 450g/L SL	Roundup turbo
				Glyphosate (as isopropylamine salt) 480 g/L SL	Seismic
				Glyphosate (as potassium salt) 500 SL	Touchdown forte hitech
				Glyphosate (as sodium salt) 500g/kg WG	Kilo
<i>Solanum mauritianum</i>	Bugweed	Adult	Cut & Spray	Imazapyr 100 g/L SL	Chopper, Hatchet
				Picloram (as potassium salt) 240g/L SL	Access, Browser
				Fluroxypyr 80 + Picloram 80 g/L ME	Plenum
				Imazapyr 100 g/L SL	Chopper, Hatchet
				Picloram (as potassium salt) 240g/L SL	Access, Browser
		Young	Hand pull Foliar spray	No herbicide needed	Glyphosate 360, Springbok
				Glyphosate (as isopropylamine salt) 360 g/L SL	
				Clopyralid 90 + Triclopyr (as amine salt) 270 g/L SL	Confront, Astra
				Fluroxypyr 200 g/L EC	Tomhawk, Valoxypyr, Starane
				Fluroxypyr 80 + Picloram 80 g/L ME	Plenum
				Glyphosate (as ammonium salt) 680 g/kg WG	Roundup max
				Glyphosate (as isopropylamine salt) 360 g/L SL	Glyphosate 360, Springbok
				Glyphosate (as potassium salt) 450g/L SL	Roundup turbo
				Glyphosate (as isopropylamine salt) 480 g/L SL	Seismic
				Glyphosate (as potassium salt) 500 SL	Touchdown forte hitech
				Glyphosate (as sodium salt) 500g/kg WG	Glyphosate 500, Kilo
				Glyphosate (as sodium salt) 700g/kg WG	Kilo Max
				Imazapyr 100 g/L SL	Chopper, Hatchet
				Triclopyr (as butoxy ethyl ester) 240 g/L EC	Ranger

				Adult	Cut & Spray	Triclopyr (as butoxy ethyl ester) 480 g/L EC	Garlon, Triclon
						Triclopyr (as butoxy ethyl ester) 240 g/L + Aminopyralid 30 g/L	Garlon max
						Glyphosate (as ammonium salt) 680 g/kg WG	Roundup max
						Picloram (as potassium salt) 54g/kg + Triclopyr (as triethylamine) 36g/kg	Kaput 100 Gel
						Glyphosate (as isopropylamine salt) 480 g/L SL	Seismic
						Imazapyr 100 g/L SL	Chopper, Hatchet
						Picloram (as potassium salt) 240g/L SL	Access, Browser
						Triclopyr (as amine salt) 360 g/L SL	Lumberjack, Timbrel
						Glyphosate (as sodium salt) 500g/kg WG	Glyphosate 500, Kilo
						Triclopyr (as butoxy ethyl ester) 480 g/L EC	Garlon, Triclon
<i>Cestrum laevigatum</i>	Ink berry	Seedling	Adult	Hand pull	Cut & Spray	Fluroxypyr 200 g/L EC	Tomahawk, Valoxypyr, Starane
						No herbicide needed	
						Imazapyr 100 g/L SL	Chopper, Hatchet
						Triclopyr (as butoxy ethyl ester) 480 g/L EC	Garlon, Triclon, Viroaxe
						Triclopyr (as butoxy ethyl ester) 480 g/L EC	Garlon, Triclon, Viroaxe
						Hand pull, removal with tree popper	
						NO HERBICIDE necessary	
Pinus species	Pine species	All					

ANNEXURE B: FIRE PREVENTION AND PREPAREDNESS (ADAPTED FROM INVASIVE SPECIES CONTROL PLAN GUIDELINES FOR PRIVATE LAND BY L. STAFFORD & DR. M. GEARTNER)

Implement measures to prevent the starting of wildfires, including spreading to neighbouring land and to be ready and able to combat fires on the farm should they occur.

Should landowners fail to adhere to the provisions of the **National Veld and Forest Fire Act, 1998 (Act 101 of 1998), (NVFFA)** e.g. preparing of a fire break, notifying about their intention to conduct a burn on their land, or meeting the standards, penalties are involved (NVFA, Sec 19).

In addition, NVFA Sec 19 (5) states that any owner, occupier of person in control of land on which a fire occurs who fails to take reasonable steps to extinguish the fire, or to confine it to that land, or to prevent it from causing damage to property on adjoining land, is guilty of an offence. Bringing alien plant infestations under control is an important step towards preventing fires from spreading to neighbouring land as these fires burn up to 10 times hotter than fynbos fires. Fires in alien invested land are very difficult to control, especially under windy and very hot conditions.

