Vol. 647 10 May Mei 2019 No. 42451

PART 1 OF 2

For purposes of reference, all Proclamations, Government Notices, General Notices and Board Notices published are included in the following table of contents which thus forms a weekly index. Let yourself be guided by the gazette numbers in the righthand column:

Weekly Index

Alle Proklamasies, Goewermentskennisgewings, Algemene Kennisgewings en Raadskennisgewings gepubliseer, word vir verwysingsdoeleindes in die volgende Inhoudopgawe ingesluit wat dus weeklikse indeks voorstel. Laat uself deur die Koerantnommers in die regterhandse kolom lei:

Weeklikse Indeks

Contents

GOVERNMENT NOTICES • GOEWERMENTSKENNISGEWINGS

DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES

NO. 646 **10 MAY 2019**

NATIONAL AGRICULTURAL MARKETING COUNCIL
MARKETING OF AGRICULTURAL PRODUCTS ACT, 1996, AS AMENDED
(ACT No. 47 OF 1996)

REQUEST FOR THE CONTINUATION OF STATUTORY MEASURES RELATING TO LEVIES, REGISTRATIONS AND RECORDS & RETURNS IN THE PORK INDUSTRY, IN TERMS OF THE MARKETING OF AGRICULTURAL PRODUCTS ACT

It is hereby made known that, in terms of section 11 of the Marketing of Agricultural Products Act, 1996 (Act No.47 of 1996) (MAP Act), the Minister of Agriculture, Forestry and Fisheries has received a request from the pork industry for the continuation of statutory measures relating to levies, registrations, the keeping of records and the rendering of returns. The applicant for the proposed statutory measures is the South African Pork Producers' Organisation (SAPPO), a voluntary organisation established by pork producers in 1992 to act as mouthpiece and representative organisation for pork producers in South Africa. The current statutory measures for the pork industry will expire on 31 October 2019. Although the current statutory measures will only lapse on 31 October 2019, SAPPO requested ministerial approval for the establishment of the proposed statutory measures for a new period of three years, from 1 November 2019 to expire on 31 October 2022.

The existing statutory levy is R11.58 per slaughter pig or live pig exported (excluding VAT). SAPPO proposed that the statutory levy increase to R12.16 per pig (VAT excluded) for the period 1 November 2019 to 31 October 2020, to R12.77 per pig (VAT excluded) for the period 1 November 2020 to 31 October 2021 and to R13.41 per pig (VAT excluded) for the period 1 November 2021 to 31 October 2022. The estimated income from the proposed levies is between R36.8 million (for 2019/20) and R43.4 million per annum (for 2021/22). The proposed statutory levies will finance the following functions, namely –

- Business development;
- Consumer assurance;
- Consumer communication and education;
- Research and development;
- Business intelligence; and
- Corporate governance (Administration).

The MAP Act stipulates that a statutory levy may not exceed 5% of the price realised for a specific agricultural product at the first point of sale. The maximum of 5% must be based on a guideline price calculated as the average price at the first point of sale over a period not exceeding three years. The proposed statutory levies will only be 0.55% of the calculated guideline price for a pork carcass (an average over three years) at the first point of sale.

The purpose of the statutory measure relating to registrations is to compel abattoirs slaughtering pigs and exporters of live pigs, to register with the levy administrator (SAPPO). The purpose of the statutory measure relating to records & returns is to compel abattoirs and exporters of live pigs to render records and returns to the levy administrator. These statutory measures are necessary to ensure that continuous, timeous and accurate market information relating to pigs slaughtered, marketed and live pigs exported, is available to all role-players. Market information is deemed essential for all role-players in order for them to make informed decisions.

The National Agricultural Marketing Council (NAMC) took cognisance of the proposed continuation of the statutory measures relating to levies, registrations, the keeping of records and the rendering of returns in the pork industry as requested by SAPPO, is consistent with the objectives of the MAP Act. The request is currently being investigated by the NAMC and recommendations in this regard will be made to the Minister in the near future.

Directly affected groups in the pork industry are kindly requested to submit any comments, regarding the proposed statutory measures, to the NAMC on or before 24 May 2019, to enable the Council to finalise its recommendation to the Minister in this regard. Submissions should be in writing and be addressed to:

National Agricultural Marketing Council
Private Bag X 935
PRETORIA
0001
Enquiries: Dr Ndumiso Mazibuko
E-mail: ndumiso@namc.co.za
Tel.: (012) 341 1115
(073) 551 8388
Fax No.: (012) 341 1911

DEPARTMENT OF ENVIRONMENTAL AFFAIRS

NO. 647 **10 MAY 2019**

NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998)

CONSULTATION ON MINIMUM STANDARDS FOR THE CONSIDERATION OF ENVIRONMENTAL ASPECTS IN THE PREPARATION AND REVIEW OF MUNICIPAL SPATIAL DEVELOPMENT FRAMEWORKS (SDFs) IN TERMS OF SECTION 23A AND SECTION 24(3) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998

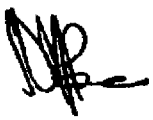
I, Nomvula Paula Mokonyane, Minister of Environmental Affairs, hereby, in terms of section 23A and section 24(3) of the National Environmental Management Act, 1998, publish for public comment, the Minimum Standards for the Consideration of Environmental Aspects in the Preparation and Review of Spatial Development Frameworks (SDF), as contained in the Schedule hereto. The Standards aim to provide guidance regarding the identification and integration of environmental aspects within spatial development planning.

Members of the public are invited to submit to the Minister, within 45 days from the date of the publication of this Notice in the *Gazette*, written comments or inputs to the following addresses:

By post to: The Director-General:
Department of Environmental Affairs
Attention: Ms D Fischer
Private Bag X447
PRETORIA
0001
By hand at: Reception, Environment House, 473 Steve Biko Road, Arcadia, Pretoria, 0083
By e-mail: DFischer@environment.gov.za

Any inquiries in connection with the Notice can be directed to Mr Simon Moganetsi at Tel: 012 399 9308.

Comments received after the closing date may not be considered.



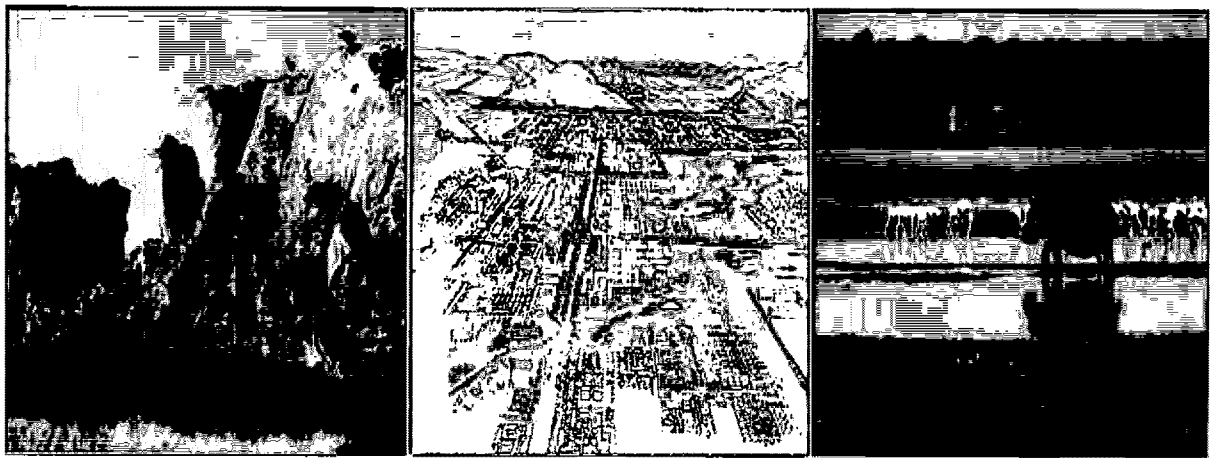
NOMVULA PAULA MOKONYANE
MINISTER OF ENVIRONMENTAL AFFAIRS

SCHEDULE

KENA Consult PTY Ltd

MINIMUM STANDARDS FOR THE CONSIDERATION OF ENVIRONMENTAL ASPECTS IN THE PREPARATION/REVIEW OF MUNICIPAL SPATIAL DEVELOPMENT FRAMEWORKS (MUNICIPAL SDFs)

MINIMUM ENVIRONMENTAL STANDARDS (DRAFT)



environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

SANBI
Biodiversity for Life
South African National Biodiversity Institute

rural development & land reform
Department:
Rural Development and Land Reform
REPUBLIC OF SOUTH AFRICA

JANUARY 2019

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS & ACRONYMS

CBAs	Critical Biodiversity Areas
DEA	Department of Environmental Affairs
DRDLR	Department of Rural Development and Land Reforms
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
ESAs	Ecological Support Areas
GPEMF	Gauteng Provincial Environmental Management Framework
GIS	Geographical Information Systems
GPS	Global Position System
LUS	Land Use Scheme
MEC	Member of Executive Council
MSDF	Municipal Spatial Development Framework
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NDP	National Development Plan
PAs	Protected Areas
RSA	Republic of South Africa
SANBI	South African National Biodiversity Institute
SDF	Spatial Development Framework
SEMAs	Specific Environmental Management Acts
SPLUMA	Spatial Planning and Land Use Management Act, 2013 (Act No. 16 of 2013)
SWSAs	Strategic Water Source Areas
UNESCO	United Nations Education, Scientific and Cultural Organisations

Section A: Context (Purpose of the Minimum Environmental Standards)

1 Context: Purpose of the Minimum Environmental Standards

Municipalities are obliged, in terms of the Spatial Planning and Land Use Management Act No. 16 of 2013 (SPLUMA) to incorporate environmental aspects into their spatial development frameworks (SDFs). The Minimum Environmental Standards contained in this document (the "Standards") give guidance to Municipalities to fulfil that duty. The purpose of the Standards is to proactively integrate environmental management aspects into the development/review of SPLUMA compliant **Municipal Spatial Development Frameworks** (MSDFs) to ensure that environmental and developmental planning achieve mutually reinforcing outcomes, in terms of sustainability. The Standards provide a conduit through which pertinent environmental considerations/concerns can be streamlined into spatial planning, specifically at local Municipality level. Ultimately, these Standards are designed to *regulate the effect of development activities upon the environment*, and equally important, to *simplify approval/authorisation processes for Municipalities*[1]. These Standards were developed taking into consideration, *inter alia*, relevant provisions of the Constitution of the Republic of South Africa, 1996 (the Constitution), SPLUMA, NEMA, specific environmental management acts (SEMAs) and relevant policy instruments such as the National Development Plan (NDP). The most pertinent provisions of SPLUMA and NEMA for the purposes of these Standards are the following:

- In terms of **SPLUMA:**
    - Section 12(1)(m) provides that the national and provincial spheres of government and each municipality must prepare SDFs that take cognisance of any environmental management instrument adopted by the relevant environmental management authority;
    - Section 21(j) provides that a municipal SDF must include a strategic assessment of the environmental pressures and opportunities within the Municipal area (including the spatial location of environmental sensitivities, high potential agricultural land and coastal access strips, where applicable);
    - Section 24(1)(b) states that a land use scheme must take cognisance of any environmental management instrument adopted by the relevant environmental management authority, and must comply with environmental legislation.

[1] If a Municipal SDF is compliant to the Minimum Environmental Standards – incorporates both environmental and planning aspects – it has the capability to integrate various Plans (e.g. Environment, Human Settlements, Infrastructure, Transportation Planning, Waste Management Plans, etc.) into one Municipal SDF. Sufficient environmental input into SDFs will then result in Municipalities only having to develop one Plan.

- In terms of **NEMA**, Section 24(2) in relevant parts, provides that the Minister of Environmental Affairs (Minister), or a Member of the Executive Council (MEC) with the concurrence of the Minister, may identify –
    - activities which may not commence without environmental authorisation from the competent authority;
    - geographical areas based on environmental attributes, and specified in spatial tools or environmental management instruments, adopted in the prescribed manner by the Minister or MEC, with the concurrence of the Minister, in which specified activities may be excluded from the requirement to obtain an environmental authorisation from the competent authority;
    - activities contemplated in paragraphs (a) and (b) of section 24(2) that, based on an environmental management instrument adopted in the prescribed manner by the Minister or an MEC, with the concurrence of the Minister, may be excluded from the requirement to obtain an environmental authorisation from the competent authority.

The above illustrates that SPLUMA and NEMA provide a framework that can lead to congruence between environmental planning and spatial planning objectives. An SDF that meets the minimum environmental standards would not lead to automatic exclusions *from the requirement to obtain an EA.* If a Municipal SDF has been prepared in a manner that meets the minimum environmental standards that are acceptable to the Minister or the MEC responsible for environment, and is subjected to the prescribed public consultation processes, it may be considered as an environmental management instrument which can, in specific instances and on a case-by-case basis, be used for purposes of excluding some of the activities identified in terms of NEMA from the requirement to obtain an environmental authorisation (EA). Incorporating minimum environmental standards into SDFs will not automatically lead to such exclusions, but could form the basis for identifying specific activities that currently require an EA to be excluded from that requirement, if sufficient information (e.g. specific zones where the exclusions are applicable and the mitigation standards that must be met) is provided.

Section B

- STEPS IN IMPLEMENTING THE STANDARDS -

Section B: Steps in implementing the Standards in preparation/review of SDFs

2 Steps in Implementing the Standards

2.1 Step 1: Understanding the Environmental Status Quo

The first vital step is for Municipalities to have a good understanding of their Environmental Status Quo. From Section 2.1.1 up to Section 2.1.6 the document provides a full elaboration of the requisite steps that a Municipality should follow in undertaking a comprehensive Status Quo Analysis on all relevant environmental criteria/features within a Municipal spatial jurisdiction.

2.1.1 List all Environmental Criteria (Features/Land Uses) in the Municipal Area

The Municipality must undertake an exercise of compiling a list of relevant Environmental Criteria existing within their spatial jurisdiction. This should be inclusive of both the **key features** (e.g. rivers, wetlands, forests) as well as **land uses** that have environmental impacts (e.g. agricultural resources, mining resources).

Table 1 provides a list of the proposed Environmental Criteria, derived through *extensive literature review, robust discussions and stakeholder consultations*. It represents a "menu" of the most significant environmental features that are likely to be found at a Municipal planning sphere. Municipalities should use this list as a guide (starting point) to identify (spatially locate), those criteria existing within their jurisdiction and consider them during the SDF preparation/review process. In addition to the **Environmental Criteria**, the Table also includes the **Sub-criteria** (main sub-categories, components and constituents of the key environmental features). **NB**: Municipalities may take the liberty to re-organise (aggregate/disaggregate) Environmental Criteria, as long as all the Criteria are considered. However, focus should be given to mapable (spatial) environmental criteria[2].

TABLE 1: CRITERIA TO BE INCLUDED IN THE MINIMUM STANDARD

Criteria (Features/Land Use)	Sub-Criteria
1. **Environmental Resources**	Protected Areas (PAs)
	Critical Biodiversity Areas (CBAs)
	Ecological Support Areas (ESAs)
	Strategic Water Source Areas (SWSAs)
	Nature-based tourism or scenic features
2. **Environmental Hazards**	Natural hazards (e.g. floodplains, Dongas & Erosion, Sink holes, Mass earth movements, Extreme weather prone areas, Steep slopes)
	Man-made hazards (e.g. waste landfill sites, industrial pollution sites)
3. **Cultural and heritage resources**	Cultural landscapes or features (e.g. Burial sites, Cultural World Heritage Sites (UNESCO), National heritage sites, Provincial Heritage Areas, Local

[2] Each SDF should also have a **land use/cover base map** depicting topographical features (i.e. mountains, rivers, etc.) as some of these features may not be captured in the criteria. **Nature-based Tourism or Scenic areas** can be quite spacious. Consequently, Municipalities will need to do a fine-scale mapping in order to include them into their SDFs. Alternatively, Municipalities can map their **tourism nodes**.

		Heritage Areas, Cultural landscapes, Archaeological & Paleontological sites)
4.	**Agricultural resources**	High potential agricultural land
5.	**Mining**	Mine tailings, current and past mining areas, acid-mine drainage affected features, areas contaminated/degraded by mining
6.	**Infrastructure**	Utilities infrastructure (e.g. railways, roads, pipelines, waste water treatment facilities, renewable/non-renewable energy infrastructure)

2.1.2 Give a Brief Description of each Criterion/Feature

Having compiled the list, the Municipality should write-up brief descriptions of each Environmental Criterion (both the environmental features and land uses), identified in 2.1.1. Municipalities should/can draw from the pre-determined descriptions (see Table 6 in Annexures) and use it as a guide. Customisations should cover such aspects as the exact condition, location, spatial extent and significance of the environmental feature. Moreover, descriptions should be pegged at the sub-criteria level, to provide finer detail about the environmental features.

2.1.3 Determine if there is Spatial Data for each Criterion identified

The Municipality should then determine if there is *spatial data* for each criterion, as identified in 2.1.1. It is prudent that the Municipality makes use of existing and readily available data/information, to avoid wastage of resources and/or time in 'reinventing the wheel'. Some of the freely available GIS-based datasets are presented in Table 2. One of the outcomes of this part of the process is the identification of gaps (i.e. instances where there is no existing *spatial data* for identified Environmental Criteria). In terms of **Scale**, in contentious, high pressure areas, Municipalities should go down to a *Cadastral boundary level*, but in other parts (e.g. rural areas), *a scale of 1:50 000 might be good enough.*

2.1.4 Specific Links for Spatial Data on each Environmental Criterion

For the datasets that are available, Table 2 presents the specific links where the data can be accessed.

TABLE 2: SPECIFIC LINKS WHERE DATA CAN BE FOUND

Criteria (Features/Land Use)	Sub-Criteria	Specific links where data can be found
1. **Environmental Resources**	Protected Areas (PAs)	https://egis.environment.gov.za/
	Critical Biodiversity Areas (CBAs)	Gauteng http://bgis.sanbi.org/gauteng Limpopo http://bgis.sanbi.org/limpopo North West http://bgis.sanbi.org/Projects/Detail/179 Mpumalanga http://bgis.sanbi.org/MBSP KZN http://bgis.sanbi.org/Projects/Detail/22

				Eastern cape [waiting for the latest CBA map] Northern Cape http://bgis.sanbi.org/Projects/Detail/203 Western Cape http://bgis.sanbi.org/Projects/Detail/194 Free State http://bgis.sanbi.org/Projects/Detail/180
		Ecological Support Areas (ESAs)		Same links as CBAs (above)
		Strategic Water Source Areas (SWSAs)		CSIR David Le Maitre <DlMaitre@csir.co.za>
		Nature-based tourism or scenic features		
2.	**Environmental Hazards**	Natural Hazards	Floodplains	
			Dongas & Erosion	
			Sink holes	
			Mass earth movements	
			Extreme weather prone areas	
			Steep slopes	
		Man-made Hazards	Waste landfill sites	
			Industrial pollution sites	
3.	**Cultural and heritage resources**	Burial sites		http://www.sahra.org.za/
		Cultural World Heritage Sites (UNESCO)		
		National heritage sites		https://egis.environment.gov.za/ http://www.sahra.org.za/
		Provincial Heritage Areas		
		Local Heritage Areas		http://www.sahra.org.za/
		Cultural landscapes		http://www.sahra.org.za/
		Archaeological sites & Paleontological sites		http://www.sahra.org.za/
4.	**Agricultural resources**	High potential agricultural land		http://www.arc.agric.za/Pages/Home.aspx Anneliza <AnnelizaC@daff.gov.za>
5.	**Mining**	Mine tailings		Department of Mineral Resources (DMR)
		Current and past mining areas		
		Acid-mine drainage affected features		
		Areas contaminated/degraded by mining		
6.	**Infrastructure**	Railways		
		Roads		
		Pipelines		
		Waste water treatment facilities		
		Renewable/non-renewable energy infrastructure		
7.	**Current land use/cover**	Current land use/ cover		https://egis.environment.gov.za/

2.1.5 Unmapped Criteria: Advice on what and how they must be mapped

If there is a significant Environmental Criterion that is unmapped, the Municipality should budget for and undertake an exercise of mapping those specific Environmental Criteria[3]. This can be done in-house or out-sourced to service providers with the requisite competences (e.g. GIS, Cartography, Remote Sensing).

TABLE 3: UNMAPPED CRITERIA: ADVICE ON WHAT AND HOW THEY MUST BE MAPPED

Criteria (Features/Land Use)	Unmapped Sub-Criteria	Advice on what and how they must be mapped
1. **Environmental Resources**	Nature-based tourism or scenic features	GIS equipment such as GPS can be used to identify areas in the field and transfer data onto laptop to create vector points or polygon areas for the identified sites.
2. **Environmental Hazards**	Floodplains	Satellite imagery mapping using medium resolution imagery such as Landsat or Sentinel. This requires Image Classification techniques, using Raster analysis software (e.g. ENVI which is compatible with ArcGIS). Site verification should be done to assess accuracy of the image mapping.
	Dongas & Erosion	Satellite imagery mapping using medium resolution imagery such as Landsat and Sentinel. This requires Image Classification techniques, using Raster analysis software (e.g. ENVI which is compatible with ArcGIS). Site verification should be done to assess accuracy of the image mapping.
	Sink holes	On-site mapping of the feature (including the buffer area) using GIS equipment such as GPS. Sink holes could also digitized from Aerial photographs.
	Mass earth movements	Weather satellite monitoring – satellite imagery
	Extreme weather prone areas	Weather satellite monitoring – satellite imagery. When areas are identified, "hotspot mapping" can be done through a desktop exercise to show extreme weather prone areas.
	Waste landfill sites	GIS equipment such as GPS used to identify areas in the field and transfer data into laptop to create vector points or polygon areas for the sites. Aerial photos can also be used to map waste landfill sites.
	Industrial pollution sites	GIS equipment such as GPS used to identify areas in the field and transfer data into laptop to create vector points or polygon areas for the sites.
3. **Cultural and heritage resources**	Burial sites	Field on-site mapping using GIS equipment such as a GPS to identify areas and be able to acquire coordinates of site. The site co-ordinates can be transferred into shapefile to show the different locations. Aerial photos can also be used to map burial sites.
	Cultural World Heritage Sites (UNESCO)	Field on-site mapping using GIS equipment such as a GPS to identify areas and be able to acquire coordinates of sites. The site co-ordinates can be transferred into shapefile to show the different locations.

[3] These features only need to be mapped if they will have a significant impact/influence on the SDF and the spatial outlook of the Municipality.

		National heritage sites	Field on-site mapping using GIS equipment such as a GPS to identify areas and be able to acquire coordinates of site. The site co-ordinates can be transferred into the laptop as a shapefile, to show the different locations.
		Provincial Heritage Areas	Field on-site mapping using GIS equipment such as a GPS to identify areas and be able to acquire coordinates of site. The site co-ordinates can be transferred into the laptop as a shapefile, to show the different locations.
		Local Heritage Areas	Field on-site mapping using GIS equipment such as a GPS to identify areas and be able to acquire coordinates of site. The site co-ordinates can be transferred into the laptop as a shapefile, to show the different locations.
		Cultural landscapes	Field on-site mapping using GIS equipment such as a GPS to identify areas and be able to acquire coordinates of site. The site co-ordinates can be transferred into the laptop as a shapefile, to show the different locations.
		Archaeological sites & Paleontological sites	Field on-site mapping using GIS equipment such as a GPS to identify areas and be able to acquire coordinates of site. The site co-ordinates can be transferred into the laptop as a shapefile, to show the different locations.
4.	**Agricultural resources**	High potential agricultural land	Medium (e.g. Landsat and Sentinel) and high resolution imagery (e.g. SPOT, Quickbird) can be used to identify land cover and land use areas which should be avoided on the basis of Agricultural use/potential. This should include such as plantations and agricultural hubs. Such agricultural land tends to be in close proximity to water source areas (rivers and dams).
5.	**Mining**	Mine tailings	Satellite imagery mapping using medium resolution imagery such as Landsat and Sentinel. This requires Image Classification techniques, using Raster analysis software (e.g. ENVI which is compatible with ArcGIS). Site verification should be done.
		Current and past mining areas	Take the point data and overlay that with the cadastre layer so that the full extent of the mine can be shown. This is especially important for underground mines which have small physical footprints but can extend throughout the entire cadastre underground.
		Acid-mine drainage affected features	Field on-site mapping using GIS equipment such as a GPS to identify areas. Aerial photography can also be used for mapping.
		Areas contaminated/ degraded by mining	Satellite imagery mapping using medium resolution imagery such as Landsat and Sentinel. This requires Image Classification techniques, using Raster analysis software (e.g. ENVI which is compatible with ArcGIS). Site verification should be done to assess accuracy of the image mapping.
6.	**Infrastructure**	Waste water treatment facilities	Field on-site mapping using GIS equipment such as a GPS to identify areas. Aerial photography can also be used for mapping.
		Renewable/non-renewable energy infrastructure	Field on-site mapping using GIS equipment such as a GPS to identify areas. Aerial photography can also be used for mapping.
7.	**Current land use/ cover**	Current land use/cover	Municipalities should use the 2014 land cover, but if a province has more recent land cover data, they can use that layer.