Prepare and maintain a fire break around the property, ensure

- it is wide enough and long enough to have a reasonable chance of preventing a veldfire from spreading to or from neighbouring land;
- it does not cause soil erosion; and
- it is reasonably free of inflammable material capable of carrying a veldfire across it
- Join the Fire Protection Association (FPA)
- Be ready to fight fires by acquiring equipment and having available personnel to fight fires
- In an emergency certain persons and officials will be given permission to enter land and fight fires
- Notify the FPA and neighbouring landowners about fires and take the necessary steps to stop the spread of fires should they occur (for more information see section 18 of The National Veld and Forest Act, 1998 (Act 101 of 1998))

ANNEXURE C: SAFETY, HEALTH AND ENVIRONMENT (SHE) (ADAPTED FROM INVASIVE SPECIES CONTROL PLAN GUIDELINES FOR PRIVATE LAND BY L. STAFFORD & DR. M. GEARTNER)

It is the landowner's responsibility to ensure a safe working environment and that the teams working on the property adhere to the minimum safety requirements. This can be achieved by sourcing appropriately trained and experienced teams. The principle of "leave no trace" applies.

The landowner should liaise with the contractor to ensure the following minimum SHE requirements are adhered to:

Toilet facilities

- The contractor is responsible for providing a mobile toilet on site for the duration of the work (it is not in all cases possible to provide a mobile toilet, where the field conditions are not suitable for a mobile toilet, human waste should be buried by digging a hole of at least 20 cm deep)
- Clean water must be made available in suitable containers for drinking and mixing herbicides

Team's skills requirements

- Chainsaw operators in possession of valid certificates
- Herbicide applicators certified

Work methods and equipment

- Equipment must be suitable for the work and in good working condition
- Adhere to work methods stipulated in the site specification

Vehicle and driver

- The driver must be in possession of a valid PrDP
- The vehicle must be roadworthy
- Tools must be transported in the trailer, separately from the workers

Safety precautions

- Certified SHE Rep on site
- Certified Safety Office on site
- The SHE Rep must conduct daily safety talks
- The first aid kit must be on site

COLD

- The contractor must be in possession and present proof of a valid certificate of good standing with the Compensation Commissioner
- Any incidents must be reported to the landowner
- An indemnity form must be signed stating that the contractors accepts full liability for any COLD related matters and that the landowner will not be held liable should the contractor not comply with minimum standards
- The contractor deals with COLD cases and not the landowner
- Near misses, incidents and accident register must be kept

Insurance

- The contractor must be appropriately insured for the vehicle and equipment
- The contractor must provide proof of third party and liability insurance
- Sign an agreement whereby the contractor accepts liability for damages in case of negligence

Storage of fuel and herbicides

- Fuel and herbicides must be left in a shady area, away from the resting/eating area
- The area must be clearly marked with bunting
- The bunting must be removed on completion of the job
- Herbicide mixing and refuelling must be conducted on a spill blanket
- A spade must be on site to cover any accidental spillage
- A serviced and functional fire extinguisher must be kept at the fuel refilling area

Preventing fires

- No smoking while working, assign a designated smoking area
- Remove cigarette butts
- No smoking during windy conditions
- Keep 1 fire beater for every team member within reach of the workers
- No chainsaw work during Code Red days - Fire Danger Indices (FDIs) obtainable from FPA

Correct PPE that should be worn

Item	Supervisor	Machine operator	General workers SHE Rep; 1 st Aid Rep; Driver	Specialized herbicide applicator
Sunhat (follow up operations)	✓	✓	✓	✓
Hard hat (when chainsaws are being used)	✓	✓	✓	✓
Hard hat with visor and certified earmuffs (SABS or EU),	x	✓	x	x
T-shirt	✓	✓	✓	✓
Conti suit	✓	✓	✓	✓
FESA approved chainsaw pants (eleven layers) with broad belt or braces	x	✓	x	x
Whistle	✓	✓	x	x
Safety boots	✓	✓	✓	✓
Gumboots (only when working in riverine/wetland areas)	✓	✓	✓	✓
Chainsaw safety boots	x	✓	x	x
Gloves	✓	✓	✓	✓
Chainsaw operators gloves	x	✓	x	x
Safety goggles	✓	✓	✓	✓
Cape (when using a knapsack)	x	x	x	✓
Mask (when applying herbicides)	x	x	x	✓
Rubber gloves (for mixing herbicides)	x	x	x	✓
Rubber apron (for mixing herbicides)	x	x	x	✓
Rain suit (during rainy conditions)	✓	✓	✓	✓

It is recommended that the requirements are stipulated in the work specifications and the contractor accept accountability in writing.