2.1.6 Ensure that Criteria/Features include buffers where appropriate

The Municipality should consider appropriate buffer zones around/along key features, to insulate areas of environmental sensitivity from adverse external impacts. Although there is no specific national law/legislation that provides directives on the exact standards/extent of buffer zones for various environmental features, guidance can be deduced from the buffer guideline for some environmental features which the Institute of Natural Resources (INR) prepared. Buffering on various Land Use Scheme features might also be represented by Open Space Systems in other instances (e.g. the Durban Metropolitan Open Space System (D'MOSS).

Some of the national-level guidance on buffer-setting that can be domesticated includes, for example, the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEM: PAA). Through this Act, the Minister for Environmental Affairs may declare an area as a protected environment in order to regulate such an area as a buffer zone. Based on NEM: PAA, the Department of Environmental Affairs (DEA), developed a framework called "Biodiversity Policy and Strategy for South Africa: Strategy on Buffer Zones for National Parks" (2012). The policy stipulates that the government will use the Municipal SDF process to establish a system of integrating environmental buffer zones to enhance environmental protection.

A select few processes through which the environmental protection could be entrenched by way of buffer zones (within the context of Municipal SDFs) are as follows:

- **Provincial EMFs/Environmental Management Tools:** Many of the Provincial Environmental Management Frameworks contain useful guidelines on buffer-setting for key land uses and environmental features in the Province (and by extension Municipalities). Examples include, the Gauteng Provincial Environmental Management Framework (GPEMF) and Western Cape Biodiversity and Spatial Planning Hand Book (2017). It is important that the process of developing an SDF incorporates the appropriate information on buffers for identified environmental features in a Municipality;
- As part of the Status Quo Analysis phase of the Municipal SDF process, Municipalities should embed an analysis of the environmental features in their spatial jurisdictions and where existing national or provincial guidelines for buffer-setting exist, these should be indicated;
- **Use of Land Use Schemes:** As an example, Rustenburg has used a Land Use Scheme to determine a 200 metre buffer zone of low impact development around an environmental feature of 'Hills and Ridges; and
- **Municipal By-Laws**: Another way of ensuring that criteria/features include buffers, where appropriate, would be through Municipal By-Laws. This has been successfully

implemented in Cape Town, where By-Laws provide for an intermediate business zone between high intensity non-residential uses and residential areas.

It is, therefore, important that the SDF processes accentuate the aspect of environmental protection by adhering to guidelines for buffer zones and applying them through the Land Use Scheme, as well as enforcing them through Municipal By-Laws.

2.2 Step 2: Overlaying the Spatial Datasets

The order in which shapefile layers are arranged in GIS determines what is ultimately depicted on the output map. Within a data frame (dataset), the layers positioned at the top will draw over those listed below them, and so on, down the list. However, it is possible to move layers around to adjust/modify their drawing order (i.e. what is ultimately projected on the map). As a general rule, when overlaying datasets in GIS, **points** should always be the first step in the hierarchy, followed by **lines**, then **polygons** at the bottom. The services represented by lines and topography lines should always be the first layer in a map layout. Rural and urban transect areas follow, together with utilities infrastructure such as rail and road networks linking settlements towards and within the urban and rural areas. Settlements (built-up areas) should then follow. When considering the sites for potential agriculture, the sensitive landscapes layer/s (Protected Areas (PAs), Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs), Strategic Water Source Areas (SWSAs), Nature-based tourism or scenic features) are important as this highlights areas to be avoided by development. Table 4 presents the proposed datasets overlaying structure, which Municipalities can adopt and adapt. **NB**: *Overlay order (top to bottom) 1-top layer and 10-bottom layer. Polygons layers at the bottom followed by line layers then points on top.*

TABLE 4: OVERLAYING THE SPATIAL DATASETS

Criteria (Features/Land Use)	Sub-Criteria	Overlay Order
1. **Environmental Resources**	Protected Areas (PAs)	3.1
	Critical Biodiversity Areas (CBAs)	3.2
	Ecological Support Areas (ESAs)	3.3
	Strategic Water Source Areas (SWSAs)[4]	3.4
	Nature-based tourism or scenic features[5]	1.1
2. **Environmental Hazards (Natural & Man-made)**	Floodplains	3.5
	Dongas & Erosion	3.5
	Sink holes	3.5
	Mass earth movements	3.5
	Extreme weather prone areas	3.5
	Waste landfill sites	3.5

[4] Only show the outline of this feature as they are quite large and they also contain CBAs within them.
[5] This will depend on spatial extent of these features. If these are large areas, then it makes sense to overlay the CBAs and PAs over them, but if these are smaller units, the proposed order should prevail. Alternatively, the Municipalities should simply include the Tourism Nodes.

		Industrial pollution sites	3.5
3.	**Cultural and heritage resources**	Burial sites	3.6
		Cultural World Heritage Sites (UNESCO)	3.6
		National heritage sites	3.6
		Provincial Heritage Areas	3.6
		Local Heritage Areas	3.6
		Cultural landscapes	3.6
		Heritage Protection Overlay Zones (or their equivalent)	3.6
		Archaeological sites & Paleontological sites)	3.6
4.	**Agricultural resources**	High potential agricultural land	3.9
5.	**Mining**	Mine tailings	3.7
		Current and past mining areas	3.7
		Acid-mine drainage affected features	3.7
		Degraded lands	3.7
6.	**Infrastructure**	Railways, roads, pipelines	2.2
		Waste water treatment facilities	2.1
		Renewable/non-renewable energy infrastructure	3.8
7.	**Current land use/cover**	Current land use/cover	4.0

2.3 Step 3: Identify Compatible/Incompatible Land Uses or Activities

For each criterion/feature – the Standards indicate what land uses are compatible and which are not. This predetermined, pre-existing Compatibility/Incompatibility Matrix should be used by Municipality as a guidance on compatibility of land use. Notwithstanding, CBAs must stay in largely natural ecological condition and ESAs must retain ecological processes, which often requires at least semi-natural ecological condition.

Before any land use change, the Municipality must ensure that the 'from-to' land use changes are compatible, in order to maintain sustainability. Table 5 **(Compatibility/Incompatibility Matrix)** provides guidance on how Municipalities can *determine compatible and incompatible land uses*, based on prevailing environmental conditions. It uses a 3-scale spectrum of:

- **Permissible:** land uses that are unlikely to compromise the environmental objectives;
- **Restricted:** land uses that may compromise the environmental objective and are only permissible under certain conditions; and
- **Not Permissible:** land uses that will compromise the environmental objective and are not permissible.

TABLE 5: MATRIX SHOWING COMPATIBLE AND INCOMPATIBLE LAND USES

	Agriculture				Open Space			Tourism		Residential		Business	Industrial			Transport & Utility				
SUB-CATEGORY								R = Restricted Land-uses that may compromise the Environmental objective/s and are only permissible under certain conditions												
Protected Area (PAs)	N	N	R	N	Y	R	R	R	N	N	R	N	N	N	N	N	N	R	N	N
Critical Biodiversity Area (CBAs)	N	N	R	N	Y	Y	Y	R	N	N	R	N	N	N	N	N	N	R	N	N
[illegible]	R	R	R	R	Y	Y	Y	R	N	R	R	N	N	N	N	R	R	R	R	R
[illegible]	R	R	Y	Y	Y	Y	Y	Y	R	R	R	N	R	R	N	R	R	R	N	R	R
Cultural and Heritage Resources	N	R	R	R	Y	Y	Y	Y	N	Y	Y	N	N	N	N	N	N	R	N	R	R
Agricultural Resources	Y	Y	Y	Y	R				N	R	R	N	N	R	N	N	N	R	N	R	R
Mining	N	N	N	R	R	R	Y		N	R	R	N	N	R	N	Y	Y	R	R	R	R
[illegible]	R	R	R	R	R	R	Y	Y	R	R	Y	R	R	Y	R	N	N	Y	Y	Y	Y

Be that as it may, the Matrix (which is a Guideline) should not substitute for bold and committed mapping of environmental resources and hazards (e.g. reserving a river flood-plain as a no-go development area). In cases where existing tools that provide sufficient to provide decision making guidance are available (e.g. D'MOSS in eThekwini), such tools could be used in tandem with the Matrix.

Based on the **Compatibility/Incompatibility Matrix**, the Municipality should identify current and future challenges to its environment, with particular attention to their spatial implications. Where possible, an area could have a suite of potential/actual complimentary land uses, as opposed to just one land use. There is therefore a need to find synergies between biodiversity, environmental conservation, land-use/development and sustainable livelihoods. On the basis of these Standards, the Municipality must, among other things, enable the following:

- **Facilitate compatibility of land uses to ensure a quality, efficient and effective living environment.**
- **Identify, negate (and/or manage) any possible adverse impacts of developments.**

- **Curb undesirable developments due to incompatible land use patterns.**
- **Protect productive and conservation-worthy resources (e.g. high potential agric. lands, wetlands, etc).**

2.4 Step 4: Objectives, Targets, Indicators & Strategy

The '**domestication**' of international instruments into national and provincial policies and plans cumulatively provide the framework for defining Municipal Environmental Objectives, Targets (how much of each feature is needed to conserve it), and Indicators/Measures. To that end, Municipalities should consult such provincial instruments, as well as draw from the RSA Constitution and the National Development Plan (NDP) – which sets the country's

strategic direction. In addition, the local objectives and targets should be girded by NEMA Principles, and SPLUMA Principles. The "domestication" should be in accordance to the Environmental Criteria existing within the Municipal jurisdiction. Equally importantly, the Municipality should develop a Strategy (or Strategies) to achieve the set Objectives and Targets, with the Municipal performance being measured against the predetermined Indicators/Measures. This cascading applicability of various SDFs is fundamental in that it helps to achieve environmental Objectives/Targets from National, through Provincial, Regional and down to Municipal levels. The fact that each sequentially more detailed SDF has to align with the Objectives/Targets of the one above, is pertinent to achieving national, provincial and local Objectives and/or Targets. The diagram below depicts the vital linkages (correlations) between the Objectives, Targets, Indicators and Strategies.

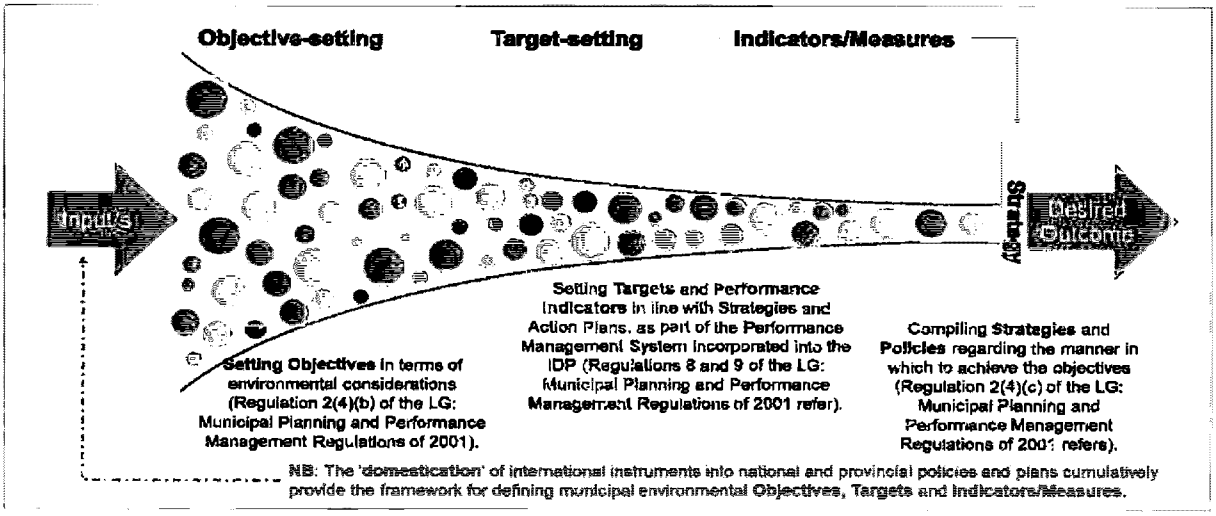


Figure 1: Objectives, Targets and Indicators

2.5 Step 5: Resolution of Land Use Conflicts

One of the biggest challenges in integrating/harmonizing/aligning environmental and development planning is land use competition. As such, conflict will arise in the development and implementation of SDFs. Areas of land use competition/conflict relate to such land uses as urban use vs. agricultural use, agricultural use vs. mining use, conservation vs. development, CBA vs. National Mineral Resource. Conflict might be on the basis of political socio-economic desires which might be disparate to environmental concerns. In such instances, principles-based conflict resolution and decision making should be adopted. Fundamentally, conflict resolution must adhere to the SPLUMA / NEMA principles. Some of the fundamental principles that should guide conflict resolution are as follows:

- **Fundamental Principles**: Any land use change needs to be tested against a number of principles (e.g. *Ecological Sustainability; Justifiability (in the Municipal context); Promotion of Equity; Promotion of Accessibility of public places/resources; Desirability; Public Interest; Municipal Priorities*, etc.). A Municipality should not seek to maximise revenue at the expense of key ecological infrastructure (e.g. features regulating against flooding, or storm surge impacts). It is important to consider if the development (or land use change) is ***desirable*** — qualitative attributes that make a particular development attractive or non-attractive. In most cases, while many areas are developable, the degree of desirability differs in terms of costs, location, long-term viability, etc. The Municipality must determine what is ***ecologically sustainable*** and what is ***justifiable***. This has not been determined at a National level, hence it is one major issue that the Municipality should grapple with. National government has proposed some foundational strategic permutations of what is 'ideal', but what is "justifiable" should be considered on a case-by-case basis within the context of the Municipality. Be that as it may, justifiability should be viewed in conjunction with the promotion of "equity and granting public access". In some instances, the Municipality should determine whether it is justifiable to sacrifice national conservation targets to achieve socio-economic development, public access, etc. There might be need for sustainable compromises, depending on the objectives the Municipality seeks to achieve.
- **Mitigation Hierarchy (Avoid, Mitigate, Restore, Offset)**: use it in Option Analysis, to guide the land use allocation debate. Weigh the competition by looking at alternative ways to use that land, in order to avoid conflict. The Municipality should not rush to just offset. Instead, the Mitigation Hierarchy should be used to explore if there are any possibilities of avoiding the impact, before considering offsetting or even a trade-off.
- **Offsets**: Where possible, environmental damage should not happen, but if it does, offsets should be implemented. Offsetting should be well thought through, right from the beginning. Offsets should be considered proactively — they are not for sorting out environmental damage that has already occurred. Instead, offsets are for determining if a project/ program which will cause environmental damage can be mitigated through an "Offset", which would need to be in place prior to the project/ program commencing. **NB**: There are certain situations where offsetting (nor any

engineering mitigation) is not appropriate and should not be considered (e.g. delineated "red areas" that are at high risk).

- **Full Cost Accounting**: Municipalities must understand, both the infrastructure cost (in construction and operation) and the financial cost post-development (maintenance) of a land use change.
- **Institutional Architecture Reconfiguration**: In the long term, Municipalities should consider, where possible, integrating (amalgamating) the planning function and the environmental function into one. This model has been successfully implemented in the Western Cape, albeit at provincial level. It goes a long way in minimising the typical disjuncture and helps avoid certain conflicts before they even occur.
- **High Quality Discussion and Debate**: Land use conflict should be resolved via debate by stakeholders, with a view to arriving at an agreed view, but most importantly, sustainable outcome. The mitigation hierarchy must inform how that debate must happen. The concept of 'Strategy' could be used to temper the rigidity of the mitigation hierarchy – in instances where calculated risk has been/should be taken (e.g. Water Front), the Municipality should consider the recoverability of the Capital Cost[6]. Therefore, in those cases, there should be explicit Strategy to maximise the benefits.
- **Win-Win (re)solutions**: The Municipality should always seek/support development options that can be regarded as win-win solutions in that they meet both developmental and environmental objectives simultaneously.
- **Fixing Data Errors**: Part of the problem is mapping errors. By just fixing some of the mapping issues/queries, land use competition could be addressed. Thereafter, the Municipality can meet with the different role players to assess the legitimacy of the issues and also whether the issues could be easily resolved.
- **Integrate, Harmonise and Align Disparate Legislations**: Analyse the SDF vs. other legislations specifically to understand, from a spatial perspective, where there are conflicts. Conflict resolution can be done by integrating, harmonising and aligning disparate legislations and spatial planning systems (e.g. an SDF and EMF developed separately). In some cases, the Municipality will end up with two separate planning documents, albeit with a common view and 'speaking the same language' (case of Saldana Bay, Western Cape). However, if the integration is done at the development stage, the Municipality can end up with one document with incorporates both the SDF and EMF (case of Mossel Bay). Ideally, the EMF and SDF must eventually have/use the same map.
- **Buffers**: some conflicts could be resolved by referring/adhering to the buffer guideline prepared by the INR – it should be implemented to buffer environmental features.

[6] Water Front recovers the development and maintenance cost many times over and the Municipality is able to manage that situation.

Section C

- GUIDELINES (BEST PRACTICE) -

Section C: Guidelines (Best Practice)

3 Guidelines (Best Practice)

3.1 Guidline1: Valuation of Ecological Assets

Box 1: Guidance on Valuation of Ecological Assets

The idea of putting monetary value on environmental/ecological assets (in order to resolve competing and conflicting interests), is complex, controversial and has been highly contested. Moreover, the subjective element undercutting monetary valuation techniques would pose a danger to uniformity and standardisation, thereby making land use conflict resolution and decision making difficult Consequently, having considered a range of valuation methods and techniques, Municipalities should not use monetary valuation techniques. Environmental assets are priceless and should not be looked at through an economic/ business lens, lest they may be undervalued. In addition, highly scientific methods would not be suitable to most Municipalities where there are capacity/expertise constraints As such, instead of attempting to put monetary value on ecological/environmental assets, there is need for high quality discussion that considers socio economic, ecological/environmental and cultural factors Therefore, on a case by case basis, a Municipality can determine the importance of ecological assets, taking into consideration the local existing conditions and predetermined priorities Notwithstanding the aforementioned limitations/risks, in cases where sufficient capacity and resources exist to undertake monetary evaluation of environmental assets in a responsible manner that does not compromise environmental protection, a Municipality could take the liberty to make a case to responsible/relevant environmental Authorities (e g DEA), regarding the use and/or selection of scientific valuation tools/methods, which authority will then make the necessary determinations

3.2 Guidline2: Parameters for exclusions from EIA requirements on certain Listed and Specified Activities

The purpose of the discussion in this section is to give guidance on how a municipal SDF that has been prepared in compliance with the Minimum Environmental Standards can provide a good framework for the identification of activities and areas that can be excluded from the requirement to obtain environmental authorisations. It is emphasised however that the objective of such as an SDF is not to provide automatic or blanket exclusions. Such exclusions are to be done on a case by case basis and with due regard to the established procedures and processes.

The NEMA requires that an environmental authorisation is obtained before any activity which has been identified in terms of NEMA as Listing Notices, can commence[7]. The activities identified in the NEMA Listing Notices apply throughout the Republic. However, as already noted, the Minister, or an MEC with the concurrence of the Minister, may, in terms of section 24(2)(c) and (e) identify activities in the Listing Notices that are excluded from the requirement to obtain an environmental authorisation from the competent authority in specified geographic areas. Such a list of activities must be based on an environmental management instrument or spatial development tool adopted by the Minister or an MEC, with the concurrence of the Minister.

[7] Section 24, 24D of NEMA

The rationale for the exclusion of activities from the requirement to obtain environmental authorisation is to reduce the legislative burden on the sector where there are no issues of concern, such as areas that are of least concern from a biodiversity conservation perspective.

A SDF could be adopted as an instrument which could support the exclusion of activities from the need obtain and environmental authorisation if they have been prepared in a manner that meets the approval of the MEC and Minister. The SDF would also need to indicate that it is intended to provide the basis of such exclusions. Prior to such adoption, notice must be given in the Government Gazette indicating the intention to adopt the SDF as an instrument to support an exclusion of identified activities.

The road map to development of an SDF that can facilitate exclusions of certain activities can be summarised as a 3-step process:

a. A strategic assessment of the environmental pressures and environmental sensitivities which are then taken into consideration and aligned with land use measures according to the environmental management tools employed in the municipality. This may include environmental management zones identified in the relevant Environmental Management Framework of the municipality in line with the applicable management guidelines.

b. The SDF must be prepared and presented in accordance with the requirements of an environmental management instrument. Areas of compatible land uses must be properly zoned and spatially represented and activities for exclusion per zone identified. Incorporating minimum environmental standards into SDFs will not automatically lead to such exclusions, but could form the basis for identifying specific activities that currently require EA to be excluded from that requirement, if sufficient information (e.g. specific zones where the exclusions are applicable and the mitigation standards that must be met) is provided.

c. The third step would involve consultation on the proposed exclusions in the prescribed manner.

As mentioned above, exclusion of activities should be done on a case by case basis and the following principles should apply:

- The embodiment of the principle of spatial sustainability through the protection of high potential and unique agricultural land through land use mechanisms in support of food security as a national norm, preservation of land for production and enablement of environmental supportive agricultural practices;

- Striving for sustainability through the protection of biodiversity and ecological functioning; and

- Introduction of special land use parameters in spatially demarcated areas which acknowledges levels of acceptable change and support a level of economic development.

3.3 Guidline3: Application of Minimum Standards within the Framework of a Land Use Scheme

In considering how Minimum Environmental Standards can be enforced through Municipal spatial planning, cognisance should be taken of the SPLUMA requirements for Land Use Schemes as a tool that gives effect to SDFs and in particular, an enabler for environmental management.

SPLUMA s24(2)(b) states that a land use scheme must, inter alia

> *"take cognisance of any environmental management instrument adopted by the relevant environmental management authority and must comply with environmental legislation"*

To that effect, Land Use Schemes (LUS) must, in terms of section 24(2)(g) of SPLUMA, give effect to SDFs and Integrated Development Plans (IDPs). It is important for Municipalities to observe this fundamental aspect.

Section D

- ANNEXURES -

Section D: ANNEXURES

4 Annexures

TABLE 6: STANDARD DESCRIPTIONS OF FEATURES/SUB-CRITERIA

Features/Sub-criteria	Brief Description[8]	Why it should be mapped... (Desired Management Objective)
Protected Areas (PAs)	An area of land or sea that is formally protected in terms of the Protected Areas Act and managed mainly for biodiversity conservation. Includes state-owned Protected Areas and contract Protected Areas.	Must be kept in a natural state, with a management plan focused on maintaining or improving the state of biodiversity. A benchmark for biodiversity.
Critical Biodiversity Areas (CBAs)	•An area that must be maintained in a good ecological condition (natural or near-natural state) in order to meet biodiversity targets. CBAs collectively meet biodiversity targets for all ecosystem types as well as for species and ecological processes that depend on natural or near-natural habitat that have not already been met in the protected area network. One of five broad categories on a CBA map, and a subset of biodiversity priority areas. •CBA Map includes: classified & mapped ecosystem types, species of special concern, landscape-scale ecological corridors, unique or special habitats or features, areas of importance for ecological processes, ecological infrastructure.	CBA map should form the 'green layer' that Municipalities should consider as baseline information.
Ecological Support Areas(ESAs)	An area that must be maintained in at least fair ecological condition (semi-natural/moderately modified state) in order to support the ecological functioning of a CBA or protected area, or to generate or deliver ecosystem services, or to meet remaining biodiversity targets for ecosystem types or species when it is not possible or no necessary to meet them in natural or near-natural areas. One of five broad categories on a CBA map, and a subset of biodiversity priority areas. •ESA Map also includes: Other Ecological Support Areas, Other Natural Areas, and Core 1 and Core 2 from the Broad Provincial Spatial Planning Categories.	Should be maintained in a functional, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised.
Strategic Water Source Areas (SWSAs)	An area that supplies a disproportionate amount of mean annual run-off to a geographical region of interest. In South Africa, Strategic Water Source Areas make up only 8% of the country's land area but deliver 50% of mean annual run-off.	
Nature-based tourism or scenic features	Includes a broad range of tourist and recreational and ecotourism facilities in support of sustainable rural tourism, businesses and communities, as well as to provide for the recreational and leisure needs of rural/urban dwellers. Broad categories are: low impact facilities (e.g. camp sites, hiking and mountain biking trails, zip-lines, etc); and high impact facilities (golf courses, golf estates, polo estates, polo fields).	
Natural hazards (e.g. floodplains,	Natural Hazards are naturally occurring physical phenomena caused either by rapid or slow onset	

[8] By and large, the descriptions draw from the definitions provided in the Lexicon of Biodiversity Planning in South Africa, First Edition, Beta Version (SANBI, 2016).

geo-hazards)	events which can be geophysical (earthquakes, landslides, tsunamis and volcanic activity), hydrological (avalanches and floods), climatological (extreme temperatures, drought and wildfires), meteorological (cyclones and storms/wave surges) or biological (disease epidemics and insect/animal plagues, infestation and invasive species.). A Natural Hazard is any natural event that has the potential to endanger human life, the economy and property. Some natural hazards can be provoked or affected by anthropogenic processes (e.g. land-use change, drainage and construction).	
Man-made hazards (e.g. waste sites, industrial pollution sites, and chemical contamination)	Man-made Hazards are events that are caused by humans and occur in or close to human settlements. This can include environmental degradation, pollution and waste sites, chemical contamination, and industrial accidents.	Spatially locating pollution sites enables stakeholders to integrate disaster management / avoidance directly into planning at a local level.
Cultural landscapes or features	Refers to "*a geographic area (including both cultural and natural resources and the wildlife or domestic animals therein), associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values*." A cultural landscape can be thousands of acres or a tiny homestead. It can be a grand estate, industrial site, park, garden, cemetery, campus, and more. There are primarily four types of cultural landscapes, although any given landscape may fall under more than one typology: Designed Landscapes; Ethnographic Landscapes; Historic Sites; and Vernacular Landscapes.	Cultural landscapes are an invaluable legacy and should thus be safeguarded. They provide scenic, economic, ecological, social, recreational, and educational opportunities helping communities to better understand themselves. Neglect and inappropriate (incompatible) development pose a risk to such shared heritage. Some land use decisions threaten the survival and continuity of the same. The ongoing care and interpretation of these sites improves society's quality of life and deepens a sense of place and identity for future generations.
Agricultural resources	This Criteria includes all forms of agriculture, including but not limited to: intensive agriculture (high potential and unique agricultural lands); forestry or timber plantations; irrigated crop cultivation (horticulture, orchards, vineyards); dry-land crop cultivation; space extensive agricultural enterprises; extensive agriculture (livestock farming, game farming).	
Mining resources	This refers to all concentrations or occurrences of material of intrinsic economic interest in or on the earth's crust in such form, quality and quantity that there are reasonable prospects for eventual economic extraction.	
Infrastructure	By and large, this encompasses Utilities Infrastructure (e.g. railways, roads, pipelines, waste water treatment facilities, renewable/non-renewable energy infrastructure)	

DEPARTMENT OF ENVIRONMENTAL AFFAIRS

NO. 648 **10 MAY 2019**

NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998)

PROCEDURES TO BE FOLLOWED FOR THE ASSESSMENT AND MINIMUM CRITERIA FOR REPORTING OF IDENTIFIED ENVIRONMENTAL THEMES IN TERMS OF SECTION 24(5)(a) AND (h) OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998, WHEN APPLYING FOR ENVIRONMENTAL AUTHORISATION

I, Nomvula Paula Mokonyane, Minister of Environmental Affairs, hereby give notice of my intention to prescribe general requirements for undertaking an initial site sensitivity verification and for protocols for the assessment and minimum reporting requirements of environmental impacts **for environmental themes for activities requiring environmental authorisation, as contained in the Schedule hereto**. When the requirements of these protocols apply, the requirements of Appendix 6 of the Environmental Impact Assessment Regulations, promulgated under sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), are replaced by these requirements.

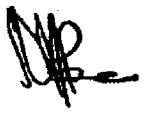
Each protocol applies exclusively to the environmental theme identified within its scope. Multiple themes may apply and assessments for these themes must be undertaken in accordance with the relevant protocol, or, where no specific protocol has been prescribed, in accordance with the requirements of the Environmental Impact Assessment Regulations, as amended.

Members of the public are invited to submit written comments or inputs to the acting Minister, within 30 days of publication of this notice in the *Gazette*, to the following addresses:

By post to: The Director-General:
Department of Environmental Affairs
Attention: Ms D Fischer
Private Bag X447
PRETORIA
0001
By hand at: Reception, Environment House, 473 Steve Biko Road, Arcadia, Pretoria, 0083
By e-mail: DFischer@environment.gov.za

Any inquiries in connection with the Notice can be directed to (012) 399 9315.

Comments received after the closing date may not be considered.



NOMVULA PAULA MOKONYANE
MINISTER OF ENVIRONMENTAL AFFAIRS

SCHEDULE

PART A: GENERAL REQUIREMENTS

1. General requirements for undertaking an Initial Site Sensitivity Verification where no specific assessment protocol has been identified

PART B: ENVIRONMENTAL THEMES

1. Agriculture

1(a) Protocol for the assessment and reporting of environmental impacts on agricultural resources

2. Avifauna

2(a) Protocol for the assessment and reporting of environmental impacts on avifauna species by onshore wind energy generation facilities where the electricity output is 20 megawatts or more

3. Biodiversity

3(a) Protocol for the assessment and reporting of environmental impacts on terrestrial biodiversity

3(b) Protocol for the assessment and reporting of environmental impacts on aquatic biodiversity

4. Noise

4(a) Protocol for the assessment and reporting of noise impacts

5. Defence

5(a) Protocol for the assessment and reporting of environmental impacts on defence installations

6. Civil Aviation

6(a) Protocol for the assessment and reporting of environmental impacts on civil aviation installations

PART A: GENERAL REQUIREMENTS FOR UNDERTAKING AN INITIAL SITE SENSITIVITY VERIFICATION WHERE NO SPECIFIC ASSESSMENT PROTOCOL HAS BEEN IDENTIFIED

1. SCOPE

These requirements must be applied when undertaking an Initial Site Sensitivity Verification for a site selected on the national web based environmental screening tool for which no specific assessment protocol related to any theme has been identified. The purpose of the Initial Site Sensitivity Verification is to confirm or dispute the current use of the land and the potential environmental sensitivity of the site as identified by the national web based environmental screening tool for the specific environmental theme being considered.

The national web based environmental screening tool can be accessed at:

https://screening.environment.gov.za/screeningtool

2. REQUIREMENTS FOR INITIAL SITE SENSITIVITY VERIFICATION

2.1 The Initial Site Sensitivity Verification must be undertaken by an environmental assessment practitioner or a registered specialist with expertise in the relevant environmental theme being considered.

2.2 The Initial Site Sensitivity Verification must be undertaken through the use of:

(a) a desk top analysis, using satellite imagery; and
(b) a preliminary on-site inspection to identify if there are any discrepancies with the current use of land and environmental status quo versus the environmental sensitivity as identified on the national web based environmental screening tool, such as new developments, infrastructure, indigenous/pristine vegetation, etc.

2.3 The outcome of the Initial Site Sensitivity Verification must be recorded in the form of a report that-

(a) confirms or disputes the current use of the land and environmental sensitivity as identified by the national web based environmental screening tool;
(b) contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and
(c) is submitted together with the relevant reports prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.

3. REQUIREMENTS FOR ENVIRONMENTAL ASSESSMENT

As no specific assessment protocol has been prescribed, the required level of assessment must be based on the findings of the Initial Site Sensitivity Verification and must comply with Appendix 6 of the Environmental Impact Assessment Regulations promulgated under sections 24(5) and 44 of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (The Act), where a specialist assessment is required.

PART B: ENVIRONMENTAL THEMES

1. AGRICULTURE
1(a) - PROTOCOL FOR THE ASSESSMENT AND REPORTING OF ENVIRONMENTAL IMPACTS ON AGRICULTURAL RESOURCES

1. SCOPE

This Protocol provides the criteria for the assessment and reporting of impacts on agricultural resources for activities requiring environmental authorisation. The assessment requirements of this Protocol are associated with a level of environmental sensitivity identified by the national web based environmental screening tool for agricultural resources, which is based on the land capability evaluation values as provided by the Department of Agriculture, Forestry and Fisheries[1]. If any part of the proposed development falls within an area of "very high" sensitivity, the requirements prescribed for such sensitivity apply.

The national web based environmental screening tool can be accessed at: https://screening.environment.gov.za/screeningtool

2. DEVELOPMENT LIMITS

a. Renewable energy generation facilities generating electricity of 20 megawatts or more

For facilities generating renewable energy of 20 megawatts (MW) or more on land zoned for agriculture, development limits apply and are provided in the Table 1 below.

Table 1: Development limits for renewable energy developments generating electricity of 20 MW or more

Criteria (land capability evaluation value and category of crop boundary)	Allowable development footprint in hectares per MW of installed generation capacity (with sensitivity ratings from the national web based environmental screening tool shown in brackets)	
	Within field crop boundaries	Outside field crop boundaries
Land capability evaluation value 11 – 15; Irrigation, horticulture/viticulture, shadenet; high value agricultural areas with a priority rating A and/or B	0 (Very High Sensitivity)	0 (Very High Sensitivity)
Land capability evaluation value 8 – 10; all cultivated areas including sugarcane; high value agricultural areas with a priority rating C and/or D	0.20 (High Sensitivity)	0.35 (Medium Sensitivity)
Land capability evaluation value 6 - 7;	0.25 (High Sensitivity)	2.50 (Low Sensitivity)
Land capability evaluation value 1 - 5;	0.30 (High Sensitivity)	2.50 (Low Sensitivity)

[1] Refer to the land capability metadata sheet available on the national web based environmental screening tool.

The development limits are based on the pre-assessment work undertaken through the Strategic Environmental Assessment for Wind and Solar Photovoltaic Energy in South Africa, 2015, for the effective and efficient roll-out of large scale wind and solar development in South Africa. The pre-assessment was undertaken in specific areas referred to as the Renewable Energy Development Zones (REDZs) as published under Government Notice No. 114, Gazette No. 41445 on 16 February 2018 and extrapolated to cover the entire country. The sensitivities were refined through further public consultation and stakeholder interaction and have been captured in the national web based environmental screening tool.

Allowable development limits refer to the area of a particular land capability that can be directly impacted (i.e. taken up by the physical footprint) by a renewable energy development. Footprint in this context is the area that is directly occupied by all infrastructure, including roads, hard standing areas, buildings, substations, etc. that is associated with the renewable energy generation facility during its operational phase, and that result in the exclusion of that land from potential cultivation or grazing. It excludes all areas that were already occupied by roads and other infrastructure prior to the establishment of the renewable energy facility, but includes the surface area required for expanding existing infrastructure (e.g. widening existing roads). It excludes the corridor underneath overhead power lines, but includes the pylon footprints. It therefore represents the total land that is actually excluded from agricultural use as a result of the renewable energy facility.

The Strategic Environmental Assessment for Wind and Solar Photovoltaic Energy in South Africa, 2015 can be accessed at:
https://redzs.csir.co.za/?page_id=611 and https://egis.environment.gov.za/redz.

3. REQUIREMENTS FOR THE INITIAL SITE SENSITIVITY VERIFICATION

Requirements for the assessment and reporting of impacts on agricultural resources for all activities requiring environmental authorisation are set out in Table 2 below, and correlate to the sensitivity ratings contained in the national web based environmental screening tool. Prior to beginning the assessment, the current use of the land and the potential environmental sensitivity of the site as identified by the national web based environmental screening tool must be confirmed by undertaking an Initial Site Sensitivity Verification.

3.1 The Initial Site Sensitivity Verification must be undertaken by an environmental assessment practitioner or a registered specialist with expertise in the relevant environmental theme being considered.

3.2 The Initial Site Sensitivity Verification must be undertaken through the use of:

(a) a desk top analysis, using satellite imagery; and
(b) a preliminary on-site inspection to identify if there are any discrepancies with the current use of land and environmental status quo versus the environmental sensitivity as identified on the national web based environmental screening tool, such as new developments, infrastructure, indigenous/pristine vegetation, etc.

3.3 The outcome of the Initial Site Sensitivity Verification must be recorded in the form of a report that-

(a) confirms or disputes the current use of the land and environmental sensitivity as identified by the national web based environmental screening tool;
(b) contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and
(c) is submitted together with the relevant reports prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.

4. REQUIREMENTS FOR ENVIRONMENTAL ASSESSMENT

TABLE 2: REQUIREMENTS FOR THE ASSESSMENT AND REPORTING OF IMPACTS ON AGRICULTURAL RESOURCES FOR ACTIVITIES REQUIRING ENVIRONMENTAL AUTHORISATION

VERY HIGH SENSITIVITY RATING - Land capability evaluation values 11 – 15; all irrigated land; horticulture and viticulture; demarcated high value agricultural areas with a priority rating of A and/or B. These areas are potentially unsuitable for development owing to: - high agricultural value and preservation importance - high production capability - high capital investment made - unique agricultural land attributes.	**1 General Information** 1.1 An applicant intending to undertake an activity identified in the Scope of this Protocol on a site identified by the national web based environmental screening tool as being of "very high" or "high" sensitivity for agricultural resources must submit an **Agricultural Agro-Ecosystems Assessment,** unless the: 1.1.1 application is for a linear activity for which impacts to the agricultural resource are temporary and the land in the opinion of the soil scientist/agricultural specialist based on the mitigation and remedial measures, can be returned to the current land capability within two years of the completion of construction phase; or 1.1.2 impact on agricultural resources is from an electricity pylon which is self-supporting; or 1.1.3 information gathered from the Initial Site Sensitivity Verification contemplated in section 3 of this Protocol or the specialist assessment differs from the designation of "very high" or "high" agricultural sensitivity from the national web based environmental screening tool and it is found to be of a "medium" or "low" sensitivity. 1.2 Should either paragraphs 1.1.1, 1.1.2 or 1.1.3 apply, an **Agricultural Compliance Statement** is to be provided. In the case of paragraph 1.1.3, an environmental assessment practitioner or a registered soil scientist/agricultural specialist, as appropriate, must append to the **Agricultural Compliance Statement** a motivation and evidence (e.g. photographs) of the different agricultural resource sensitivity.
HIGH SENSITIVITY RATING - Land capability evaluation values 8 - 10 including all cultivated areas[2] including sugar cane areas and demarcated high value agricultural areas with a priority rating of C and/or D. High sensitivity areas are still preservation worthy since they include land with an agricultural production potential and suitability for specific crops.	**2 The Agricultural Agro-Ecosystems Assessment** 2.1 The assessment must be undertaken by a soil scientist/agricultural specialist registered with the South African Council for Natural Scientific Professions (SACNASP), on the site being submitted as the preferred development site. 2.2 The assessment must be undertaken based on a site inspection as well as an investigation of the current production figures, where the land is under cultivation or has been within the past 5 years, and must identify: 2.2.1 the extent of the impact of the proposed development on the agricultural resources; 2.2.2 whether or not the proposed development will have an unacceptable negative impact on the agricultural production capability of the site, and in the event

[2] The Field Crop boundary and Land Capability dataset has been provided by DAFF. For details of the datasets, click on the options button to the right of the Field Crop Boundary layer and Land Capability layer respectively, in the Agricultural Theme to view the metadata.

	where it does, whether such a negative impact is outweighed by the positive impact of the proposed development on agricultural resources. 2.3 Description of the status quo, including the following aspects which must be considered as a minimum in the baseline description of the agro-ecosystem: 2.3.1 The soil form/s, soil depth (effective and total soil depth), top and sub-soil clay percentage, terrain unit and slope; 2.3.2 Where applicable, the vegetation composition, available water sources as well as agro-climatic information; 2.3.3 The current productivity of the land based on production figures for all agricultural activities undertaken on the land for the past 3 years, expressed as an annual figure and broken down into production units; 2.3.4 The current employment figures (both permanent and casual) for the land for the past 3 years, expressed as an annual figure; 2.3.5 Existing impacts on the site, located on a map (e.g. erosion, alien vegetation, non-agricultural infrastructure, waste, etc.). 2.4 Assessment of impacts, including the following aspects which must be considered as a minimum in the predicted impact of the proposed development on the agro-ecosystem: 2.4.1 Change in productivity for all agricultural activities based on the figures of the past 3 years, expressed as an annual figure and broken down into production units; 2.4.2 Change in employment figures (both permanent and casual) expressed as an annual figure; 2.4.3 Any alternative development footprints within the preferred development site which would be of "medium" or "low" sensitivity for agricultural resources as identified by the national web based environmental screening tool and verified through the Initial Site Sensitivity Verification. 3 The findings of the **Agricultural Agro-Ecosystem Assessment** must be written up in an **Agricultural Agro-Ecosystem Report.** 3.1 This report must contain the findings of the Agro-Ecosystem Assessment and the following information: 3.1.1 Details and relevant experience as well as the SACNASP registration number of the soil scientist/agricultural specialist/s preparing the assessment including a curriculum vitae; 3.1.2 A signed statement of independence by the specialist; 3.1.3 The duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment; 3.1.4 A description of the methodology used to undertake the on-site assessment inclusive of the equipment and models used, as relevant; 3.1.5 A map showing the proposed development footprint (including supporting infrastructure) with a 50 m buffered development envelope, overlaid on the agricultural sensitivity map generated by the national web based environmental screening tool; 3.1.6 An indication of the potential losses in production and employment from the change of the agricultural land use as a result of the proposed development; 3.1.7 An indication of possible long term benefits that will be generated by the project in relation to the benefits of the agricultural activities on the affected land; 3.1.8 Additional environmental impacts expected from the proposed development based on the current status quo of the land including erosion, alien vegetation, waste, etc.;

	3.1.9 Information on the current agricultural activities being undertaken on adjacent land parcels; 3.1.10 A motivation must be provided if there were development footprints identified as per paragraph 2.4.3 above that were identified as having a "low" biodiversity sensitivity and that were not considered appropriate; 3.1.11 Confirmation from the soil scientist/agricultural specialist that all reasonable measures have been considered in the micro-siting of the development to minimise fragmentation and disturbance of agricultural activities; 3.1.12 A substantiated statement from the soil scientist/agricultural specialist with regards to agricultural resources on the acceptability or not of the development and a recommendation on the approval or not of the development; 3.1.13 Any conditions to which the statement is subjected; 3.1.14 Where identified, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr; and 3.1.15 A description of the assumptions made and any uncertainties or gaps in knowledge or data. 3.2 In addition, where the activity is related to the generation of renewable energy of 20 MW or more, the report must contain: 3.2.1 Calculations of the total development footprint area for each land parcel as well as the total footprint area of the development (including supporting infrastructure); 3.2.2 Confirmation whether the development footprint is in line with the development limits set in the Table 1 above, including where applicable any deviation from the set development limits and motivation to support the deviation, including; a. Where relevant, reasons why the proposed development footprint is required to exceed the limit; b. Where relevant, reasons why this exceedance will be in the national interest; c. Where relevant, reasons why there are no alternative options available including evidence in terms of alternatives assessed. 3.3 A map showing the renewable energy applications within a 50 km radius of the proposed development with valid Environmental Authorisations. 4 The findings of the **Agricultural Agro-Ecosystems Assessment** must be incorporated into the Basic Assessment Report, or the Environmental Impact Assessment Report, including the mitigation and monitoring measures as identified, which are to be contained in the EMPr. A signed copy of the full Agricultural Agro-Ecosystems Assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.
MEDIUM SENSITIVITY RATING - Land capability evaluation values 6 – 7. Medium sensitivity areas are likely to be very marginal arable land.	1. **General Information** 1.1. An applicant intending to undertake an activity identified in the Scope of this Protocol proposed on a site identified by the national web based environmental screening tool as being of "medium" or "low" sensitivity for agricultural resources or where the activity is related to the generation of renewable energy of 20 MW or more and the development footprint complies with the development limits

LOW SENSITIVITY RATING - Land capability evaluation values 1 – 5. Low sensitivity areas are likely to be non-arable land, and is therefore land onto which most development should be steered.	identified in the Table 1 above, must submit an **Agricultural Compliance Statement,** unless: 1.1.1. The information gathered from the Initial Site Sensitivity Verification contemplated in section 3 of this Protocol differs from that identified as having a "medium" or "low" agricultural sensitivity by the national web based environmental screening tool and it is found to be of a "very high" or "high" sensitivity; or 1.1.2. Where the activity is related to the generation of renewable energy of 20 MW or more, the development footprint deviates from any of the allowable development limits contained in Table 1 above. 1.2. Should paragraphs 1.1.1 or 1.1.2 apply, an **Agricultural Agro-Ecosystems Assessment** is to be undertaken and a report prepared in accordance with the requirements of an Agro-Ecosystems Assessment. **2. Agricultural Compliance Statement** The **Agricultural Compliance Statement** must be prepared by a soil scientist/agricultural specialist registered with the SACNASP, on the site being submitted as the preferred development site and must indicate whether or not the proposed development will have an unacceptable negative impact on the agricultural production capability of the site. 3. The **Agricultural Compliance Statement** must contain, as a minimum, the following information: 3.1. Details and relevant expertise as well as the SACNASP registration number of the soil scientist/agricultural specialist preparing the statement including a curriculum vitae; 3.2. A signed statement of independence by the specialist; 3.3. A map showing the proposed development footprint (including supporting infrastructure) with a 50 m buffered development envelope, overlaid on the agricultural sensitivity map generated by the national web based environmental screening tool; 3.4. Calculations of the total development footprint area for each land parcel as well as the total footprint area of the development (including supporting infrastructure); 3.5. Confirmation that the development footprint is in line with the development limits set in Table 1 above. 3.6. Confirmation from the specialist that all reasonable measures have been taken through micro-siting to avoid or minimise fragmentation and disturbance of agricultural activities; 3.7. A substantiated statement from the soil scientist/agricultural specialist on the acceptability of the development and a recommendation on the approval or not of the development; 3.8. Any conditions to which the statement is subjected; 3.9. Where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr; and 3.10. A description of the assumptions made and any uncertainties or gaps in knowledge or data. 4. The signed Agricultural Compliance Statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

2. AVIFAUNA

2(a) - PROTOCOL FOR THE ASSESSMENT AND REPORTING OF ENVIRONMENTAL IMPACTS ON AVIFAUNA SPECIES BY ONSHORE WIND ENERGY GENERATION FACILITIES WHERE THE ELECTRICITY OUTPUT IS 20 MEGAWATTS OR MORE

1. SCOPE

This Protocol provides the criteria for the assessment and reporting of impacts on avifauna species associated with the development of onshore wind energy generation facilities where the electricity output is 20 megawatts or more which require environmental authorisation. This applies within and outside of the Renewable Energy Development Zones (REDZs) as published under Government Notice No. 114, Gazette No. 41445 on 16 February 2018. The assessment requirements of this Protocol are based on national and international best practice for the avoidance and mitigation of impacts on avifauna species.

2. REQUIREMENTS FOR THE ASSESSMENT AND REPORTING OF IMPACTS

Requirements for the assessment and reporting of impacts on avifauna species for onshore wind energy generation facilities are set out in Table 1 below and correlate to the sensitivity ratings contained in the national web based environmental screening tool.