REPUBLIC OF SOUTH AFRICA

Department of Forestry, Fisheries & the Environment

Issuing Authority: Department of Forestry, Fisheries & the Environment - Directorate: Biodiversity Risk Management - Private Bag X 4390 - Cape Town - 8000 - 14 Loop Street - Cape Town 8001 - Tel: 021 441 2748 - Email: AISpermits@dfre.gov.za

THIS PERMIT IS ISSUED IN TERMS OF CHAPTER 7 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT, 2004 (ACT 10 OF 2004) (AS AMENDED) READ TOGETHER WITH THE ALIEN INVASIVE SPECIES REGULATIONS, 2020 (AS AMENDED)

PERMIT FOR RESTRICTED ACTIVITIES OF ALIEN SPECIES OR LISTED INVASIVE SPECIES

Permit Holder Details:

Name: Cedardale Investments (Pty) Ltd

I.D/ Company Registration number: 2012/092329/07

Address: 4 Uddle street, Cape Town, 8001, Western Cape Province

Permit number : 50696231003091957

Date issued: 13/10/2023

Expiry date: 12/10/2028

Amount Paid: R100.00

Exporter/Supplier/Seller/Trader details:

Premises where restricted activity will be carried out:

Name: N/A

Physical Address: ERF 19001, George, 6530, Western Cape Province

Address: N/A

Permission is hereby granted to the Permit Holder for the following: Possession under the attached permit conditions.

Species details

Scientific Name	Common Name	Quantity	Note
<i>Eucalyptus grandis</i>	Saligna Gum	+/- 4 ha	Plant Species

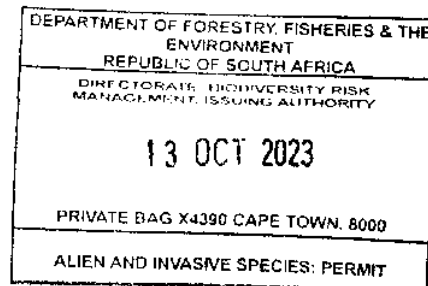
Permit issued by: **Khatutshelo Nelukalo**

Signature:

Place:

Cape Town

Official stamp



A18 000 000 483



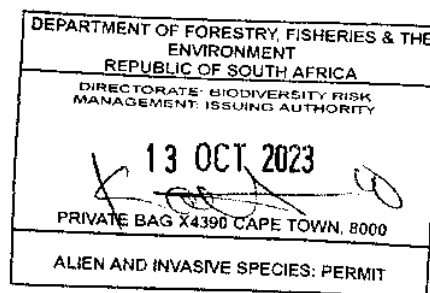
**forestry, fisheries
& the environment**

Department:
Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

Issuing Authority · Department of Forestry, Fisheries & the Environment · Directorate: Biodiversity Risk Management · Private Bag X 4390 · Cape Town · 8000 · 14
Loop Street · Cape Town 8001 · Tel: 021 441 2748 · Email: AISpermits@dfpe.gov.za

1. PERMIT CONDITIONS FOR *EUCALYPTUS GRANDIS* (SALIGNA GUM, ROSE GUM) ISSUED IN TERMS OF THE ALIEN INVASIVE SPECIES REGULATIONS, 2020 PUBLISHED IN GOVERNMENT GAZETTE 43735, DATED 25 SEPTEMBER 2020 (AS AMENDED) ("THE REGULATIONS"), ISSUED IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT, 2004 (ACT NO.10 OF 2004) ("NEMBA")

- 1.1. This Permit shall not absolve the Permit Holder from complying with any obligations that he/she may have in terms of any other law.
- 1.2. The Permit Holder is referred to Regulations 20-31 of the Regulations, the provisions of which are applicable to this Permit, irrespective of whether they are specifically set out herein or not.
- 1.3. This Permit is not transferable and relates only to the person to whom it is issued.
- 1.4. This Permit is valid only in its original form as issued by the Issuing Authority and any unauthorised alteration thereof and/or tampering therewith shall render it invalid unless subjected to condition 1.14 below.
- 1.5. This Permit is valid only for the period specified in the permit unless it is cancelled, revoked or amended by the Issuing Authority.
- 1.6. This Permit shall automatically lapse if the species to which it relates is subsequently listed as a prohibited invasive alien species in terms of Section 67(1) of NEMBA.
- 1.7. The Permit Holder must prevent the spread of the permitted species and must control any specimen that spreads.
- 1.8. The Permit Holder must at all times have this Permit and permit conditions in his/her possession while performing any restricted activity.
- 1.9. The Permit Holder will be subject to the provisions of Chapter 7 of the National Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA) in respect of the mandate and powers of Environmental Management Inspectors.