TABLE 1: REQUIREMENTS FOR THE ASSESSMENT AND REPORTING OF IMPACTS ON AVIFAUNA FOR ONSHORE WIND ENERGY GENERATION FACILITIES WHERE THE OUTPUT IS 20 MW OR MORE REQUIRING ENVIRONMENTAL AUTHORISATION

VERY HIGH SENSITIVITY RATING – Very high sensitivity areas are likely to provide critical habitat for priority bird species[3] sensitive to wind energy development[4] and/or whose population is reliant on highly localized and unique roosting, nesting and/or foraging sites. These areas are potentially unsuitable for development owing to there being recent confirmed evidence that the priority bird species are present.	**1. General Information** 1.1 An applicant intending to undertake an activity as identified in the Scope of this Protocol must undertake an **Avifaunal Impact Assessment** based on the potential significance of the impact that the identified activity could have on bird species. 1.2 An **Avifaunal Impact Assessment** is to be undertaken irrespective of the sensitivity rating provided by the national web based environmental screening tool, as the present level of knowledge on bird behaviour and species population precludes confident predictions on the sustainability of priority or threatened species nationally. 1.3 The information provided by the national web based environmental screening tool includes known nests, roosts, vulture restaurants and areas likely to support priority bird species including threatened or rare species, especially those that may be susceptible to wind energy development. Precautionary buffers to these sensitivities as well as to the specific feature have been added. The data is,

[3] Priority bird species sensitive to wind energy developments include those identified by Birdlife South Africa as well as those listed on South Africa's National Red List website 42, 43 as Critical Endangered, Endangered, Vulnerable, Threatened or near Threatened according to the IUCN Red List 3.1

[4] https://www.birdlife.org.za/conservation/terrestrial-bird-conservation/birds-and-renewable-energy/wind-farm-map

	however, unverified and incomplete and therefore these features and buffers are to be used only as a guide to assist focus the **Avifaunal Impact Assessment.**
	1.4 The process for undertaking the **Avifaunal Impact Assessment** comprises three phases: 1.4.1 Reconnaissance Study 1.4.2 Pre-application Avifaunal Monitoring Plan 1.4.3 Avifaunal Impact Assessment and report.
HIGH SENSITIVITY RATING – High sensitivity areas include: (i) habitat likely to be of importance to priority bird species sensitive to wind energy developments, Critically Endangered, Endangered bird species and/or Vulnerable bird species; and (ii) habitat likely to be of importance to endemic and/or restricted-range bird species that are susceptible to impacts from wind energy facilities. These areas are potentially sensitive for development.	1.5 All tasks of the **Avifaunal Impact Assessment** must be undertaken by a SACNASP registered avifauna specialist. 1.6 All tasks are to be undertaken on the site being submitted as the preferred development site and at a control site located in accordance to the Birdlife South Africa (BLSA)/Endangered Wildlife Trust (EWT) *Bird and Wind-Energy Best-Practice Guideline*[5], and must identify: 1.6.1 the extent of impact of the facility on priority bird species; 1.6.2 whether the proposed development will have an unacceptable negative impact on priority or threatened bird species. 1.7 The **Avifaunal Impact Assessment** must be undertaken based on the results of a **site specific Pre-Application Avifaunal Monitoring Plan** that is informed by a **Reconnaissance Study**, as well as data collected over four seasons (i.e. summer, autumn, winter and spring) on the proposed development site and the control site. **2 Reconnaissance Study** 2.1 The **Reconnaissance Study** is to be based on a desktop study of relevant information as well as a 2 to 4 day on-site inspection of both sites; 2.2 The occurrence of target species is to be identified; 2.3 The study must define the study area (avifaunal impact zone); and 2.4 The study is to produce a **site specific Pre-Application Avifaunal Monitoring Plan.** **3 Pre-application Avifaunal Monitoring Plan** 3.1 The plan as a minimum must include: 3.1.1 The study area and its characteristics which must be mapped including the extent, habitat, special features including topographical and water features, quarries, drainage lines, breeding sites, existing land uses, existing infrastructure such as power lines and roads, and existing wind energy facilities within 10 km of the proposed development site; 3.1.2 Target avifaunal species that are likely to occur on the proposed development site and for which monitoring is required; 3.1.3 Pre-application monitoring requirements for both the development site as well as the control site, that must include the following:[6] a. the monitoring intervals including the number and duration of monitoring events which must be based on the *Birdlife South Africa Bird and Wind-Energy Best-Practice Guideline* or a motivation provided for the deviation; b. the location of monitoring points; c. aspects to be monitored (for example, bird abundance and flight activity, presence of target species, proportion of flying time each target species
MEDIUM SENSITIVITY RATING - Medium sensitivity areas have limited potential for supporting priority populations of threatened species that are susceptible to impacts from wind energy facilities.	
LOW SENSITIVITY RATING– Low sensitivity areas possibly do not support priority populations of threatened species that are susceptible to impacts from wind energy facilities. These areas are probably suitable for development.	

[5] The Best Practice Guidelines for assessing and monitoring the impact of wind energy facilities on birds in Southern Africa is available from: https://www.birdlife.org.za/documents/avian-wind-farm-sensitivity-map/804-birds-and-wind-bestpractice-guidelines-2015-final

[6] It is advisable to discuss the content of the plan with Birdlife South Africa before its implementation.

spends at turbine rotor height, preferred flight paths, risk of identified target species to collision, areas for specific monitoring if any, etc.);

d. equipment to be used;

e. monitoring methodology (for the abundance/activity monitoring and for direct observation/vantage point surveys, the *Birdlife South Africa Bird and Wind-Energy Best-Practice Guideline* must be followed or a motivation provided for the deviation);

f. numbers of observers to be used;

g. data to be captured including a pro-forma data capturing template.

3.2 Implementation of **site specific Pre-Application Avifaunal Monitoring Plan**

3.2.1 The site specific Pre-Application Avifaunal Monitoring Plan is to be carried out according to its requirements for a period of not less than four seasons.

3.2.2 Data on pre-application monitoring must be captured on the national bird monitoring data base accessed at https://www.environment.gov.za/birddatabase

4. Avifaunal Impact Assessment

Based on the outcome of the Reconnaissance Study and the findings of the Pre-Application Avifaunal Monitoring, an **Avifaunal Impact Assessment** must be undertaken. The assessment as a minimum must consider the following aspects:

4.1 Discussion on bird abundance and movement within the site;

4.2 Discussion on presence of target/threatened species and their occurrence on the site at heights which could pose risks to collision;

4.3 Assessment of risk of identified target species to collision including the expected fatality rates based on a suitable model commonly used for risk determination, per species and for the site;

4.4 Identification and mapping where relevant, of any migratory or preferential bird routes/corridors;

4.5 Where relevant, discussion on the risk of displacement;

4.6 Where relevant, areas identified within the site as having a very high sensitivity for bird collision or displacement and in which the development of turbines should be avoided, with these areas to be mapped;

4.7 In areas where other wind farms have been identified within a 10 km radius, a cumulative impact assessment must be undertaken which includes:

4.7.1 the fatality rate at the adjacent wind farms;

4.7.2 the possible additional fatalities from the proposed wind farm development for target species as well as general avifaunal species;

4.7.3 a discussion on the possible cumulative impact of the facility on regional populations of targeted species;

4.8 The plan for post construction monitoring (on both the proposed development site as well as the control site) and reporting which must include:

4.8.1 timeframes and intervals for monitoring;

4.8.2 number of turbines to be monitored, including any specific area for monitoring;

4.8.3 methodology for searcher efficiency and scavenger removal;

4.8.4 method for monitoring, i.e. transects or radial as well as extent of monitoring area;

4.8.5 results of monitoring compared against expected fatality rates (per target species as well as general species);

4.8.6 reporting requirements, including organisations for submission of reports;

4.8.7 years and intervals for monitoring to occur; and

4.8.8 all methods used to estimate bird numbers and movements during reconnaissance and pre-application monitoring, which should be applied in exactly the same order to ensure the comparability of these two data sets.

5. The findings of the **Avifaunal Impact Assessment** must be written up in an Avifaunal Impact Assessment Report which must contain, as a minimum, the following information:

5.1 The SACNASP registration number of the avifaunal specialist/s preparing the assessment and their curriculum vitae;
5.2 A signed statement of independence by the specialist;
5.3 A description of the study area including a map of all the aspects identified in the duration, dates and seasons of the site investigation and the relevance of the season to the outcome of the assessment;
5.4 A description of the methodology used to undertake the site specific pre-application avifaunal monitoring program inclusive of the equipment used;
5.5 A map showing the GPS coordinates for each of the monitoring points for both the development site as well as the control site;
5.6 The monitoring intervals for both sites;
5.7 Where relevant, a map showing the areas to be avoided;
5.8 Fatality predication for target species and general species on the sites;
5.9 A map showing the approved renewable energy applications within a 10 km radius of the proposed project;
5.10 Where relevant, the outcomes of the cumulative impact assessment;
5.11 A discussion based on the pre-application monitoring of the expected impact of the proposed development on avifaunal species;
5.12 A substantiated statement from the registered avifauna specialist, indicating the acceptability of the development and a recommendation on the approval or not of the development;
5.13 Any conditions to which the statement is subjected;
5.14 A detailed post construction monitoring programme;
5.15 The outcomes of the post-construction monitoring, including data and specialists reports, must be uploaded onto the national bird monitoring database, to be accessed at https://www.environment.gov.za/birddatabase ;
5.16 Where required, proposed mitigation measures or any monitoring requirements for inclusion in the EMPr; and
5.17 A description of the assumptions made and any uncertainties or gaps in knowledge or data.

6. The findings of the **Avifaunal Impact Assessment** must be incorporated into the Basic Assessment Report or the Environmental Impact Assessment Report, including the mitigation and monitoring measures as identified, which must be incorporated into the EMPr. A signed copy of the Avifaunal Impact Assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

3. BIODIVERSITY

3(a) - PROTOCOL FOR THE ASSESSMENT AND REPORTING OF ENVIRONMENTAL IMPACTS ON TERRESTRIAL BIODIVERSITY

1. SCOPE

This Protocol provides the criteria for the assessment and reporting of impacts on terrestrial biodiversity for activities requiring environmental authorisation. The assessment requirements of this Protocol are associated with a level of environmental sensitivity determined by the national web based environmental screening tool. For terrestrial biodiversity the requirements are for landscapes or sites which support various levels of biodiversity. The relevant terrestrial biodiversity data in the national web based environmental screening tool has been provided by the South African National Biodiversity Institute[7]. If any part of the proposed development falls within an area of "very high" sensitivity, the requirements prescribed for such sensitivity apply.

The national web based environmental screening tool can be accessed at: https://screening.environment.gov.za/screeningtool

2. REQUIREMENTS FOR THE ASSESSMENT AND REPORTING OF IMPACTS

Requirements for the assessment and reporting of impacts of development on terrestrial biodiversity are set out in Table 1 below, and correlate to the sensitivity ratings contained in the national web based environmental screening tool. Prior to beginning the assessment, the current use of the land and the potential environmental sensitivity of the site as identified by the national web based environmental screening tool must be confirmed by undertaking an Initial Site Sensitivity Verification.

2.1 The Initial Site Sensitivity Verification must be undertaken by an Environmental Assessment Practitioner or a registered specialist with expertise in the relevant environmental theme being considered.

2.2 The Initial Site Sensitivity Verification must be undertaken through the use of:

(a) a desk top analysis, using satellite imagery; and
(b) a preliminary on-site inspection to identify if there are any discrepancies with the current use of land and environmental status quo versus the environmental sensitivity as identified on the national web based environmental screening tool, such as new developments, infrastructure, indigenous/pristine vegetation, etc.

2.3 The outcome of the Initial Site Sensitivity Verification must be recorded in the form of a report that-

(a) confirms or disputes the current use of the land and environmental sensitivity as identified by the national web based environmental screening tool;
(b) contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and
(c) is submitted together with the relevant assessment report prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.

[7] The biodiversity dataset has been provided by the South African Biodiversity Institute. For details of the dataset, click on the options button to the right of the various biodiversity layers within the national web based environmental screening tool, in the Terrestrial Biodiversity theme, to view the metadata.

3. REQUIREMENTS FOR ENVIRONMENTAL ASSESSMENT

TABLE 1: REQUIREMENTS FOR THE ASSESSMENT AND REPORTING OF IMPACTS ON TERRESTRIAL BIODIVERSITY FOR ACTIVITIES REQUIRING ENVIRONMENTAL AUTHORISATION	
VERY HIGH SENSITIVITY RATING - for terrestrial biodiversity features	**1 General Information** 1.1 An applicant intending to undertake an activity identified in the Scope of this Protocol, on a site identified as being of "very high sensitivity" for terrestrial biodiversity on the national web based environmental screening tool must submit a **Terrestrial Biodiversity Impact Assessment.** 1.2 However, where the information gathered from the Initial Site Sensitivity Verification identified in section 2.1 of this Protocol or the specialist assessment differs from the designation of "very high" terrestrial biodiversity sensitivity from the national web based environmental screening tool and it is found to be of a "low" sensitivity, then a terrestrial biodiversity impact assessment is not required. 1.3 Should paragraph 1.2 apply, a **Terrestrial Biodiversity Compliance Statement** is to be provided. An Environmental Assessment Practitioner or a suitably qualified and SACNASP registered specialist, must append to the **Terrestrial Biodiversity Compliance Statement** a motivation and evidence (e.g. photographs) of the changed Terrestrial Biodiversity sensitivity. 2 The **Terrestrial Biodiversity Impact Assessment** 2.1 The assessment must be undertaken by a SACNASP registered specialist, on the preferred development site. 2.2 Description of the preferred site - the following aspects, as a minimum, must be considered in the baseline description: 2.2.1 A description of the ecological drivers/processes of the system and how the proposed development will impact these; 2.2.2 Ecological functioning and ecological processes (e.g. fire, migration, pollination, etc.) that operate within the proposed development site; 2.2.3 The ecological corridors that the development would impede including migration and movement of flora and fauna; 2.2.4 The description of any significant landscape features (including rare or important flora/faunal associations, presence of Strategic Water Source Areas (SWSAs) or Freshwater Ecosystem Priority Areas (FEPA) sub catchments; 2.2.5 A description of terrestrial biodiversity and ecosystems on the proposed development site, including – a) Main vegetation types; b) Threatened ecosystems, including Listed Ecosystems as well as locally important habitat types identified; c) Ecological connectivity, habitat fragmentation, ecological processes and fine-scale habitats; and d) Species, distribution, important habitats (e.g. feeding grounds, nesting sites, etc.) and movement patterns identified. 2.3 Identify any alternative development footprints within the preferred development site which would be of a "low" sensitivity as identified by the national web based environmental screening tool and verified through the Initial Site Sensitivity Verification; 2.4 The Terrestrial Biodiversity Impact Assessment must be based on the results of a site inspection undertaken on the preferred development site and must identify: 2.5 Terrestrial Critical Biodiversity Areas (CBAs), including: 2.5.1 The reasons why an area has been identified as a CBA;

	2.5.2 An indication of whether or not the development is consistent with maintaining the CBA in a natural or near natural state or in achieving the goal of rehabilitation; 2.5.3 The impact on species composition and structure of vegetation with an indication of the extent of clearing activities; 2.5.4 The impact on ecosystem threat status; 2.5.5 The impact on explicit subtypes in the vegetation; 2.5.6 The impact on overall species and ecosystem diversity of the site; and 2.5.7 The impact on populations of species of special concern in the CBA. 2.6 Terrestrial Ecological Support Areas, including; 2.6.1 The impact on the ecological processes that operate within or across the site; 2.6.2 The extent the development will impact on the functionality of the ESA; and 2.6.3 Loss of ecological connectivity (on site, and in relation to the broader landscape) due to the degradation and severing of ecological corridors or introducing barriers that impede migration and movement of flora and fauna. 2.7 Protected Areas as defined by the National Environmental Management: Protected Areas Act, 2004 including: 2.7.1 An opinion on whether the proposed development aligns with the objectives/purpose of the Protected Area and the zoning as per the Protected Area Management Plan; 2.8 Priority Areas for Protected Area Expansion, including: 2.8.1 The way in which in which the development will compromise or contribute to the expansion of the protected area network. 2.9 Strategic Water Source Areas (SWSA) including: 2.9.1 The impact(s) on the terrestrial habitat of a Strategic Water Source Area, and 2.9.2 The impacts of the development on the SWSA water quality and quantity (e.g. describing potential increased runoff leading to increased sediment load in water courses). 2.10Freshwater Ecosystem Priority Area (FEPA) sub catchments, including: 2.10.1 The impacts of the development on habitat condition and/or species in the FEPA sub catchment. 2.11Indigenous Forests, including: 2.11.1 Impact on the ecological integrity of the forest; 2.11.2 Extent of natural or near natural indigenous forest area lost. 3 The findings of the **Terrestrial Biodiversity Impact Assessment** must be written up in a Terrestrial Biodiversity Impact Assessment Report. This report must include as a minimum the following information: 3.1 Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise and their curriculum vitae; 3.2 A signed statement of independence by the specialist; 3.3 Duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment; 3.4 A description of the methodology used to undertake the impact assessment and site inspection, including equipment and modelling used where relevant; 3.5 A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations; 3.6 Areas not suitable for development, to be avoided during construction and operation (where relevant); 3.7 Additional environmental impacts expected from the proposed development based on those already evident on the site and a discussion on the cumulative impacts; 3.8 Impact management actions and impact management outcomes proposed by the specialist for inclusion in the EMPr; and 3.9 A motivation where the development footprint identified as per section 2.3 in this Table were not considered stating reasons why these were not being not considered.

	3.10A reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not of the development and if the development should receive approval or not, and any conditions to which the statement is subjected. 4 The findings of the **Terrestrial Biodiversity Impact Assessment** must be incorporated into the Basic Assessment Report or the Environmental Impact Assessment Report, including the mitigation and monitoring measures as identified, which must be incorporated into the EMPr. A signed copy of the Assessment must be appended to the Basic Assessment Report or Environmental Assessment Report.
LOW SENSITIVITY RATING – for terrestrial biodiversity features	**1 General Information** 1.1 An applicant, intending to undertake an activity identified in the Scope of this Protocol, on a site identified as being of "low sensitivity" for terrestrial biodiversity on the national web based environmental screening tool must submit a **Terrestrial Biodiversity Compliance Statement** to the competent authority, unless: 1.1.1 The information gathered from the Initial Site Sensitivity Verification differs from that identified as having a "low" terrestrial biodiversity sensitivity by the national web based environmental screening tool and it is found to be of a "very high" sensitivity. 1.2 Should paragraph 1.1.1 apply, a **Terrestrial Biodiversity Impact Assessment** is to be undertaken and a report should be prepared in accordance with the requirements of a Terrestrial Biodiversity Impact Assessment. **2 Terrestrial Biodiversity Compliance Statement** 2.1 The **Terrestrial Biodiversity Compliance Statement**, must be prepared by a suitably qualified specialist in the field of ecological sciences, on the site being submitted as the preferred development site and must verify: 2.1.1 That the site is of "low" sensitivity for terrestrial biodiversity; and 2.1.2 Whether or not the proposed development will have any impact on the biodiversity feature. 3 The **Terrestrial Biodiversity Compliance Statement**, must contain, as a minimum, the following information: 3.1 Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise; 3.2 A signed statement of independence by the specialist; 3.3 Baseline profile description of biodiversity and ecosystems, including the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment; 3.4 Methodology used to verify the sensitivities of the terrestrial biodiversity on the national web based environmental screening; 3.5 Methodology used to undertake the site survey and prepare the Compliance Statement, including equipment and modelling used where relevant; 3.6 Where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr; 3.7 A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations; and 3.8 Any conditions to which the statement is subjected.

	4 A signed copy of the full **Terrestrial Biodiversity Compliance Statement** must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

3. BIODIVERSITY

3(b) - PROTOCOL FOR THE ASSESSMENT AND REPORTING OF ENVIRONMENTAL IMPACTS ON AQUATIC BIODIVERSITY

1. SCOPE

This protocol provides the criteria for the assessment and reporting of impacts on aquatic biodiversity for activities requiring environmental authorisation. The assessment requirements of this protocol are associated with a level of environmental sensitivity determined by the national web based environmental screening tool. For aquatic biodiversity the requirements are for landscapes or sites which support various levels of biodiversity. The relevant aquatic biodiversity data in the national web based environmental screening tool has been provided by the South African National Biodiversity Institute[8]. If any part of the proposed development falls within an area of "very high" sensitivity, the requirements prescribed for such sensitivity apply.

The national web based environmental screening tool can be accessed at: https://screening.environment.gov.za/screeningtool

2. REQUIREMENTS FOR THE ASSESSMENT AND REPORTING OF IMPACTS

Requirements for the assessment and reporting of impacts of development on aquatic biodiversity are set out in Table 1 below, and correlate to the sensitivity ratings contained in the national web based environmental screening tool. Prior to beginning the assessment, the current land use and the potential environmental sensitivity of the site as identified by the national web based environmental screening tool must be confirmed by undertaking an Initial Site Sensitivity Verification.

2.1 The Initial Site Sensitivity Verification must be undertaken by an environmental assessment practitioner or a registered specialist with expertise in the relevant environmental theme being considered.

2.2 The Initial Site Sensitivity Verification must be undertaken through the use of:

(a) a desk top analysis, using satellite imagery; and
(b) a preliminary on-site inspection to identify if there are any discrepancies with the current use of land and environmental status quo versus the environmental sensitivity as identified on the national web based environmental screening tool, such as new developments, infrastructure, indigenous/pristine vegetation, etc.

2.3 The outcome of the Initial Site Sensitivity Verification must be recorded in the form of a report that-

(a) confirms or disputes the current use of the land and environmental sensitivity as identified by the national web based environmental screening tool;
(b) contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and
(c) is submitted together with the relevant assessment report prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.

[8] The biodiversity dataset has been provided by the South African Biodiversity Institute. For details of the dataset, click on the options button to the right of the various biodiversity layers within the national web based environmental screening tool, in the Aquatic Biodiversity theme to view the metadata.

3. REQUIREMENTS FOR ENVIRONMENTAL ASSESSMENT

TABLE 1: REQUIREMENTS FOR THE ASSESSMENT AND REPORTING OF IMPACTS ON AQUATIC BIODIVERSITY FOR ACTIVITIES REQUIRING ENVIRONMENTAL AUTHORISATION	
VERY HIGH SENSITIVITY RATING – For aquatic biodiversity features	**1 General Information** 1.1 An applicant intending to undertake an activity identified in the Scope of this Protocol on a site identified as being of "very high sensitivity" for aquatic biodiversity on the national web based environmental screening tool must submit an **Aquatic Biodiversity Impact Assessment.** 1.2 However, where the information gathered from the Initial Site Sensitivity Verification identified in section 2.1 of this Protocol or the specialist assessment differs from the designation of "very high" aquatic biodiversity sensitivity from the national web based environmental screening tool, and it is found to be of a "low" sensitivity, an aquatic biodiversity impact assessment is not required. 1.3 Should paragraph 1.2 apply, an **Aquatic Biodiversity Compliance Statement** is to be provided. An Environmental Assessment Practitioner or a suitably qualified and SACNASP registered specialist, as appropriate, must append to the **Aquatic Biodiversity Compliance Statement** a motivation and evidence (e.g. photographs) of the changed Aquatic Biodiversity sensitivity. **2 The Aquatic Biodiversity Impact Assessment** 2.1 The assessment must be undertaken by a suitably qualified and SACNASP registered specialist, within the preferred development site and on the preferred development[9] footprint. 2.2 Description of the preferred development site - The following aspects as a minimum must be considered in the baseline description: 2.2.1 A description of the aquatic biodiversity and ecosystems on the site, including: a. Aquatic ecosystem types; b. Presence of aquatic species and composition of aquatic species communities, their habitat, distribution and movement patterns; 2.2.2 Threat status, according to the national web based environmental screening tool of the species and ecosystems, including Listed Ecosystems, as well as locally important habitat types identified; 2.2.3 National and Provincial priority status of the aquatic ecosystem (i.e. is this a wetland or river Freshwater Ecosystem Priority Area (FEPA), a FEPA sub catchment, a Strategic Water Source Area (SWSA), a priority estuary, whether or not they are free-flowing rivers, wetland clusters, etc., a CBA or an ESA; including for all a description of the criteria for their given status; and

[9] Development footprint means the area within the site on which the development will take place and includes all ancillary developments for example roads and power lines which require vegetation clearance or which will be disturbed and for which the application has been submitted.