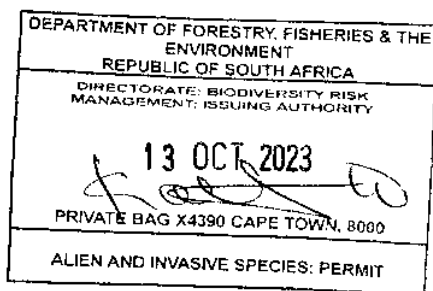


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- 1.10. The permit and permit conditions must be made available upon request by any authorised official designated by the Minister of Forestry, Fisheries and the Environment.
- 1.11. The Permit Holder must allow the Issuing Authority or any other authorised official(s) unrestricted access to monitor compliance with permit conditions and for any inspection.
- 1.12. Any incidents related to the permitted activities that are actual or potential threats to the environment and/or the breach of any condition of this permit must be reported in writing to the relevant Authority or his/her designated representative within 24 hours of the incident.
- 1.13. The Issuing Authority may amend these permit conditions after consultation with the Permit Holder.
- 1.14. The Issuing Authority may suspend or cancel the permit or permit conditions after allowing the Permit Holder an opportunity to make written representations.
- 1.15. The specimens must be used solely for the purpose stated in the permit and must not be used for any other purpose.
- 1.16. The Permit Holder must immediately notify the Issuing Authority in writing before any change of address, premises and/or legal status takes place.
- 1.17. A permit that has been cancelled in terms of Section 93 of NEMBA must be returned to the Issuing Authority within 30 (thirty) calendar days of the date of cancellation.
- 1.18. The Permit Holder hereby agrees to indemnify and hold harmless the Department of Forestry, Fisheries and the Environment ("the Department"), including its authorised representatives for any loss and/or damage, which may be incurred or suffered by the Permit Holder as a result of the Department and any of its authorised officials, reasonably and lawfully carrying out any of its responsibilities and/or duties and/or functions under any relevant legislation, agreement and this permit.





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- 1.19. Permits will be revoked if specimens are not being held or used as specified in the permit conditions.
- 1.20. The Permit Holder may apply for the renewal of a permit 60 (sixty) days before the expiry of the period for which the permit was issued.

**2. CONDITIONS FOR HAVING IN POSSESSION OR EXERCISING PHYSICAL CONTROL OVER
EUCALYPTUS GRANDIS (SALIGNA GUM, ROSE GUM)**

- 2.1. This Permit is only valid for the species and location indicated on the permit.
- 2.2. The Permit Holder must not breed or multiply the permitted species.
- 2.3. The Permit Holder must ensure that the plants do not spread to the surrounding environment or outside the permitted area.
- 2.4. The Permit Holder will be held responsible for any costs that are incurred by the relevant authority in an effort to control specimens that spread from his/her facility.
- 2.5. The specimens must not be transported as live specimens without a transport permit from the Department's Directorate Biodiversity Risk Management: Issuing Authority.
- 2.6. The specimens which spread from the facility must be immediately reported to the Department via e-mail on AISpermits@dfre.gov.za.

DEPARTMENT OF FORESTRY, FISHERIES & THE ENVIRONMENT REPUBLIC OF SOUTH AFRICA DIRECTORATE: BIODIVERSITY RISK MANAGEMENT: ISSUING AUTHORITY
13 OCT 2023 
PRIVATE BAG X4390 CAPE TOWN. 8000
ALIEN AND INVASIVE SPECIES: PERMIT



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Department:
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Issuing Authority · Department of Forestry, Fisheries & the Environment · Directorate: Biodiversity Risk Management · Private Bag X 4390 · Cape Town · 8000 · 14
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3. VALIDITY OF PERMIT AND RIGHT TO APPEAL

- 3.1. This Permit shall automatically expire on the date as indicated on the Permit. The Permit shall be invalid should the permit allocated be suspended or cancelled in terms of NEMBA.
- 3.2. Within 20 (twenty) days after receiving the notification of cancellation, amendment or suspension., the Permit Holder may lodge an appeal against the decision to cancel, suspend, or amend this Permit in terms of section 43 (1) of the NEMA appeal. Late appeals may not be considered.
- 3.3. The appeal must be addressed to the Minister of Forestry, Fisheries and the Environment, clearly marked "**APPEAL**" for the attention of Adv. Mokete Rakgogo, and hand delivered or couriered to Environment House, 473 Steve Biko Road, Arcadia, Pretoria, 0083 or emailed to MRakgogo@dfre.gov.za or Appeals@dfre.gov.za before the closing date. The appeal shall set out all the relevant facts as well as the grounds of appeal and shall be accompanied by any relevant document(s).

DEPARTMENT OF FORESTRY, FISHERIES & THE ENVIRONMENT REPUBLIC OF SOUTH AFRICA
DIRECTORATE: BIODIVERSITY RISK MANAGEMENT: ISSUING AUTHORITY
13 OCT 2023
PRIVATE BAG X4390 CAPE TOWN, 8000
ALIEN AND INVASIVE SPECIES: PERMIT