	2.2.4 A description of the Ecological Importance and Sensitivity of the aquatic ecosystem including: a. The description (spatially, if possible) of the ecosystem processes that operate in relation to the aquatic ecosystems on and immediately adjacent to the site (e.g. movement of surface and subsurface water, recharge, discharge, sediment transport, etc.); b. The historic ecological condition (reference) as well as Present Ecological State (PES) of rivers (in-stream, riparian and floodplain habitat), wetlands and/or estuaries in terms of possible changes to the channel, flow regime (surface and groundwater). 2.3 Identify any alternative development footprints within the preferred development site which would be of a "low" sensitivity as identified by the national web based environmental screening tool and verified through the Initial Site Sensitivity Verification; 2.4 Assessment of impacts - a detailed assessment of the potential impact(s) of the proposed development on the following very high sensitivity areas/ features: 2.4.1 Is the development consistent with maintaining the priority aquatic ecosystem in its current state and according to the stated goal? 2.4.2 Is the development consistent with maintaining the Resource Quality Objectives for the aquatic ecosystems present? 2.4.3 How will the development impact on fixed and dynamic ecological processes that operate within or across the site, including: a. Impacts on hydrological functioning at a landscape level and across the site which can arise from changes to flood regimes (e.g. suppression of floods, loss of flood attenuation capacity, unseasonal flooding or destruction of floodplain processes); and b. Change in the sediment regime (e.g. sand movement, meandering river mouth/estuary, changing flooding or sedimentation patterns) of the aquatic ecosystem and its sub-catchment; c. The extent of the modification in relation to the overall aquatic ecosystem (i.e. at the source, upstream or downstream portion, in the temporary / seasonal / permanent zone of a wetland, in the riparian zone or within the channel of a watercourse, etc.). d. Assessment of the risks associated with water use/s and related activities. 2.4.4 How will the development impact on the functionality of the aquatic feature, including: a. Base flows (e.g. too little/too much water in terms of characteristics and requirements of system); b. Quantity of water including change in the hydrological regime or hydroperiod of the aquatic ecosystem (e.g. seasonal to temporary or permanent; impact of over-abstraction or instream or off-stream impoundment of a wetland or river) c. Change in the hydrogeomorphic typing of the aquatic ecosystem (e.g. change from an unchannelled valley-bottom wetland to a channelled valley-bottom wetland). d. Quality of water (e.g. due to increased sediment load, contamination by chemical and/or organic effluent, and/or eutrophication) e. Fragmentation (e.g. road or pipeline crossing a wetland) and loss of ecological connectivity (lateral and longitudinal).

	f. The loss or degradation of all or part of any unique or important features (e.g. waterfalls, springs, oxbow lakes, meandering or braided channels, peat soils, etc.) associated with or within the aquatic ecosystem. 2.4.5 How will the development impact on the functionality of the aquatic feature, including: a. water including change in the hydrological regime or hydroperiod of the aquatic ecosystem (e.g. seasonal to temporary or permanent; impact of over-abstraction or instream or off-stream impoundment of a wetland or river) b. Change in the hydrogeomorphic typing of the aquatic ecosystem (e.g. change from an unchannelled valley-bottom wetland to a channelled valley-bottom wetland). c. Quality of water (e.g. due to increased sediment load, contamination by chemical and/or organic effluent, and/or eutrophication) d. Fragmentation (e.g. road or pipeline crossing a wetland) and loss of ecological connectivity (lateral and longitudinal). e. The loss or degradation of all or part of any unique or important features (e.g. waterfalls, springs, oxbow lakes, meandering or braided channels, peat soils, etc.) associated with or within the aquatic ecosystem. 2.4.6 How will the development impact on key ecosystem regulating and supporting services especially: a. Flood attenuation; b. Streamflow regulation; c. Sediment trapping; d. Phosphate assimilation; e. Nitrate assimilation f. Toxicant assimilation; g. Erosion control; and h. Carbon storage. 2.4.7 How will the development impact community composition (numbers and density of species) and integrity (condition, viability, predator-prey ratios, dispersal rates, etc.) of the faunal and vegetation communities inhabiting the site? 2.4.8 In addition to the above, where applicable, impacts to the frequency of estuary mouth closure should be considered, in relation to: a. Size of the estuary; b. Availability of sediment; c. Wave action in the mouth; d. Protection of the mouth; e. Beach slope; f. Volume of mean annual runoff (MAR); g. Extent of saline intrusion (especially relevant to permanently open systems). 2.4.9 A motivation must be provided if there were development footprints identified as per paragraph 2.3 above that were identified as having a "low" biodiversity sensitivity and were not considered appropriate. 3 The findings of the **Aquatic Biodiversity Impact Assessment** must be written up in an Aquatic Biodiversity Impact Assessment Report. This report must contain as a minimum the following information:

	3.1 Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise and their curriculum vitae; 3.2 A signed statement of independence by the specialist; 3.3 The duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment; 3.4 The methodology used to undertake the impact assessment and site inspection, including equipment and modelling used, where relevant; 3.5 A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations; 3.6 Areas not suitable for development, to be avoided during construction and operation (where relevant); 3.7 Additional environmental impacts expected from the proposed development based on those already evident on the site and a discussion on the cumulative impacts; 3.8 A suitable construction and operational buffer for the aquatic ecosystem, using the accepted protocol; 3.9 Impact management actions and impact management outcomes proposed by the specialist for inclusion in the EMPr; 3.10A motivation where the development footprint identified as per 2.3 were not considered stating reasons why these were not being not considered; and 3.11A reasoned opinion, based on the finding of the specialist assessment, regarding the acceptability or not, of the development and if the development should receive approval, and any conditions to which the statement is subjected. 4 The findings of the **Aquatic Biodiversity Impact Assessment** must be incorporated into the Basic Assessment Report or the Environmental Impact Assessment Report, including the mitigation and monitoring measures as identified, which must be incorporated into the EMPr. A signed copy of the Assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.
LOW SENSITIVITY RATING – For aquatic biodiversity features	**1 General Information** 1.1 An applicant, intending to undertake an activity identified in the Scope of this Protocol, on a site identified as being of "low sensitivity" for aquatic biodiversity on the national web based environmental screening tool must submit an **Aquatic Biodiversity Compliance Statement** to the competent authority. 1.2 Where the information gathered from the Initial Site Sensitivity Verification differs from that identified as having a "low" aquatic biodiversity sensitivity by the national web based environmental screening tool and it is found to be of a "very high" sensitivity an Aquatic Biodiversity Compliance Statement is not required. 1.3 Should paragraph 1.2 apply, an **Aquatic Biodiversity Impact Assessment** is to be undertaken and a report prepared in accordance with the requirements of an Aquatic Biodiversity Impact Assessment.

2 Aquatic Biodiversity Compliance Statement

2.1 The **Aquatic Biodiversity Compliance Statement**, must be prepared by a suitably qualified specialist in the field of aquatic sciences and must verify:

2.1.1 That the site is of "low" sensitivity for aquatic biodiversity; and
2.1.2 Whether or not the proposed development will have an impact on the aquatic features.

3 The **Aquatic Biodiversity Compliance Statement**, must contain, as a minimum, the following information:

3.1 Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise;

3.2 A signed statement of independence by the specialist;

3.3 Baseline profile description of biodiversity and ecosystems, including the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;

3.4 Methodology used to verify the sensitivities of the aquatic biodiversity features on the national web based environmental screening tool;

3.5 Methodology used to undertake the Initial Site Sensitivity Verification and preparation of the Compliance Statement, including equipment and modelling used, where relevant;

3.6 Where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr;

3.7 A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations; and

3.8 Any conditions to which the statement is subjected.

4 A signed copy of the full Aquatic Biodiversity Compliance Statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

4. NOISE

4(a) - PROTOCOL FOR THE ASSESSMENT AND REPORTING OF NOISE IMPACTS

1. SCOPE

This protocol provides the criteria for the assessment and reporting of noise impacts for activities requiring environmental authorisation. These requirements are set out in the Table 1 below, which shows how these requirements correlate with the sensitivity ratings as contained in the national web based environmental screening tool. If any part of the proposed development falls within an area of "very high" sensitivity, the requirements prescribed for such sensitivity apply.

The national web based environmental screening tool can be accessed at: https://screening.environment.gov.za/screeningtool

2. REQUIREMENTS FOR THE INITIAL SITE SENSITIVITY VERIFICATION

Requirements for the assessment and reporting of noise impacts are set out in the Table 1 below and correlate with the sensitivity ratings contained in the national web based environmental screening tool. Prior to the assessment, the current use of the land and the potential environmental sensitivity of the site as identified by the national web based environmental screening tool must be confirmed by undertaking an Initial Site Sensitivity Verification.

2.1 The Initial Site Sensitivity Verification must be undertaken by an environmental assessment practitioner or a registered specialist with expertise in the relevant environmental theme being considered.

2.2 The Initial Site Sensitivity Verification must be undertaken through the use of:

(a) a desk top analysis, using satellite imagery; and
(b) a preliminary on-site inspection to identify if there are any discrepancies with the current use of land and environmental status quo versus the environmental sensitivity as identified on the national web based environmental screening tool, such as new developments, infrastructure, indigenous/pristine vegetation, etc.

2.3 The outcome of the Initial Site Sensitivity Verification must be recorded in the form of a report that-

(a) confirms or disputes the current use of the land and environmental sensitivity as identified by the national web based environmental screening tool;
(b) contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and
(c) is submitted together with the relevant assessment report prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.

3. REQUIREMENTS FOR ENVIRONMENTAL ASSESSMENT

TABLE 1: REQUIREMENTS FOR THE ASSESSMENT AND REPORTING OF NOISE IMPACTS FOR ACTIVITIES REQUIRING ENVIRONMENTAL AUTHORISATION

VERY HIGH SENSITIVITY RATING – High likelihood of a high negative noise impact (10 dBA or more above ambient) **HIGH SENSITIVITY RATING** - High likelihood of a medium negative noise impact (5 to 10 dBA above ambient) **MEDIUM SENSITIVITY RATING** – Potential for low negative noise impact (0 to 5 dBA above ambient)	**1. General Information** 1.1 An applicant intending to undertake an activity identified in the Scope of this Protocol for a site identified by the national web based environmental screening tool as being of "very high", "high" or "medium" sensitivity for noise must submit a **Noise Assessment.** 1.2 Where the information gathered from the Initial Site Sensitivity Verification contemplated in section 2.1 of this Protocol or the specialist assessment differs from the designation of "very high", "high" or "medium" sensitivity from the national web based environmental screening tool and it is found to be of a "low" sensitivity a Noise Assessment is not required. 1.3 Should 1.2 apply, a **Noise Compliance Statement** is to be provided. An Environmental Assessment Practitioner or a noise specialist, must append to the **Noise Compliance Statement** a motivation and evidence (e.g. photographs of no buildings near the proposed development footprint) of the different noise sensitivity. **2. The Noise Assessment** 2.1 The assessment must be undertaken by a suitably qualified noise specialist on the site being submitted as the preferred development site. 2.2 The assessment must be undertaken based on a site inspection as well as applying the noise standards and methodologies stipulated in SANS 10103:2008 and SANS 10328:2008 for residential and non-residential areas as defined in these standards. 2.3 A baseline description must be provided of the potential receptors and existing ambient noise levels. As a minimum, this description must include the following: a. Current ambient sound levels recorded at relevant locations (e.g. receptors and proposed new noise sources) over a minimum of two nights and that provide a representative measurement of the ambient noise climate, with each sample being a minimum of ten minutes, and the approximate wind speed at the time of the measurement must be recorded. b. Mapped distance of the receiver from the proposed development that is the noise source. c. Calculation of noise impact from the noise source. 2.4 Assessment of impacts done in accordance to SANS 10103:2008 and SANS 10328:2008 including the following aspects which must be considered as a minimum in the predicted impact of the proposed development: a. Projected changes in noise levels as a result of the construction, operation and decommissioning of the development to the nearest receptors using industry accepted models and forecasts. 3 The findings of the **Noise Assessment** must be written up in a **Noise Report.** 3.1 This report must contain, as a minimum, the following information:

	3.1.1 Details and relevant qualifications and experience of the noise specialist/s preparing the assessment including a curriculum vitae; 3.1.2 A signed statement of independence by the specialist; 3.1.3 The duration and date of the site inspection and the relevance of the season and weather conditions to the outcome of the assessment; 3.1.4 A description of the methodology used to undertake the on-site assessment inclusive of the equipment and models used, as relevant, together with results of the noise assessment; 3.1.5 A map showing the proposed development footprint (including supporting infrastructure) with a 50 m buffered development envelope; 3.1.6 Confirmation or not from the specialist that all reasonable measures have been considered in the micro-siting of the development to minimise disturbance of receptors; 3.1.7 A substantiated statement from the specialist on the acceptability of the development and a recommendation on the approval or not of the development; 3.1.8 Identify any alternative development footprints within the preferred site and where any of these alternative development footprints are located in a "low" sensitivity as identified by the national web based environmental screening tool, and motivate as to why these potential development footprints were not considered appropriate; 3.1.9 Any conditions to which the statement is subjected; 3.1.10 Where identified, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr; and 3.1.11 A description of the assumptions made and any uncertainties or gaps in knowledge or data. 4 The findings of the **Noise Assessment** must be incorporated into the Basic Assessment Report or the Environmental Impact Assessment Report including the mitigation and monitoring measures as identified for inclusion in the EMPr. A signed copy of the full Noise Assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.
LOW SENSITIVITY RATING - No significant noise impact expected	**1. General Information** 1.1 An applicant intending to undertake an activity identified in the Scope of this Protocol proposed on a site identified by the national web based environmental screening tool as being of "low" sensitivity for Noise must submit a **Noise Compliance Statement.** 1.2 Where the information gathered from the Initial Site Sensitivity Verification contemplated in section 2.1 of this Protocol differs from that identified as having a "low" Noise sensitivity by the national web based environmental screening tool and it is found to be of a "very high", "high" or "medium" sensitivity, then a Noise Compliance Statement is not required. 1.3 Should paragraph 1.2 apply, a **Noise Assessment** is to be undertaken and a report prepared in accordance with the requirements of a Noise Assessment. **2. Noise Compliance Statement** 2.1 The **Noise Compliance Statement** must be prepared by an Environmental Assessment Practitioner or a suitably qualified noise specialist, on the site being submitted as the preferred development site and the preferred development footprint and must indicate whether or not the proposed development will have an unacceptable negative impact on the noise receptors of the site or not

	2.2 Identify any alternative development footprints within the proposed development site which would be of "low" sensitivity as identified by the national web based environmental screening tool and motivate as to why these potential development footprints were not considered appropriate. 3. **The Noise Compliance Statement** must contain, as a minimum, the following information: 3.1 Details and relevant qualifications and expertise of the noise specialist preparing the statement including a curriculum vitae; 3.2 A signed statement of independence by the specialist; 3.3 A map showing the proposed development footprint (including supporting infrastructure) with a 50 m buffered development envelope, overlaid on the sensitivity map generated by the national web based environmental screening tool; 3.4 Confirmation from the specialist that all reasonable measures have been taken through micro-siting to minimize disturbance to receptors; 3.5 A substantiated statement from the noise specialist/environmental assessment practitioner on the acceptability of the development and a recommendation on the approval or not of the development; 3.6 Any conditions to which the statement is subjected; 3.7 Where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr; and 3.8 A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations. 4. A signed copy of the **Noise Compliance Statement** must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

5. DEFENCE

5(a) - PROTOCOL FOR THE ASSESSMENT AND REPORTING OF ENVIRONMENTAL IMPACTS ON DEFENCE INSTALLATIONS

1. SCOPE

This protocol provides the criteria for the assessment and reporting of impacts on defence installations for activities requiring environmental authorisation. Requirements for the assessment and reporting of impacts on defence installations are set out in the Table 1 below, which shows how these requirements correlate with the sensitivity ratings as contained in the national web based environmental screening tool.

The national web based environmental screening tool can be accessed at: https://screening.environment.gov.za/screeningtool

2. REQUIREMENTS FOR ENVIRONMENTAL ASSESSMENT

TABLE 1: REQUIREMENTS FOR THE ASSESSMENT AND REPORTING OF IMPACTS ON DEFENCE INSTALLATIONS FOR ACTIVITIES REQUIRING ENVIRONMENTAL AUTHORISATION

VERY HIGH SENSITIVITY RATING - high likelihood for negative impacts on the defence installation. In-depth assessment of the potential impacts and mitigation measures are likely to be required before development can be considered in these areas.	**1. General Information** 1.1 An applicant intending to undertake an activity identified in the Scope of this Protocol proposed on a site identified by the national web based environmental screening tool as being of "very high", "high", "medium" or "low" sensitivity for defence must submit a **Defence Compliance Statement.** **2. Defence Compliance Statement** The **Defence Compliance Statement** must be prepared by an Environmental Assessment Practitioner on the site being submitted as the preferred development site and must indicate whether or not the proposed development will have an unacceptable negative impact on defence installations. 3. The **Defence Compliance Statement** must contain, as a minimum, the following information:
HIGH SENSITIVITY RATING - potential for negative impacts on the defence installation that can potentially be mitigated. Further assessment may be required to investigate potential impacts and mitigation measures.	

MEDIUM SENSITIVITY RATING - low potential for negative impacts on the defence installation, and if there are impacts there is a high likelihood of mitigation. Further assessment of the potential impacts may not be required.	3.1 A comment, in writing, from the Obstacle Evaluation Committee (OEC) confirming no unacceptable impact on military areas of interest. 3.2 Should the comment from the OEC require further assessment, a copy of the assessment report and mitigation measures is to be attached with the Compliance Statement as part of the Basic Assessment Report or Environmental Impact Assessment Report. The assessment must be in accordance with the requirements stipulated by the OEC. 4. Inputs from the OEC, if provided within prescribed timeframes in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, will be considered by the relevant competent authority for decision making. If no inputs are provided by the OEC within the prescribed timeframes, then the EAP must provide evidence of engagement with the relevant officials at the OEC and timeous requests for inputs. 5. A signed copy of the full Defence Compliance Statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.
LOW SENSITIVITY **RATING** - No negative impacts on the defence installation are expected in low sensitivity areas. It is unlikely for further assessment and mitigation measures to be required.	

6. CIVIL AVIATION

6(a) - PROTOCOL FOR THE ASSESSMENT AND REPORTING OF ENVIRONMENTAL IMPACTS ON CIVIL AVIATION INSTALLATIONS

1. SCOPE

This protocol provides the criteria for the assessment and reporting of impacts on civil aviation installations for activities requiring environmental authorisation. Requirements for the assessment and reporting of impacts on civil aviation installations are set out below, which shows how these requirements correlate with the sensitivity ratings as contained in the national web based environmental screening tool.

The national web based environmental screening tool can be accessed at: https://screening.environment.gov.za/screeningtool

2. REQUIREMENTS FOR ENVIRONMENTAL ASSESSMENT

TABLE 1: REQUIREMENTS FOR THE ASSESSMENT AND REPORTING OF IMPACTS ON CIVIL AVIATION FACILITIES FOR ACTIVITIES REQUIRING ENVIRONMENTAL AUTHORISATION

VERY HIGH SENSITIVITY RATING - high likelihood for significant negative impacts on the civil aviation installation that cannot be mitigated. In-depth assessment of the potential impacts are likely to be required before development can be considered in these areas.	**1. General Information** 1.1 An applicant intending to undertake an activity identified in the Scope of this Protocol, proposed on a site identified by the national web based environmental screening tool as being of "very high", "high", "medium" or "low" sensitivity for civil aviation must submit a Civil **Aviation Compliance Statement.** **2. Civil Aviation Compliance Statement** The **Civil Aviation Compliance Statement** must be prepared by an Environmental Assessment Practitioner for the site being submitted as the preferred development site and must indicate whether or not the proposed development will have an unacceptable negative impact on civil aviation installations. 3. The **Civil Aviation Compliance Statement** must contain, as a minimum, the following information: 3.1 A comment, in writing, from the South African Civil Aviation Authority (SACAA), which may include inputs from the Obstacle Evaluation Committee (OEC), if appropriate, confirming no unacceptable impact on civil aviation installations.
HIGH SENSITIVITY RATING – potential for negative impacts on the civil aviation installation that can potentially be mitigated. Further assessment may be required to investigate potential impacts and mitigation measures.	

MEDIUM SENSITIVITY RATING - low potential for negative impacts on the civil aviation installation, and if there are impacts there is a high likelihood of mitigation. Further assessment of the potential impacts may not be required.	3.2 Should comment from the SACAA require further assessment, a copy of the assessment report and mitigation measures is to be attached with the Compliance Statement as part of the Basic Assessment Report (BAR) or Environmental Impact Assessment Report (EIAR). The assessment must be in accordance with the requirements stipulated by the SACAA. 4. Inputs from the SACAA, if provided within prescribed timeframes in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), will be considered by the relevant competent authority for decision making. If no inputs are provided by the SACAA within the prescribed timeframes, then the EAP must provide evidence of engagement with the relevant officials at SACAA and timeous requests for inputs. 5. A signed copy of the **Civil Aviation Compliance Statement** must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.
LOW SENSITIVITY RATING - No significant impacts on the civil aviation installation are expected in low sensitivity areas. It is unlikely for further assessment and mitigation measures to be required.	

INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NO. 649 10 MAY 2019

ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

APPLICATIONS FOR TRANSFER OF AN INDIVIDUAL ELECTRONIC COMMUNICATIONS SERVICE AND INDIVIDUAL ELECTRONIC COMMUNICATIONS NETWORK SERVICE LICENCES FROM SOFT TOUCH COMPUTING CC TO GROW MAKHOSIKATI TRADING CC

1. The Independent Communications Authority of South Africa ("the Authority") hereby gives notice that it has received applications from Soft Touch Computing cc for the transfer of its Individual Electronic Communications Service ("I-ECS") and Individual Electronic Communications Network Service ("I-ECNS") licences. The applications were lodged in terms of clause 12 of the Processes and Procedures Regulations for Individual Licences, 2010 published in Government Gazette No. 33293 of 14 June 2010 and Regulation 11 of the Amendment Individual Processes and Procedures Regulations 2015 published in Government Gazette No.39871 of 30 March 2016, read with sections 13(1), (2) and (6) of the Electronic Communications Act 2005, as amended.

2. The transfer applications seek approval from the Authority to transfer the I-ECNS and I-ECS licences held by Soft Touch Computing cc ("the Applicant") to Grow Makhosikati Trading cc ("the Transferee") and will be evaluated on the basis of the following criteria:
    a. promotion of competition in the ICT sector;
    b. interests of consumers; and
    c. equity ownership by HDP'S.

3. The Applicant submits that the Transferee is 100% owned by Historically Disadvantaged Persons (HDPs).

4. The applications, relevant schedule and any representations received pursuant thereto will be made available and open for inspection by any interested party in the Authority's library, during the Authority's office hours.

5. Any interested party is invited to lodge written representations to the applications within fourteen (14) working days from the date of publication of this notice in the Government Gazette.

6. Any person who makes written representations must indicate whether they require an opportunity to make oral representations in the event that the Authority decides to hold public hearings.

7. All written representations, responses and other correspondence in terms hereof must be directed to Mr Peter Mailula at ECNS, ECS and Postal Licensing Unit, Licensing Division, at Block B, 350 Witch – Hazel Avenue, Eco Point Office Park, Eco Park, Centurion **OR** Private Bag X10, Highveld Park, 0169 **OR** by fax no. (012) 568 3658 **OR** by e-mail: PMailula@icasa.org.za

8. Any person who may lodge representations in terms hereof, must also furnish proof to the satisfaction of the Authority that a copy of the representation has been delivered by hand to Ms Helen Schormann at Soft Touch Computing cc located at Shop 2 Tarentaal Centre, West Acres, Nelspruit, 1200, **OR** sent by facsimile no: (086) 604 9823, **OR** sent by e-mail to bm@soft.co.za

9. Soft Touch Computing cc has the right to respond in writing to written representations made by any interested person on the transfer applications. The written responses must be lodged with the Authority within twenty-one (21) working days from the date of publication of this notice in the Government Gazette.

10. Soft Touch Computing cc must, at the time of lodging the written response, furnish proof to the Authority's satisfaction that it has delivered a copy of the response by hand, **OR** has sent a copy thereof by facsimile **OR** by e-mail to the relevant person having made the written representations.

DR. KEABETSWE MODIMOENG

ACTING CHAIRPERSON

INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

NO. 650 10 MAY 2019

ELECTRONIC COMMUNICATIONS ACT, 2005 (ACT NO. 36 OF 2005)

APPLICATIONS FOR TRANSFER OF AN INDIVIDUAL ELECTRONIC COMMUNICATIONS SERVICE AND INDIVIDUAL ELECTRONIC COMMUNICATIONS NETWORK SERVICE LICENCES FROM CONEKT BUSINESS GROUP (PTY) LTD TO KGATONTLE SATELLITE OPERATIONS (PTY) LTD

1. The Independent Communications Authority of South Africa ("the Authority") hereby gives notice that it has received applications from Conekt Business Group (Pty) Ltd for the transfer of its Individual Electronic Communications Service ("I-ECS") and Individual Electronic Communications Network Service ("I-ECNS") licences. The applications were lodged in terms of clause 12 of the Processes and Procedures Regulations for Individual Licences, 2010 published in Government Gazette No. 33293 of 14 June 2010 and Regulation 11 of the Amendment Individual Processes and Procedures Regulations 2015 published in Government Gazette No.39871 of 30 March 2016, read with sections 13(1), (2) and (6) of the Electronic Communications Act 2005, as amended.

2. The transfer applications seek approval from the Authority to transfer the I-ECNS and I-ECS licences held by Conekt Business Group (Pty) Ltd ("the Applicant") to Kgatontle Satellite Operations (Pty) Ltd ("the Transferee") and will be evaluated on the basis of the following criteria:
    a. promotion of competition in the ICT sector;
    b. interests of consumers; and
    c. equity ownership by HDP'S.

3. The Applicant submits that the Transferee is 100% owned by Historically Disadvantaged Persons (HDPs).

4. The applications, relevant schedule and any representations received pursuant thereto will be made available and open for inspection by any interested party in the Authority's library, during the Authority's office hours.

5. Any interested party is invited to lodge written representations to the applications within fourteen (14) working days from the date of publication of this notice in the Government Gazette.

6. Any person who makes written representations must indicate whether they require an opportunity to make oral representations in the event that the Authority decides to hold public hearings.

7. All written representations, responses and other correspondence in terms hereof must be directed to Mr Peter Mailula at ECNS, ECS and Postal Licensing Unit, Licensing Division, at Block B, 350 Witch – Hazel Avenue, Eco Point Office Park, Eco Park, Centurion **OR** Private Bag X10, Highveld Park, 0169 **OR** by fax no. (012) 568 3658 **OR** by e-mail: PMailula@icasa.org.za

8. Any person who may lodge representations in terms hereof, must also furnish proof to the satisfaction of the Authority that a copy of the representation has been delivered by hand to Mr Andrew Hill at Conekt Business Group (Pty) Ltd located at Suites 8 & 9, 1st Floor, Waterfall View, Mahai Close, Waterfall Park, Midrand , **OR** sent by facsimile no: (086) 026 6358, **OR** sent by e-mail to andrewh@conekt.co.za

9. Conekt Business Group (Pty) Ltd has the right to respond in writing to written representations made by any interested person on the transfer applications. The written responses must be lodged with the Authority within twenty-one (21) working days from the date of publication of this notice in the Government Gazette.

10. Conekt Business Group (Pty) Ltd must, at the time of lodging the written response, furnish proof to the Authority's satisfaction that it has delivered a copy of the response by hand, **OR** has sent a copy thereof by facsimile **OR** by e-mail to the relevant person having made the written representations.

DR. KEABETSWE MODIMOENG

ACTING CHAIRPERSON

DEPARTMENT OF MINERAL RESOURCES

NO. 651 **10 MAY 2019**

MINE HEALTH AND SAFETY ACT, 1996 (ACT NO 29 OF 1996)

GUIDANCE NOTE ON MEDICO-LEGAL INVESTIGATIONS OF MINE DEATHS

I, **DAVID MSIZA,** Chief Inspector of Mines, under section 49 (6) of the Mine Health and Safety Act, 1996 (Act No. 29 of 1996) and after consultation with the Council, hereby issues the guidance note on medico-legal investigations of mine deaths in terms of the Mine Health and Safety Act, as set out in the Schedule.

DAVID MSIZA
CHIEF INSPECTOR OF MINES

SCHEDULE

GUIDANCE NOTE
ON
MEDICO-LEGAL INVESTIGATIONS
OF
MINE DEATHS

MINE HEALTH AND
SAFETY INSPECTORATE

mineral resources
Department:
Mineral Resources
REPUBLIC OF SOUTH AFRICA

REFERENCE NUMBER: DMR 16/3/2/3-A9
LAST REVISION DATE: First edition
DATE FIRST ISSUED: First edition
EFFECTIVE DATE: 31 March 2019

DEPARTMENT OF MINERAL RESOURCES

MINE HEALTH AND SAFETY INSPECTORATE

GUIDANCE NOTE ON MEDICO-LEGAL INVESTIGATIONS OF MINE DEATHS

CHIEF INSPECTOR OF MINES

mineral resources
Department
Mineral Resources
REPUBLIC OF SOUTH AFRICA

PART A: THE GUIDANCE NOTE

PART A: THE GUIDANCE NOTE

1. FOREWORD

The Guidance Note originates from the need to provide clarity on the process that must be followed for deaths that require a medico-legal **autopsy**.

The Guidance Note is intended to assist and give guidance to all stakeholders regarding their roles and responsibilities in cases of natural, unnatural or uncertain mine death.

This Guidance Note sets out good practice and should be read in conjunction with the current and relevant regulatory framework on medico-legal post mortem investigations and does not constitute a specific and/or separate protocol.

Stakeholders are advised to make full use of this document which represents the collective efforts of various stakeholders.

2. LEGAL STATUS OF THE GUIDANCE NOTE

This Guidance Note has been compiled specifically with a view to provide guidance to all relevant stakeholders regarding their roles and responsibilities with regards to medico-legal examinations and investigations of deaths (natural and unnatural) in the South African mining industry. The Guidance Note sets out good practice and must be read and interpreted within the existing legal framework on medico-legal investigations.

This Guidance Note will assist in determining whether the mining related activities may have contributed to the cause of death.

3. THE OBJECTIVE OF THE GUIDANCE NOTE

The objective of this guidance note is to improve the understanding of the legal obligations that relate to medico-legal autopsies and to clarify the roles and responsibilities associated with the handling of deaths that occur in the mining industry.

4. DEFINITIONS

4.1 **"Autopsy"** means the post mortem dissection of a body so as to determine the cause of death and the nature of injuries or diseases which may be present.

4.2 **"Designated facility"** means a medico-legal mortuary or laboratory especially designed for the medico-legal death investigation process under the auspices of the department of Forensic Pathology Services.

4.3 **"Forensic Pathology Officer"** means a person appointed by the department to provide a **medico-legal investigation of death** service within their scope of practice.

4.4 **"Investigating Officer"** means a member of the **South African Police Service** appointed in terms of the South African Police Service Act, 1995 (Act No. 68 of 1995) or an employee of the Independent Police Investigative Directorate appointed in terms of the Independent Police Investigative Directorate Act, 2011 (Act No. 1 of 2011),

designated as an **Investigating Officer** to investigate the cause and circumstance of death of a particular person.

4.5 **"Medical practitioner"** means a person registered as a **medical practitioner** in terms of the Health Professions Act, 1974(Act No. 56 of 1974).

4.6 **"Medico-legal investigation of death"** means the investigation into the circumstances, manner and possible causes of death which are or may have been due to unnatural causes as defined.

4.7 **"Medical Inspectorate"** means the Medical Inspector and mine inspectors for occupational medicine.

4.8 **"Natural death"** means deaths that are due entirely to natural diseases, and are not precipitated by any other event.

4.9 **"Post mortem examination"** means an examination of a body, with the purpose of establishing the cause and circumstance of death and factors associated with the death, and in the context of these regulations, for medico-legal purposes.

4.10 **"South African Police Service"** means the police service established in terms of the South African Police Service Act, 1995 (Act No. 68 of 1995).

4.11 **"Unnatural death"** for the purposes of the **medico-legal investigation of death**, the following shall be deemed to be deaths due to unnatural causes:

(a) any death due to physical or chemical influence, direct or indirect, or related complications;
(b) any death, including those deaths which would normally be considered to be a death due to natural causes, which may have been the result of an act, or omission of act, which may be criminal in nature;
(c) any death as contemplated in Section 48 of Health Professions Amendment Act 29 of 2007. The death of a person undergoing, or as a result of, a procedure of a therapeutic, diagnostic or palliative nature, or of which any aspect of such a procedure has been a contributory cause, shall not be deemed to be a death from natural causes as contemplated in the Inquest Act, 1959 (Act No. 58 of 1959), or the Births, Marriages and Deaths Registration Act, [1963 (Act No. 81 of 1963)] 1992 (Act No. 51 of 1992); and
(d) where the death is sudden and unexpected, or unexplained, or where the cause of death is not apparent;

5. ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immunodeficiency Syndrome
CIoM	Chief Inspector of Mines
DMR	Department of Mineral Resources
FPS	Forensic Pathology Services
HIV	Human Immunodeficiency Virus
IoM	Inspector of Mines
MHSA	Mine Health and Safety Act
MHSI	Mine Health and Safety Inspectorate
NIOH	National Institute for Occupational Health

SAPS	South African Police Services
ODMWA	Occupational Diseases in Mines and Works Act
OMP	Occupational Medical Practitioner

6. MEMBERS OF THE TASK TEAM

This guidance note was prepared by members of the Task Team, which comprised of:

Dr. D Mokoboto	(State) Chairperson
Ms. M.Hlapane	(State)
Dr. Z Eloff	(Employers)
Mr. A Letshele	(Labour)

7. BACKGROUND INFORMATION

The mining industry experiences various challenges with regards to the handling of investigations of deaths.

These are (amongst others):

(a) Uncertainties regarding the roles and responsibilities of stakeholders, mentioned in item 9 below, in an event of death.

(b) A significant proportion of deaths in the mining industry is complex and requires specialists' skills when performing medico-legal **post mortem examinations**.

(c) Sudden deaths have been reported, where there is no associated accident or occurrence.

(d) The manner in which the post-mortem process is handled by:

- the employers; and
- the State's Forensic Pathology Service (**FPS**).

(e) Timeous processing and submission of a **post mortem examination** report to facilitate the conclusion of the **MHSI** investigations in terms of section 11 (5) and 60 (1) of the **MHSA**.

It is important that all stakeholders co-operate in the collection of any relevant information or evidence to ensure that all aspects relevant to a death within the mining industry are considered during an investigation.

8. RELEVANT ACTS AND OTHER STATUTORY PROVISIONS.

The Guidance Note should be read in conjunction with the following legislations that govern how deaths should be handled in South Africa.

It is important that the following legislations, regulating the performance of **post mortem examinations**, are known and understood:

	ACT	PARTICULARS OF THE ACT
1	Mine Health and Safety Act No.29 of 1996, as amended	• Provides for the employer notifying the Principal Inspector of any accident or occurrence that results in death [section 11 (5B) (c)]. • Provides for no disturbance to the site where death or injury occurred [section 11 (8)]. • Initiation of investigations and inquiries in case of death of a person on a mine [section 60(1) and 65] • Allows for other legislation regulating the holding of an inquest or other inquiry into a death [section 65 (4)]. • Section 64(1) and 72 state the requirement for the written report of recommendations and remedial action following from investigation and inquiry.
2	Occupational Disease in Mines and Works Act No 78 of 1973, as amended	• Provides that if employees who worked in mines or works die, their cardio-respiratory organs must be sent to the **NIOH**. • Permission from the family to remove such organs is needed in the case of **natural death**. • If the post mortem is being done under the provision of another Act (for example the Inquest Act,) the cardio-respiratory organs may be removed and forwarded to the **NIOH**.
3	Inquest Act No 58 of 1959	• Provides for the duty to report any death due to causes other than natural [section 2 (1)]. • Provides the procedure which must be followed in cases of **unnatural deaths** [section 3]. • The body may be exhumed if already buried [section 4]. • Consent of the relatives for **autopsy** is not required. • An inquest into the cause of death.
4	The Regulations Regarding the Rendering of Forensic Pathology Service (GN R636, GG 30075) of the National Health Act 61 of 2003	• A **post mortem examination** may be done to determine the cause of death in cases of suspected contagious diseases. • Provides for removal and transportation of bodies, medico-legal post-mortem examinations, practitioners authorised to observe post-mortem. • Provides for medico-legal investigation of specific categories of **unnatural deaths** [section 36 (1) (3)].
5	Health Professions Amendment Act No 29 of 2007,	• Provides that deaths under the influences of or contributed to by an anaesthetic are unnatural. [section 48].
6	Births and Deaths Registration Act No 51 of 1992	• Defines conditions under which a **medical practitioner** may or may not issue a death certificate for natural causes [sections 14, 15, 16 and 17].
7	Criminal Procedures Act No. 51, 1977, as amended	• Provides for an officer of the State officially concerned in the investigation of the case receiving, from the authorised person, a written statement which incorporates relevant medical

	ACT	PARTICULARS OF THE ACT
		opinions or comments upon the post mortem findings or the clinical or other evidence in the case.
8	National Health Act chapter 8	• Provides the control of use of blood, blood products, tissue and gametes in humans.
9	Section 64 of the **MHSA**	• Reports on investigations.
10	Section 72 of the **MHSA**	• Inquiry records and reports.

9. ROLES AND RESPONSIBILITIES OF STAKEHOLDERS

When a death occurs on the mine premises, the roles and responsibilities of stakeholders are as follows:

9.1 Employer

(a) The employer should notify the Principal Inspector of Mines, health and safety representatives and the **SAPS**.

(b) The employer should initiate a section 11 (5) investigation.

(c) The employer must take part in the investigation conducted in terms of section 11 (6) and 60 (1) of the **MHSA** if so directed by the PIoM.

(d) The employer should ensure that the following steps be taken:

i. barricading of the accident scene;

ii. taking of names of witnesses and/or survivors;

iii. noting in writing the observations of the accident scene;

iv. taking photographs of undisturbed scene; and

v. making note of environmental conditions.

(e) The employer should bring the death to the attention of the **OMP** or any **medical practitioner**, as soon as possible, who must certify the death.

9.1.1 Medical Practitioner

(a) A **medical practitioner** (this may also be the **OMP**) must examine the body and indicate if the likely cause of death was due to natural or unnatural causes.

(b) The **medical practitioner** should declare death to be natural only if:

i. they are familiar with or has access to the deceased's medical records;

ii. the deceased was known to have a medical condition that was likely to be the cause of death; and

iii. after they have been made fully conversant with the circumstances surrounding the death, including the environmental conditions.

(c) If a death of any person admitted to a hospital from a mine has occurred following admission for a disease, and the death is deemed to be due to natural causes, the **medical practitioner** completes the death certificate and no further investigation is required.

(d) If the cause of death is natural, the **medical practitioner** should complete a death notification certificate (BI 1663) or Department of Home Affairs (DHA) 1663. A copy of this form should be handed to the next-of-kin or funeral undertakers. If a **medical practitioner** is uncertain or is of the opinion that the death was due to causes other than natural, he/she shall not issue the above-mentioned form and shall inform a police officer and Forensic Pathology Services. (See Annexure 2 on certification of death and **unnatural deaths**).

(e) In uncertain and unnatural cases, a **medical practitioner** must submit with the body or as soon as possible, all information pertaining to the deceased that may be relevant for medico-legal examinations.

(f) All anaesthetic associated deaths when handed over to **FPS** should be accompanied by form D28 and GW7/24 (anaesthetic forms) which explains the anaesthetic management and follow up during the procedure before death.

(g) All forms of intubation, venous lines, drips, catheters and surgical packs should be left in situ as they will be assessed during **autopsy**.

(h) No **medical practitioner** may perform a **post mortem examination** on the body of a deceased person, unless it is specifically done in terms of the Inquests Act (i.e. within the formal framework of **medico-legal investigation of death** and with the full involvement and consent of the **SAPS**).

(i) The only exception is when a certificate (form BI 1663), confirming exclusively natural causes of death, was issued before a **post mortem examination** was performed. In this event, a **post mortem examination** may be carried out in terms of the Chapter 8 of the National Health Act, 2003 (Act 61 0f 2003) and can only be done with the expression of prior consent of the next of kin or where the deceased has consented to such an examination prior to his/her death.

(j) Arrange for removal of cardiorespiratory organs in line with **ODMWA**. Ensure that consent was given by employee or relatives to remove lungs and heart.

9.1.2 Occupational Medical Practitioner

The **OMP** should:

(a) Assist the **medical practitioner** who completes the death certificate with relevant information (e.g. medical surveillance data, environment where the body was found, etc.) where required.

(b) Submit, with the body or as soon as possible, all information pertaining to the deceased that may be relevant to the medico-legal examinations, as per Mine Accident Scene Form (Annexure 4).

(c) Participate in the investigation (section 11(5) of the **MHSA**).

(d) Assist the **Medical Inspectorate** with any information that may be required.

9.2 Department of Mineral Resources

9.2.1 The Chief Inspector of Mines refer to **MHSA**.

9.2.2 The Principal Inspector of Mines

(a) The PIoM must ensure that an inspection in loco is carried out as part of Section 60 of the **MHSA** investigation. It is advisable to take sworn statements from witnesses wherever possible. If from the investigation there is suspicion of an irregularity falling outside the ambit of the **MHSA**, the PIoM must report the matter to the police. The provisions of the **MHSA** dealing with death in mines should be explained to the police when necessary.

(b) The PIoM must ensure the following:

i. The requirements for reporting of any deaths at mines are complied with as per the **MHSA**.

ii. All inspectors clearly understand what is expected of them when accidents are reported.

iii. The **Medical Inspectorate** participates in the investigation, when necessary.

iv. The recommendations and remedial action from Section 64 and 72 reports are vigorously followed up to prevent/minimise recurrence.

v. There is continuous symbiotic communication between the SAPS stations and DMR regional offices concerning all mine deaths. The purpose of this is to ensure that no death happens without being investigated due to claims that it is not mining related.

vi. If the findings of the **post mortem examination** link the death to activities and conditions at a mine, then the **MHSI** should consider

these activities and conditions during the statutory investigation and inquiry under the **MHSA**.

vii. If there is uncertainty about whether the accident is mine related or not, the matter is referred to the **CIoM** for a ruling.

9.2.3 The Inspector of Mines and Medical Inspector

(a) The Inspectorate must offer assistance as may be required by the National Prosecuting Authority, **SAPS** and magistrates in the inquest that may follow.

(b) Before an inspection in loco is conducted, the Inspector needs to co-ordinate arrangements with the relevant persons, e.g. mine managers, union representatives and necessary mining experts. This should be done to prevent unnecessary delays and possible re-inspections later.

(c) The **Medical Inspectorate** can communicate with the **OMP** to gather medical information that may be considered important to the investigation.

(d) The **Medical Inspectorate** can request a post mortem report from the **SAPS Investigating Officer** and can communicate with the authorised person at the Forensic Pathology Service who performed the post mortem to obtain any relevant information regarding the **post mortem examination**.

9.3 South African Police Services

(a) The **SAPS** must investigate all deaths due to unnatural and/or uncertain causes, and open an inquest docket (section 2 of the Inquest Act, Act No 58 of 1959, as amended).

(b) The **SAPS** to notify the Forensic Pathology Services, complete a SAP 180 form and arrange for a medico-legal **post mortem examination** to be conducted.

9.3.1 Forensic Pathology Service

(a) The relevant Member of the Executive Council of a province must, within national policy and in terms of these regulations, ensure that a Forensic Pathology Service is established and managed within the department.

(b) The Service contemplated includes, but is not limited to:

i. where appropriate, commencing with a scene of death investigation in consultation with the **Investigating Officer** and or appropriate **South African Police Service** member who is on the scene, which includes but is not limited to, taking notes, questioning family and other witnesses, examining the death scene and photographing the deceased or any exhibit or specimens;

ii. obtaining any information that is relevant to the medico-legal investigation of a death, including medical and social history, records, as well as taking witness statements;

iii. taking responsibility for the collection of a body and removal from the scene;

iv. taking responsibility for the custody of a body from the scene of death until released for burial or cremation, and the processes attached thereto;

v. taking into custody, thoroughly documenting and maintaining evidence and specimens relating to a body and any associated items or articles at all times;

vi. assisting, as far as is possible, with the process of identification of the deceased;

vii. conducting a post mortem investigation, including external and internal examination of a body and retaining of material, tissue or fluids for evidentiary or diagnostic purposes;

viii. requesting and conducting appropriate special investigations;

ix. providing medico-legal reports, chain of custody statements, expert testimony and opinions;

x. archiving documents, specimens and related materials;

xi. collecting, reviewing and analysing related data; and

xii. providing information and advice to health or other government authorities or departments.

9.3.1.1 Referral of unnatural cases

All cases of unnatural death as defined in these regulations must be referred to the Forensic Pathology Service.

9.3.1.2 Death scene

The Service is responsible for attending and participating in the death scene investigation, which may include, but is not limited to:

(a) Managing a request for forensic pathology service response.

(b) Assessing the scene of death in a given situation, this may include any private, public or business premises, vessel, train, motor vehicle, aircraft where death has occurred for the purposes of conducting a comprehensive death scene investigation.

(c) Performing forensic pathology activities associated with the scene of death in terms of relevant scope of practice including:

i. Declaring death in the following obviously dead cases - decapitation, gross mutilation, putrefaction, and charring.
ii. Examining the body on scene and recording of the incident for the purposes of forensic investigation which includes but may not be limited to photography, sketching, and documentation.

iii. Interviewing any relevant party including the next of kin and recording medical history and relevant information.

iv. Obtaining medical records of the deceased from any party or source where relevant.

v. Assess, handle, collect, preserve and record evidence in line with forensic pathology service procedural requirements.

9.4 Procedure

The summary of steps to be followed in the event of a death in the mining industry is in Annexure 1.

9.4.1 Death of an employee

*Reporting to the **MHSI** about the death*

As stipulated in Section 60 (1), any accident or occurrence at a mine that results in the death of a person must be investigated.

In the event of a death, the employer, is required to get a **OMP/medical practitioner** to certify the death.

The **OMP/medical practitioner** should take into account the circumstances surrounding the death, as provided by the employer, as well as the occupational and medical history of the deceased in determining whether the death is due to natural, unnatural or uncertain causes. Should the **OMP/medical practitioner** decide that death is due to natural causes, a death notification certificate (BI1663) should be completed.

In cases where the **medical practitioner/OMP** determines the death as unnatural or uncertain, the **medical practitioner/OMP** must notify the **SAPS** who will open a docket and notify the Forensic Pathology Services. Should the **SAPS** refuse to open a docket or fail to refer the case to the **FPS**, the **medical practitioner** should refer the matter to the **FPS**, the regional medicine inspector and copy the Chief Specialist Forensic Pathologist. A record of this referral must be kept for future reference. The **FPS** must be requested to respond in writing to such referrals.

An authorised person will conduct the post mortem and provide a report (**FPS** 007) to the **SAPS Investigating Officer** who will complete the investigation. The **SAPS Investigating Officer** must give a copy of the post mortem report to the **Medical Inspectorate** of the DMR for the purposes of completing the Section 60 (1) investigation.

i. Declaring death in the following obviously dead cases - decapitation, gross mutilation, putrefaction, and charring.
ii. Examining the body on scene and recording of the incident for the purposes of forensic investigation which includes but may not be limited to photography, sketching, and documentation.

iii. Interviewing any relevant party including the next of kin and recording medical history and relevant information.

iv. Obtaining medical records of the deceased from any party or source where relevant.

v. Asses, handle, collect, preserve and record evidence in line with forensic pathology service procedural requirements.

9.4 Procedure

The summary of steps to be followed in the event of a death in the mining industry is in Annexure 1.

9.4.1 Death of an employee

*Reporting to the **MHSI** about the death*

As stipulated in Section 60 (1), any accident or occurrence at a mine that results in the death of a person must be investigated.

In the event of a death, the employer, is required to get a **OMP/medical practitioner** to certify the death.

The **OMP/medical practitioner** should take into account the circumstances surrounding the death, as provided by the employer, as well as the occupational and medical history of the deceased in determining whether the death is due to natural, unnatural or uncertain causes. Should the **OMP/medical practitioner** decide that death is due to natural causes, a death notification certificate (BI1663) should be completed.

In cases where the **medical practitioner/OMP** determines the death as unnatural or uncertain, the **medical practitioner/OMP** must notify the **SAPS** who will open a docket and notify the Forensic Pathology Services. Should the **SAPS** refuse to open a docket or fail to refer the case to the **FPS**, the **medical practitioner** should refer the matter to the **FPS**, the regional medicine inspector and copy the Chief Specialist Forensic Pathologist. A record of this referral must be kept for future reference. The **FPS** must be requested to respond in writing to such referrals.

An authorised person will conduct the post mortem and provide a report (**FPS** 007) to the **SAPS Investigating Officer** who will complete the investigation. The **SAPS Investigating Officer** must give a copy of the post mortem report to the **Medical Inspectorate** of the DMR for the purposes of completing the Section 60 (1) investigation.

9.4.2 Death in a hospital

Once a death occurs, a **medical practitioner** must determine if the death is natural, unnatural or uncertain. The medical and occupational history of the deceased should be taken into account in reaching this decision. If the death is due to natural causes, the **medical practitioner** must complete a notification of death certificate (BI 1663).

If a death has occurred in a hospital and is deemed to be due to unnatural causes – i.e. as result of or due to complications that developed following a mine accident or as contemplated in Health Professions Amendment Act 29 of 2007, section 48 (anaesthetic death) - the medical doctor shall not complete the death notification form (BI 1663) and should follow the procedure for unnatural causes of death.

If the death is unnatural/uncertain, then the process for unnatural/uncertain deaths, described above, should be followed.

10. MEDICO-LEGAL ASPECTS TO BE CONSIDERED

10.1 Performance of medico-legal post mortem examinations

A **post mortem examination** must only be conducted at a **designated facility** or at an institution to which the Service has referred the body.

10.1.1 Practitioners authorised to conduct or assist with **post mortem examination**

(a) A **post mortem examination** must only be performed by an authorised **medical practitioner** who has been appointed in the Service for such purposes.

(b) Assistance at a **post mortem examination** may only be rendered by authorised **forensic pathology officers** who have been appointed in the Service such purposes, within their scope of practice.

(c) An authorised **medical practitioner** may consult with other qualified professionals and request such professionals to participate in the **post mortem examination** and contribute to the further examination of such a body.

(d) A student or trainee personnel in the Service may participate in a **post mortem examination**, but only under the direct guidance and supervision of an authorised person.

(e) A **forensic pathology officer** may remove a specimen or exhibit from the deceased under the instruction and supervision of an authorised **medical practitioner**.

(f) Where necessary, an authorised **medical practitioner** may authorise the removal of a fluid or tissue specimen by a forensic pathology officer or by a member of the **SAPS** Victim Identification Centre, prior to such removal.

(g) During the performance of **post mortem examinations**, the forensic pathology officer may perform eviscerations and organ removals under the supervision of an authorised **medical practitioner** and assist him or her with such **post mortem examination** and perform certain functions connected therewith, as contained within their scope of practice and job descriptions.

10.2 Performance of medico-legal post mortem examinations

In the medico-legal investigation of unnatural and/or uncertain deaths, medico-legal **post mortem examinations** should only be carried out by **FPS** pathologist/forensic practitioners who have been appointed by the province for this purpose and who work in association with the police in a given area or region.

10.3 Who may be present at medico-legal examinations?

In terms of Section 3 (5) of the Inquest Act, the only persons who may be present at a *medico-legal examination* are:

(a) A policeman

(b) Any other **medical practitioner** nominated by any person who has satisfied the magistrate, within whose area of jurisdiction such examination takes place, that he/she has a substantial and peculiar interest in the matter of the examination.

(c) Any other **medical practitioner** nominated by the state appointed **FPS** pathologist/forensic practitioner conducting the examination.

(d) The state appointed pathologist/forensic practitioner conducting the examination.

10.4 The completion of reports on Medico-Legal post mortem examinations
(Form **FPS** 007)
(Chapter 6 of National Code of Guidelines of Forensic Pathologists in South Africa)

(a) The completed form or report must be handed to the **SAPS Investigating Officer** investigating the circumstances of death.

(b) Reports must be as detailed as possible in legible handwriting, but preferably typewritten on a word processor using the form **FPS** 007 as a template.

(c) It is desirable that photographs of the body are taken of all the injuries present at the time of the **post mortem examination**.

(d) The appointed state **FPS** pathologist/forensic practitioner should complete form GW7/15 in all cases, regardless of whether the death was due to natural or unnatural causes, and hand the reports to the **SAPS Investigating Officers**.

(e) No copies of form GW7/15 or any information concerning the **post mortem examination** may be divulged to any person except to Government Officials which may require this for the purposes of:

i. The Inquest Act, 1959 (Act No 58 of 1959)

ii. The Mine Health and Safety Act, 1996 (Act no 29 of 1996)

iii. The Occupational Health and Safety Act of 1993 (Act 85 of 1993)

iv. Occupational Disease in Mines and Works Act of 1973 (Act No 78 of 1973)

v. The Compulsory Motor Vehicle Insurance Act of 1972 (Act No 56 of 1973)

vi. The Prisons Act, 1959 (Act No 8 of 1959)

vii. The Aviation Act, 1962 (Act No 74 of 1962)

viii. The Criminal Procedure Act, 1977 (Act no 51 of 1977)

ix. The Surgeon-general Act of South Africa Defence Force

(a) In all other cases, persons requiring information must be referred to the **SAPS Investigating Officer** or magistrate who may issue a copy of the report. **Note that attorneys** are not Government Officials and must obtain a copy via the magistrate.

NOTE:
More details on the confidentiality of medico-legal reports are in Annexure 3.

10.5 Occupational Diseases in Mines and Works Act requirements

(a) The removal of the cardio-respiratory organs of persons who fall under the Occupational Diseases in Mines and Works (ODMWA) Act No. 78 of 1973, is not a medico-legal function, and where the removal of these organs is required in terms of the Act, such removal must not interfere with the post-mortem investigations (if required).

(b) The cardio-respiratory organs must be removed, with the consent of the family, and forwarded to the **NIOH**. The results of the **NIOH autopsy** examination must be sent to the Medical Bureau of Occupational Diseases (MBOD) for certification and possible compensation in the event that occupational disease is diagnosed. This applies to all mineworkers including contractor employees.

11. CAUSES OF DEATHS

11.1 Primary cause of deaths

The primary medical cause of death is described as the disease or injury, which initiated the train of morbid events leading directly or indirectly to death.

11.2 Contributing cause or condition

The contributing cause or condition is not the primary cause of death but contributes to the death being earlier than otherwise expected. Here, causation is relevant e.g. diabetes mellitus, coronary arteriosclerosis.

11.3 Predisposing causes or conditions

Predisposing or underlying conditions or causes may lead to a particular event. They may be closely related to the contributing cause or condition and often cannot be distinguished from it. Alcohol and barbiturate (sleep inducing drugs) ingestion, epileptic fits and psychological conditions are examples of predisposing or underlying conditions which may cause an accident in which the subject is injured. Even if these conditions cannot be determined at a **post mortem examination** they must be borne in mind.

11.4 Precipitating causes or conditions

These are conditions which causes something to happen immediately or cause the immediate development of a particular illness.

11.5 Terminal cause of death

The terminal cause of death is usually the result of a complication which occurs. A person with a head injury (the primary medical cause) often develops bronchopneumonia (the terminal cause).

11.6 Exclusive (sole) cause of death

The exclusive or sole cause of death is a cause where no contributing or other factors play a role. This cause is the primary medical cause of death where, for instance, a person receives a stab wound into the aorta and dies. In this case there can be no doubt as to the cause of death.

NOTE:
The investigation of death as a result of environmental conditions (such as heat illnesses) may be difficult to evaluate from a technical and/or medico-legal perspective.
It is advisable therefore that the **post mortem examination** be conducted as a matter of urgency after death and that emphasis be given to all available medical information and circumstantial history.

12. HUMAN IMMUNODEFICIENCY VIRUS AND ACQUIRED IMMUNODEFICIENCY SYNDROME

Note should be taken that the presence of **HIV** and **AIDS** is not to be regarded as an automatic cause of death. All deaths following a mine injury should be investigated irrespective of the **HIV** status of the deceased.

13. ALLEGED SUICIDE CASES

Every year the South African mining industry experiences a number of suicides. The following will provide some guidance regarding evidence that must be gathered to enable the **CIoM** to make a ruling in respect of whether the particular incident is a mine accident or not.

One must not lose sight of the fact that a suicidal person usually sends out signals of distress and whenever possible these need to be followed up to obtain a better picture of the situation.

13.1 Main reasons for committing suicide. These include but are not limited to the following:

- Major Depression
- Alcohol abuse
- Drug abuse
- Debts (financial problems)
- Marital problems
- Job loss
- Health problems including mental problems (medical records)
- Perceived rejection

13.2 Some main methods adopted to commit suicide: These include but are not limited to the following:

- Hanging (most common)
- Jumping from heights, into excavations
- Drowning

13.3 Some evidence which can be followed up:

- Suicide notes or personal letters (may not always be present).
- Statements from colleagues, friends or relatives regarding the personal problems faced by the person or admissions made.
- Evidence of financial difficulties and a plea for urgent assistance to colleagues, friends, relatives or employer.
- Clothing neatly stacked with cap lamp and hard-hat removed.
- A number of reported deaths have occurred shortly before the termination of work contracts or before onset of leave.

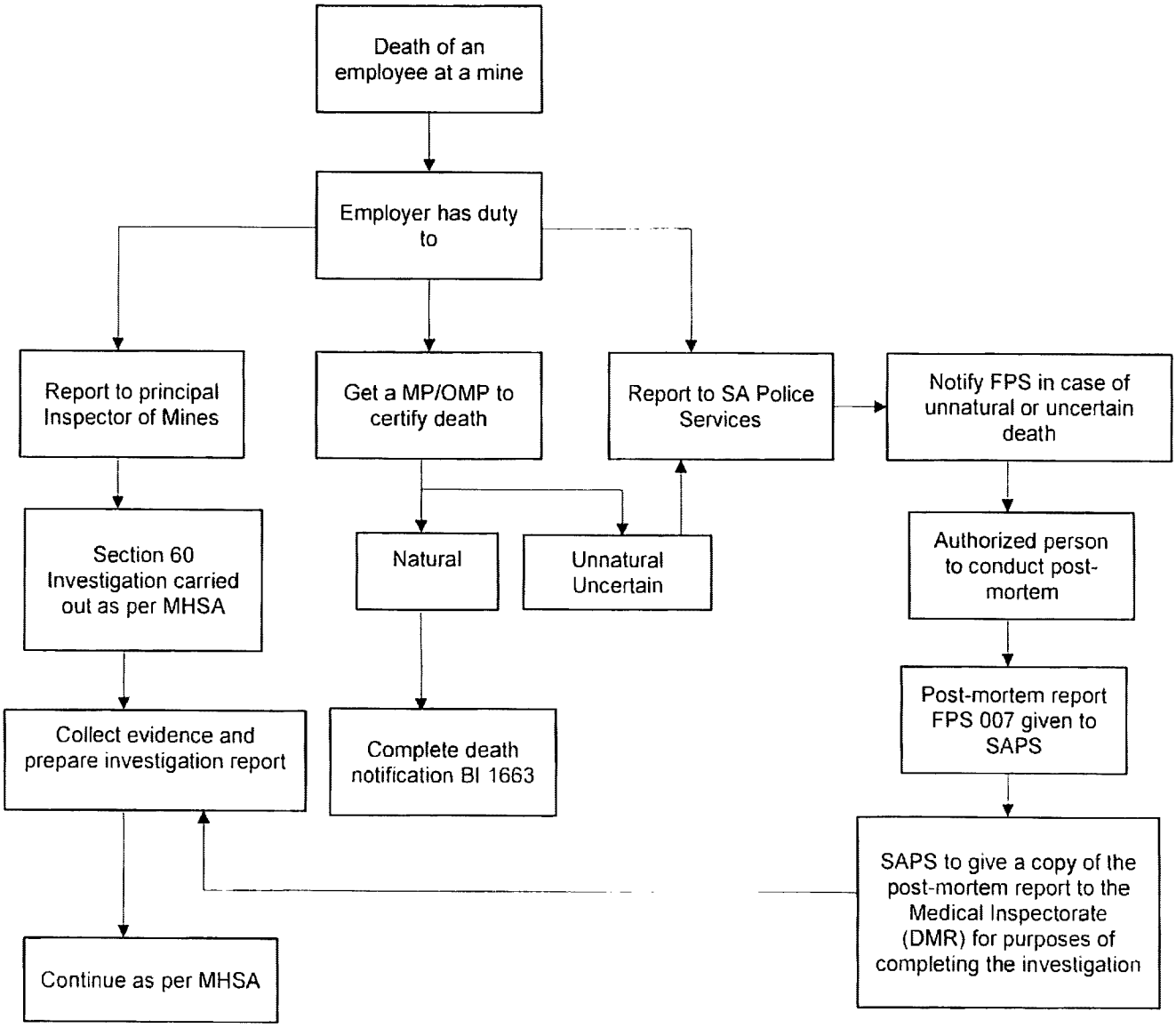
When recommending that a death be classified as a suicide, the **Investigating Officer** must bear in mind that an error in classification can have severe social, legal and financial ramifications. With that in mind, the **Investigating Officer** must endeavour to completely understand the suicide by familiarising him/herself with the risk factors, the methods and the entire scenario, as well as the presence of myths and falsehoods.

13.4 Suspected substance abuse (alcohol and drugs)

As a matter of cause, blood samples should be taken for alcohol and substance tests.

NOTE:
In all cases the completed inquiry, together with the recommendations of the **IoM**, must be forwarded to the **CIoM** to make the final ruling.

ANNEXURE 1: Guidance note for **medico-legal investigation of deaths** in the mining industry
Roles and responsibilities of stakeholder



ANNEXURE 2: Certificate by **medical practitioner**

1. In terms of the Births and Deaths Registration Act, a certificate (Notification / Register of Death / Stillbirth - BI 1663) stating the cause of death, must be issued promptly where appropriate.

2. The Births and Deaths Registration Act states that:

   (a) Section 15(1) Where a **medical practitioner** is satisfied that the death of any person who was attended before his death by the **medical practitioner** was due to natural causes, he shall issue a prescribed certificate stating the cause of death.

   (b) Section 15 (2) A **medical practitioner** who did not attend any person before his death but after the death of the person examined the corpse and is satisfied that the death was due to natural causes, may issue a prescribed certificate to that effect.

   (c) Section 15 (3) If a **medical practitioner** is of the opinion that the death was due to other than natural causes, he shall not issue a certificate mentioned in subsection (1) or (2) and shall inform a police officer as to his opinion in that regard.

   (d) Section 17 (1) After an investigation as to the circumstances of a death due to other than natural causes in terms of section 3 of the Inquests Act, 1959... the **medical practitioner** concerned shall, as soon as he is satisfied that the corpse concerned is no longer required for the purposes of an examination mentioned in the said section 3, issue a prescribed certificate to that effect and deliver it to the police officer concerned.

   (e) Section 17 (2) After the certificate referred to in subsection (1) has been issued, the police officer concerned, or any person contemplated in section 4, as the case may be, may, on the basis of the said certificate, complete the prescribed death register, without stating a cause of death, and the police officer concerned or the person contemplated in section 4, as the case may be, may issue the prescribed burial order authorising burial.

3. The Inquests Act, 58 of 1959, provides for the holding of inquests in cases of deaths due to other than natural (unnatural) causes. Sections 2 and 3 deals with the duty to report deaths and the investigation of the circumstances of certain deaths. The Inquests Act states:

   (a) Section 2 (1) Any person who has reason to believe that any other person has died and that the death was due to other than natural causes, shall as soon as possible report accordingly to a policeman, unless he has reason to believe that a report has been or will be made by any other person.

   (b) Section 3(1) Subject to the provisions of any other law providing for an investigation of the circumstances of any death, any policeman who has reason to believe that any person has died and that such a person has died from other than natural causes, shall:

i. Section 3 (1) (a) investigate or cause to be investigated the circumstances of the death or alleged death.

ii. Section 3 (1) (b) report or cause to be reported the death or alleged death to the magistrate of the district concerned, or to a person designated by the magistrate.

iii. Section 3 (2) If the body of the person who has allegedly died from other than natural causes is available, it shall be examined by the district surgeon or any other **medical practitioner**, who may, if he deems it necessary for the purpose of ascertaining with greater certainty the cause of death, make or cause to make an examination of any internal organ or any part or any of the contents of the body, or any other substance or thing.

iv. Section 3 (3) For the purposes of any examination mentioned in subsection (2):

- Section 3 (3) (a) any part or internal organ or any of the contents of a body may be removed there from.

- Section 3 (3) (b) a body or any part, internal organ, or any part of the contents of a body so removed there from may be removed to any place.

v. Section 4 A body which has already been interred may, with the permission of a magistrate or attorney-general within whose area of jurisdiction it has been interred, be disinterred for the purpose of any examination mentioned in subsection (2).

ANNEXURE 3: Confidentiality of medico-legal post mortem findings and reports

1. Section 212 of the Criminal Procedures Act, 1977, provides for the handing in of reports on **post mortem examinations** in affidavit form in court. It is advisable that all such reports be in affidavit form since, especially in preparatory examination, these reports may be handed in without the authorised person having to appear in court.

2. If requested to do so by an officer of the State officially concerned in the investigation of the case or in presenting evidence of the case before a court, the authorised person may furnish him/her with a written statement which incorporates relevant medical opinions or comments upon the post mortem findings or the clinical or other evidence in the case. Preferably the case should be referred to a regional **FPS** consultant.

3. No copies of Form **FPS** 007 (the post mortem report) may therefore be divulged to any other person except to the **SAPS** and the Courts, after which official bodies, who may require this in terms of a stipulation of any Act, may obtain copies of the **post mortem examination** reports through the **SAPS** investigation officers or regional magistrates.

4. In all cases, persons may be referred to the relevant **SAPS Investigating Officer**, magistrate or Director of Public Prosecutions, who may issue a copy of the report. It is important to note that private attorneys, family members and insurance companies do not represent official bodies and must obtain a copy of the report via the **SAPS Investigating Officer** or the magistrate, even in cases of motor vehicle accidents. authorised person is requested to fill out forms for insurance purposes, cremation, etc. it is advisable to only certify on the forms supplied that a medico-legal **post mortem examination** has been performed, stating the reference number of the report and date of the examination, and that a copy of the report may be obtained from the relevant magistrate or to issue the relevant **FPS** Form. This information is always regarded to be confidential and such forms should be sealed appropriately.

5. In cases of notifiable conditions under the National Health Act of 2003 (Act No 61 of 2003), the relevant notification must be done.

6. No information (verbal or otherwise) regarding the investigation and outcomes of a case should be divulged by any person other than the authorised person, at his/her discretion, as per section 20(4) of the Inquests Act 58, 1959.

7. Any requests by the media for any information relating to cases, must be referred to the facility manager or authorised person, who must refer it to the Provincial Department of Health.

ANNEXURE 4: Referral letter - Mine related deaths

REFERRAL LETTER - MINE RELATED DEATHS

SECTION A: Details of investigator

Name of the investigator: _____

Contact details: _____
TELEPHONE NUMBER

_____
E-MAIL ADDRESS

Name of mine: _____

Physical address: _____

Date of incident: _____ / _____ / _____
YEAR MONTH DAY

Estimated time/date of death: _____ : _____ _____ / _____ / _____
HOUR MINUTES YEAR MONTH DAY

Date and time of collection of body by: _____ / _____ / _____ _____ : _____
YEAR MONTH DAY HOUR MINUTES

SECTION B: Deceased particulars

Sex: Male ☐ Female ☐

Age: _____ ID/Passport no: _____

Rigor Mortis: ☐ Hypostasis/Lividity: ☐ Body Temperature: _____ °C

Type of work employed in: _____

SECTION C: Conditions at site of incident

Underground: ☐ Surface: ☐

Suspected cause of injury/death:

1. **Electrical discharge / Electrocution**

Circumstances: _____

2. **Entrapment**

Circumstances: _____

3. **Explosions**

Circumstances: _____

4. Fall

Circumstances: _____

Height: ☐ Moving vehicle: ☐ Other: ☐

5. Burns

Circumstances: _____

Flame: ☐ Liquid: ☐ Chemical: ☐ Gas: ☐ Other: ☐

6. Thermal Stress

Ambient temperature: _____ °C

Circumstances: _____

7. Transport: Tram / Lifts / Vehicle / Other

Single accident: ☐ Frontal impact: ☐ Operator: ☐

Multiple accidents: ☐ Side impact: ☐ Passenger: ☐

Roll over: ☐ Rear impact: ☐ Pedestrian: ☐

Circumstances: _____

8. Gassing / poisoning

Suspected gas/es: _____

Circumstances: _____

9. Sudden Death / Suicide / Unknown

Circumstances: _____

SECTION D: Signatures

Rank of the investigating officer: _____

Signature of investigator: _____

Date: _____ / _____ / _____
YEAR MONTH DAY

Time: _____ : _____
HOUR MINUTES

DEPARTMENT OF RURAL DEVELOPMENT AND LAND REFORM

NO. 652 **10 MAY 2019**

GENERAL NOTICE IN TERMS OF THE RESTITUTION OF LAND RIGHTS ACT, 1994 (ACT NO.22 OF 1994)

Notice is hereby given in terms of section 11 (1) of the Restitution of Land Rights Act, 1994 (Act No.22 of 1994 as amended) that a claim for restitution of land rights on:

REFERENCE : 6/2/2/D/49/0/0/21

CLAIMANT : Nicolas Johannes Bosman (Family Claim)

PROPERTY DESCRIPTION : Farm Eersterevier 621, Kareedouw, Koukama Local Municipality, Sarah Baartman District Municipality in the Eastern Cape Province

EXTENT OF LAND : 13.9757 Hectares

TITLE DEED : T 6673/1979

CURRENT OWNER : Naude Stephanus David

DATE SUBMITTED : 29/12/1998

Has been submitted to the Regional Land Claims Commissioner for the Eastern Cape and that the Commission on Restitution of Land Rights will investigate the claim in terms of the provisions of the Act in due course.

Any person who has an interest in the above-mentioned land is hereby invited to submit, within fourteen (14) days from the publication of this notice, any comments/information to:

Office of the Regional Land Claims Commissioner : Eastern Cape
Department of Rural Development and Land Reform
PO Box 1375
East London
5200
Tel : 043 700 6000
Fax : 043 743 3687

Mr. L.H. Maphutha
Regional Land Claims Commissioner

DEPARTMENT OF TRADE AND INDUSTRY

NO. 653 **10 MAY 2019**

I, Dr Rob Davies, Minister of Trade and Industry, by virtue of the powers vested in me in terms of the Special Economic Zones Act No. 16 of 2014 (Gazette No. 39667 of 9 February 2016, Proclamation No. R. 6 of 2016) promulgate the following notice.

1. Intention to designate the Bojanala Special Economic Zone

A total land area of 1175 ha is intended to be designated as the Bojanala Special Economic Zone, located in Mogwase, in the Moses Kotane Local Municipality, Bojanala District, North West province. The SEZ comprises of three (3) land areas which is an industrial park, a fully serviced land with bulk infrastructure and a greenfield site, bordered on the north by the Main road, to the east by the R105, to the south by Remainder of Portion 1 of Klipfontein No. 60-JQ and to the west by the Mogwase township.

Zone A, is bordered to the north by the Main road, to the east by the R105, to the west by zone B and 2 Olivenboom 62 JQ and to the south by zone B.

Zone B, 1 Klipfontein 60 JQ, is bordered to the north by the Mogwase unit 4 and 5 and 2 Olivenboom 62 JQ, to the east by zones A, to the west by Mogwase township and to the south by zone C and D.

Zone C and D, 6 Klipfontein 60 JQ is bordered to the north by zone B, to the east by the R105, to the west by Mogwase township and to the south by Remainder of Portion 1 of Klipfontein No. 60-JQ.

A mixed use land area, 2 Olivenboom 62 JQ, is bordered to the north by the Main road, to the south east by zone A and to the west by Mogwase township unit 5.

A table listing the erf numbers is attached hereto as Annexure A and a map showing the boundaries of the Special Economic Zone is attached hereto as Annexure B.

Members of the public must submit their comments or objections to this notice within 30 days from the date of publication of this notice.

Comments may be sent to:

Mr Thami Klassen
Department of Trade and Industry (**the dti**)
the dti Campus
77 Meintjies Street
Sunnyside, Pretoria, 0002
Tel: (012) 394 1543

Email: TKlassen@thedti.gov.za

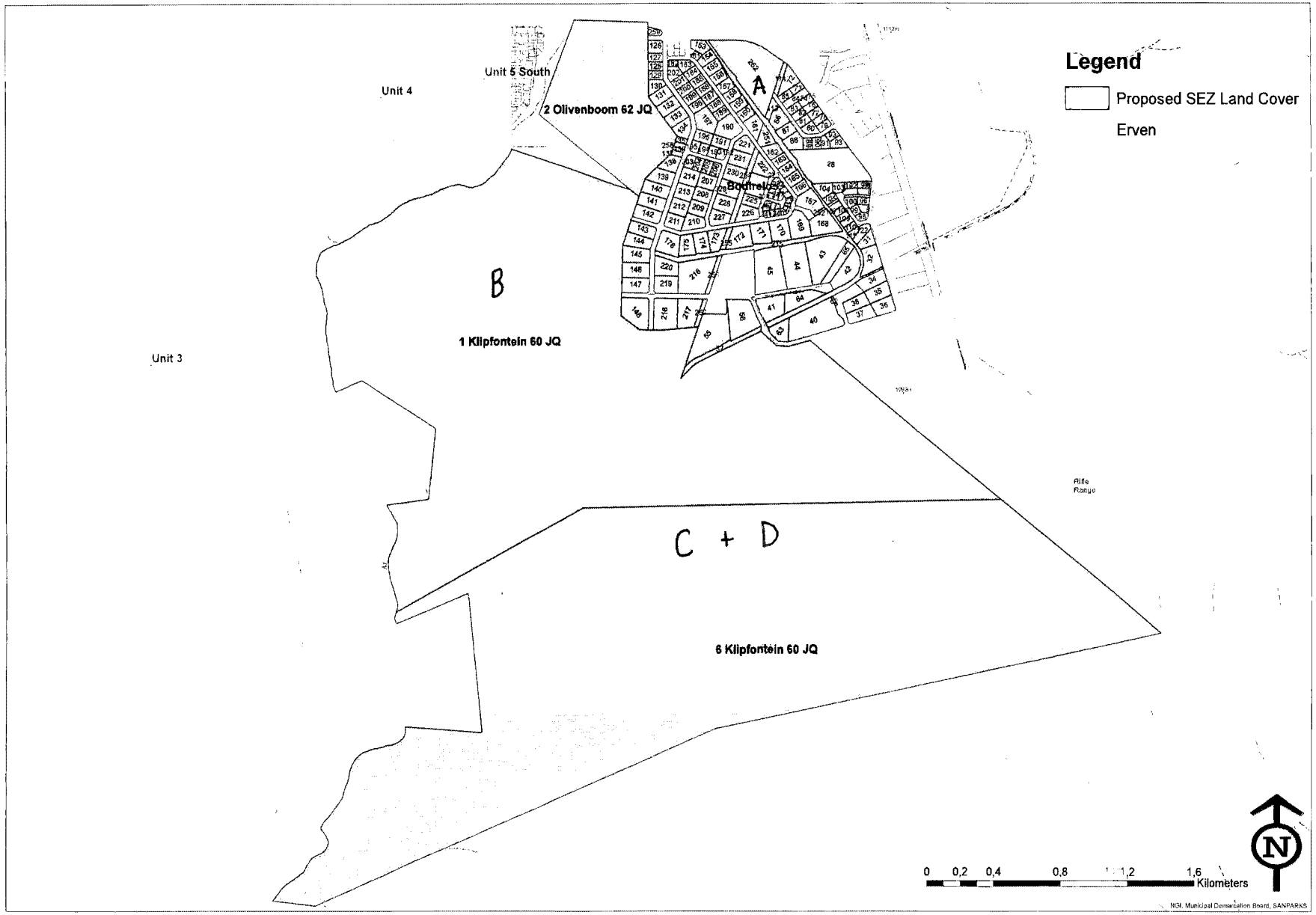
Dr Rob Davies, MP
Minister of Trade and Industry

___ **April 2019**

ANNEXURE A

Zone	Land use	Erf No.	Extent (ha)
A	Mineral beneficiation		96.9
B	Renewable energy	270-302 304-445 472-540 588-593	312
C	Mining equipment and machinery	544-576 618-776 780-805	225
D	Agro-processing	594-598 777-779 806-925	271
Remaining land	Mixed Use	446-471 577-587	
TOTAL			**1175**

PLATINUM VALLEY SEZ



DEPARTMENT OF TRADE AND INDUSTRY

NO. 654 **10 MAY 2019**

1. By virtue of the powers vested me in terms of the Special Economic Zones Act No. 16 of 2014 ("SEZ Act "), I, Dr Rob Davies, Minister of Trade and Industry, hereby give notice that -

(a) the OR Tambo International Airport Industrial Development Zone was declared an industrial Development Zone (IDZ) in Notice No, 152 of 2002 (Government Gazette No. 23084 of 1 February) which was promulgated in terms of Regulation 3 of the Industrial Development Zone Regulations (Government Gazette No. 21803 of 1 December 2000) made in terms of the Manufacturing Development Act No. 187 of 1993;

(b) section 39(2) of the Special Economic Zones Act No. 16 of 2014 ("the SEZ Act"), provides as follows:

"(2) Any designation of an industrial development zone under the IDZ Regulations which is in force immediately before this Act comes into operation, remains in force and must be regarded as a designation of a Special Economic Zone under this Act. "; and

(c) by virtue of the automatic legal effect of section 39(2) of the SEZ Act, the OR Tambo International Airport Industrial Development Zone must, as from the date of commencement of the SEZ Act, be regarded as a Special Economic Zone under the SEZ Act.

2. **Amendments to the OR Tambo International Airport SEZ land areas and Incorporation of the Impala Precinct as part of the SEZ**

Amendments to the OR Tambo International Airport SEZ land areas

A total land area of 50.73 ha is hereby designated as the OR Tambo International Airport Special Economic Zone (which shall continue to be known as the OR Tambo International Airport Industrial Development Zone). The SEZ land area consists of the OR Tambo International Airport Precinct (Zone A, B, C and D) (37.02 ha) and the Impala Precinct (Zone E) (13.71ha).

The OR Tambo International Airport Precinct is situated on the north east boundary of the OR Tambo International Airport, on the east of Kempton Park central business district within the Ekurhuleni Metropolitan Municipality. It is bounded by Great North Road to the east, Atlas Road to the west with Elgin Road bypassing the site. To the north of the site is the R21 Freeway and directly to the west of the properties is the OR Tambo International Airport.

Zone A, comprising of portions 29, 38 and 108 of the Farm Witkoppie No.64 -IR (to be consolidated, subdivided and be given a new portion number), is bounded by the Great North Road to the east, R21 to the north, Atlas Road to the west and Elgin Street to the south.

Zone B, comprising of portions 38 and 108 of the Farm Witkoppie No.64 -IR (to be consolidated, subdivided and be given a new portion number) is bounded by Atar Street to the west, the Great North Road to the east, Elgin Street to the north and Bonero Park Extension 1 to the south.

Zone C, comprising of portion 38 of the Farm Witkoppie No. 64-IR, is bounded by Atar Street to the east, Elgin Street to the north, Atlas Road to the east and Bonero Park Extension 1 to the south.

Zone D, comprising of the remainder of portion 282 of the Farm Witkoppie No. 64-IR, is bounded by Elgin Street to the north, proclaimed road (in terms of Premier's Notice 11 of 2001) to the west, portion 30 of the Farm Witkoppie No. 64-IR to the east and Bonero Park Extension 1 to the south.

The following land areas are hereby undesignated and excluded from the OR Tambo International Airport SEZ

The whole of Precinct A, 333 ha, which is bounded by the R21 Freeway to the west, N12 Freeway to the south, OR Tambo International Airport to the north and Trichards Road to the east. There are eighty two (82) land parcels identified within this precinct.

The whole of Precinct B, 280 ha, which is bounded by Atlas Road to the east, Impala Park to the south, OR Tambo International Airport to the west and Bonero Park to the north. Ten land (10) parcels are identified in this precinct.

The whole of Precinct C, 76.18 ha, which is bounded by Great North Road to the east, Bonero Park to the south, R21 traversing the site to the north and OR Tambo International Airport to the east. Part of this site, of 37.02 ha, is now being proclaimed in this gazette.

Incorporation of the Impala Precinct into the OR Tambo International Airport SEZ

The Impala Precinct is situated north of Springs central business district, south of Geduld railway station and directly east of the Impala Platinum refineries.

Zone E, a portion of portion 133 of the Farm Geduld No. 123-IR, is bounded by East Geduld Road to the East, Cowles Street to the south, a railway line to the north and portion 254 of the farm Geduld No. 123-IR to the West.

A table listing the erf numbers and a map showing the boundaries of the Special Economic Zones is attached hereto as Annexure A.

Members of the public may submit their comments to this notice within 30 days from the date of its publication. Comments may be sent to:

Mr Thami Klassen
Department of Trade and Industry (**the dti**)
the dti Campus
77 Meintjies Street
Sunnyside, Pretoria, 0002
Tel: (012) 394 1543

Email: SEZenquiries@thedti.gov.za

Dr Rob Davies, MP
Minister of Trade and Industry
____March 2019

ANNEXURE A: TABLE WITH ERF NUMBERS, OR TAMBO INTERNATIONAL AIRPORT SPECIAL ECONOMIC ZONE

OR TAMBO INTERNATIONAL AIRPORT PRECINCT

ZONE A					
ERF NO.	**EXTENT [HA]**	**ZONING**	**TITLE DEED NO.**	**SG NO.**	**LAND OWNER**
Portion 38 of the Farm Witkoppie 64-IR	20.84	Agricultural	T143772/2007	A2340/1998/; A440/1987; 1717/2017; 1718/2017	Gauteng Provincial Government
Portion 29 of the Farm Witkoppie 64-IR	1	Agricultural	T4272/2014	A708/2014; 1713/2017; 1714/2014	Gauteng Provincial Government
Portion 108 of the Farm Witkoppie 64-IR	3.62	Agricultural	T143772/2007	A1737/1954; 1719/2017	Gauteng Provincial Government
EXTENT	**25.46**				

ZONE B					
ERF NO.	**EXTENT [HA]**	**ZONING**	**TITLE DEED NO.**	**SG NO.**	**LAND OWNER**
Portion 38 of the Farm Witkoppie 64-IR	1.43	Agricultural	T143772/2007	A2340/1998/; A440/1987; 1717/2017; 1718/2017	Gauteng Provincial Government
Portion 108 of the Farm Witkoppie 64-IR	0.60	Agricultural	T143772/2007	A1737/2014; 1713/2017; 1714/2017	Gauteng Provincial Government
EXTENT	**2.03**				

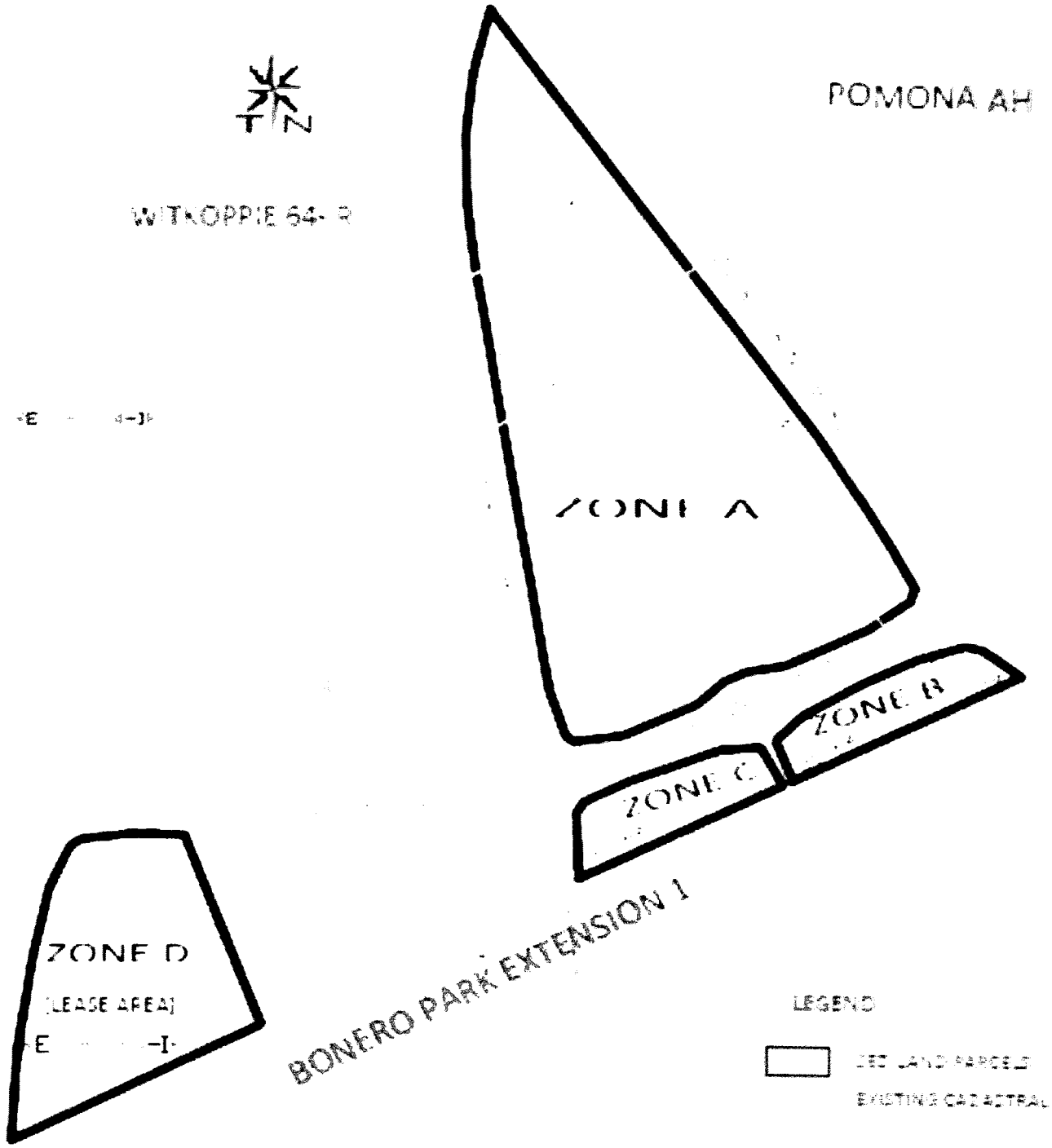
ZONE C					
ERF NO.	**EXTENT [HA]**	**ZONING**	**TITLE DEED NO.**	**SG NO.**	**LAND OWNER**
Portion 38 of the Farm Witkoppie 64-IR	2	Agricultural	T143772/2007	A2340/1998/; A440/1987; 1717/2017; 1718/2017	Gauteng Provincial Government
EXTENT	**2**				

ZONE D					
ERF NO.	**EXTENT [HA]**	**ZONING**	**TITLE DEED NO.**	**SG NO.**	**LAND OWNER**
Portion 282 of the Farm Witkoppie 64-IR	7.53	Transportation	T143772/2007	A2340/1998/; A440/1987; 1717/2017; 1718/2017	Airports Company South Africa
EXTENT	**7.53**				

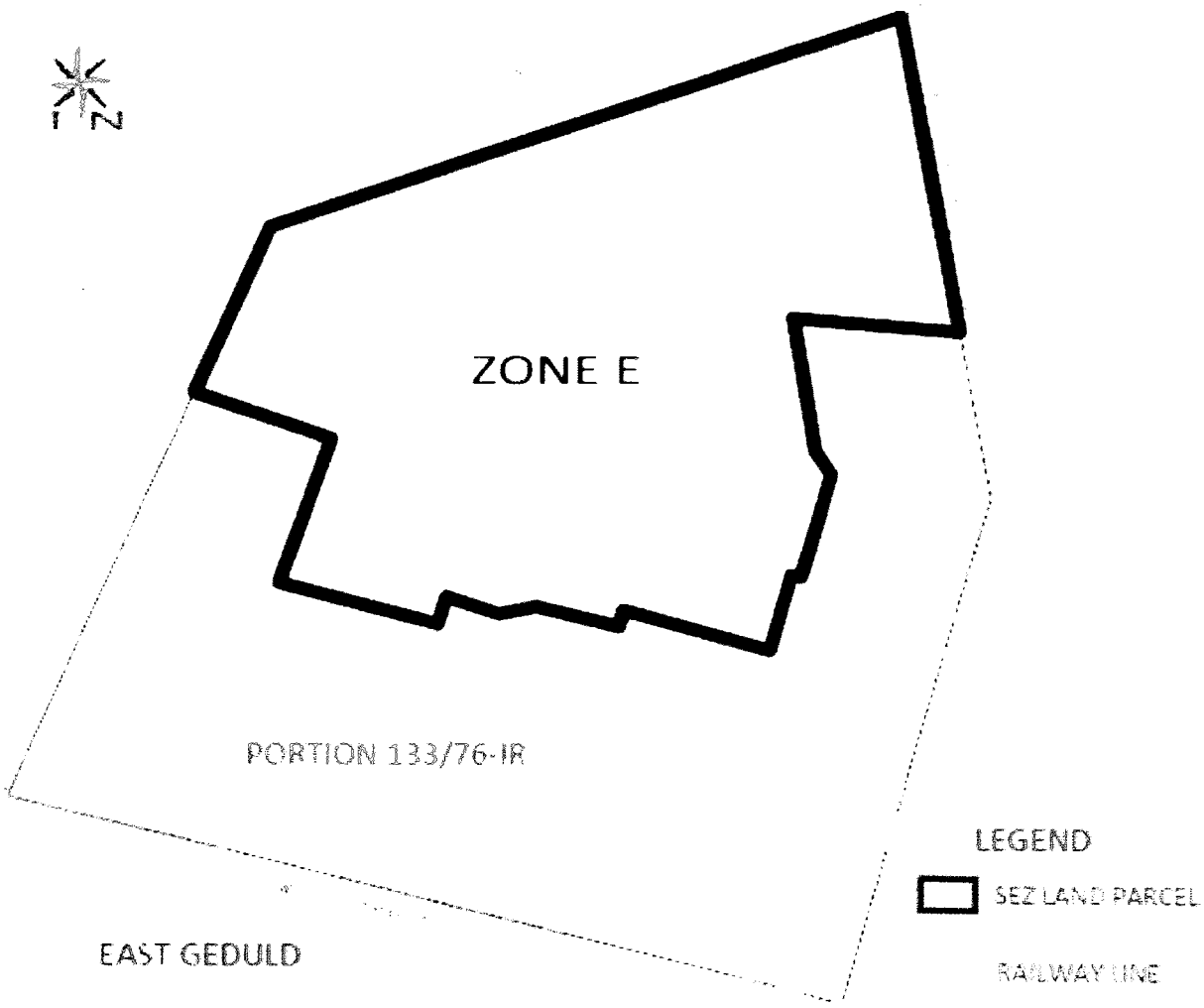
IMPALA PRECINCT [OR TAMBO INTERNATIONAL AIRPORT SEZ]

ZONE E					
ERF NO.	**EXTENT [HA]**	**ZONING**	**TITLE DEED NO.**	**SG NO.**	**LAND OWNER**
Portion 133 of the Farm Geduld 123-IR	13.71	Industrial 1	T67314/1993	LG No. A7248/1992	Impala Platinum Limited
EXTENT	**13.71**				

OR TAMBO INTERNATIONAL AIRPORT PRECINCT [OR TAMBO INTERNATIONAL AIRPORT SEZ]



IMPALA PRECINCT [OR TAMBO INTERNATIONAL AIRPORT SEZ]



DEPARTMENT OF WATER AND SANITATION

NO. 655 10 MAY 2019

NATIONAL WATER ACT, 1998
(ACT NO.36 OF 1998)

PROPOSED CLASSES OF WATER RESOURCE AND RESOURCE QUALITY OBJECTIVES FOR THE BERG CATCHMENT

I, Gugile Nkwinti, in my capacity as Minister of Water and Sanitation and duly authorised in terms of Section 13(4) of the National Water Act, 1998 (Act No. 36 of 1998) hereby publish, the notice for the proposed classes of water resources and the proposed resource quality objectives for the Berg Catchment.

Any person who wishes to submit written comments with regard to the proposed classes of water resources and the proposed resource quality objectives should submit the comments within 60 days from the date of publication of this Notice to:

Director: Water Resource Classification
Attention: Ms Lebogang Matlala
Department of Water and Sanitation
Ndinaye Building 5046
178 Francis Baard Street
Private Bag x 313
Pretoria
0001
Facsimile: 012 336 6712
Email: matlalal@dws.gov.za

MR NKWINTI GE (MP)
MINISTER OF WATER AND SANITATION
DATE: 22/02/2019

SCHEDULE

DESCRIPTION OF THE WATER RESOURCE

The proposed water resource classes and resource quality objectives are determined for all or part of every significant water resource as set out below:

Water Management Area:	Berg-Olifants Water Management Area
Drainage Region:	G1, G2 Secondary Drainage Region and G40A Quaternary Drainage Region
River(s):	The Berg River is the largest river in the study area, which also includes a number of smaller catchments within the City of Cape Town Metropolitan area such as the Diep, Kuils, Eerste, Lourens, Sir Lowry's, Steenbras, as well as various small catchments on the Cape Peninsula and along the West Coast.

A. PROPOSED WATER RESOURCE CLASSES AS REQUIRED IN TERMS OF SECTION 13(4)(a)(i)(aa) OF THE NATIONAL WATER ACT, 1998

i. The proposed water resource classes for the Berg Catchment are listed in Table 1 according to the overall class per integrated unit of analysis (IUA), indicated in Figure 1.

ii. IUAs are classified as either Class I: indicating high environmental protection and minimal utilisation; Class II indicating moderate protection and moderate utilisation; and Class III indicating sustainable minimal protection and high utilisation.

iii. Table 1 provides the IUA, the recommended water resource class and its respective catchment configuration. The catchment configuration consists of a number of biophysical nodes representing river reaches or river resource units (RUs). The target ecological category (TEC) to be achieved or maintained for each RU in the IUA is provided.

iv. It is important to note that additional existing geographically defined areas of specific ecological importance for water resources such as protected areas (e.g. Table Mountain National Park), critical biodiversity areas (CBAs), national freshwater environmental protection areas (NFEPAs) and the strategic water source areas (SWSA) should also be considered in terms of the recommended resource classes as these would indicate areas of specific importance that should be managed in a higher resource class (e.g. Class I) than would be the case for the average of all resource units across the IUA (e.g. in a Class II).

B. RESOURCE QUALITY OBJECTIVES OF WATER RESOURCES AS REQUIRED IN TERMS OF SECTION 13(4)(a)(i)(bb) OF THE NATIONAL WATER ACT, 1998

i. Resource Quality Objectives (RQOs) are defined for prioritised RUs for each IUA in terms of water quantity, habitat and biota, and water quality. Prioritised RUs are indicated in Figure 1.

ii. Table 2 to Table 10 provide the RQOs for RIVERS in priority RUs.

iii. Table 11 to Table 17 provide the RQOs for ESTUARIES in priority RUs.

iv. Table 18 provides the RQOs for DAMS in priority RUs

v. Table 19 provides the RQOs for GROUNDWATER in priority RUs.

vi. RQOs will apply from the date signed off as determined in terms of Section 13(1) of the National Water Act, 1998, unless otherwise specified by the Minister.

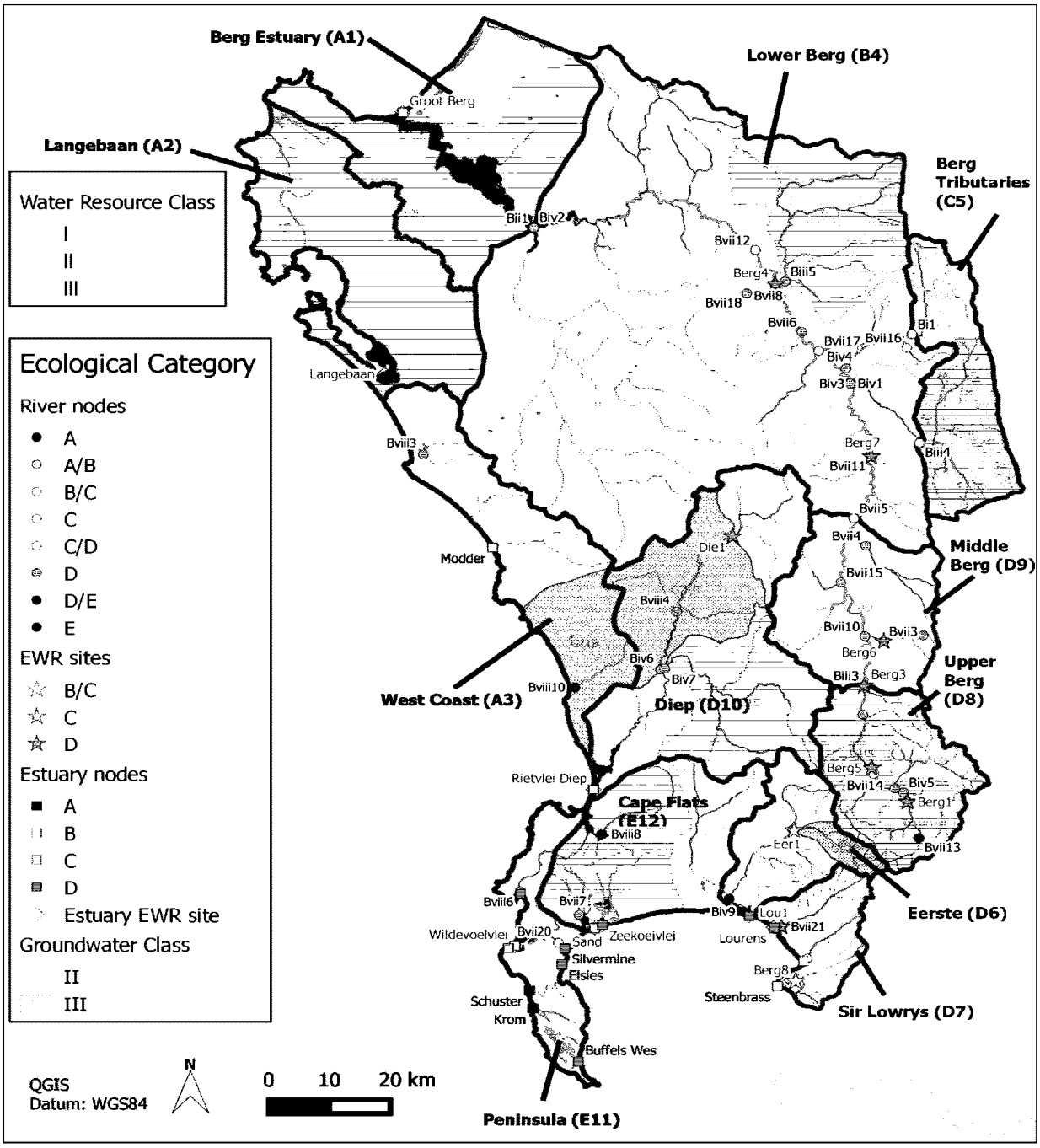


Figure 1: Proposed Water Resource Classes for the Berg Catchment

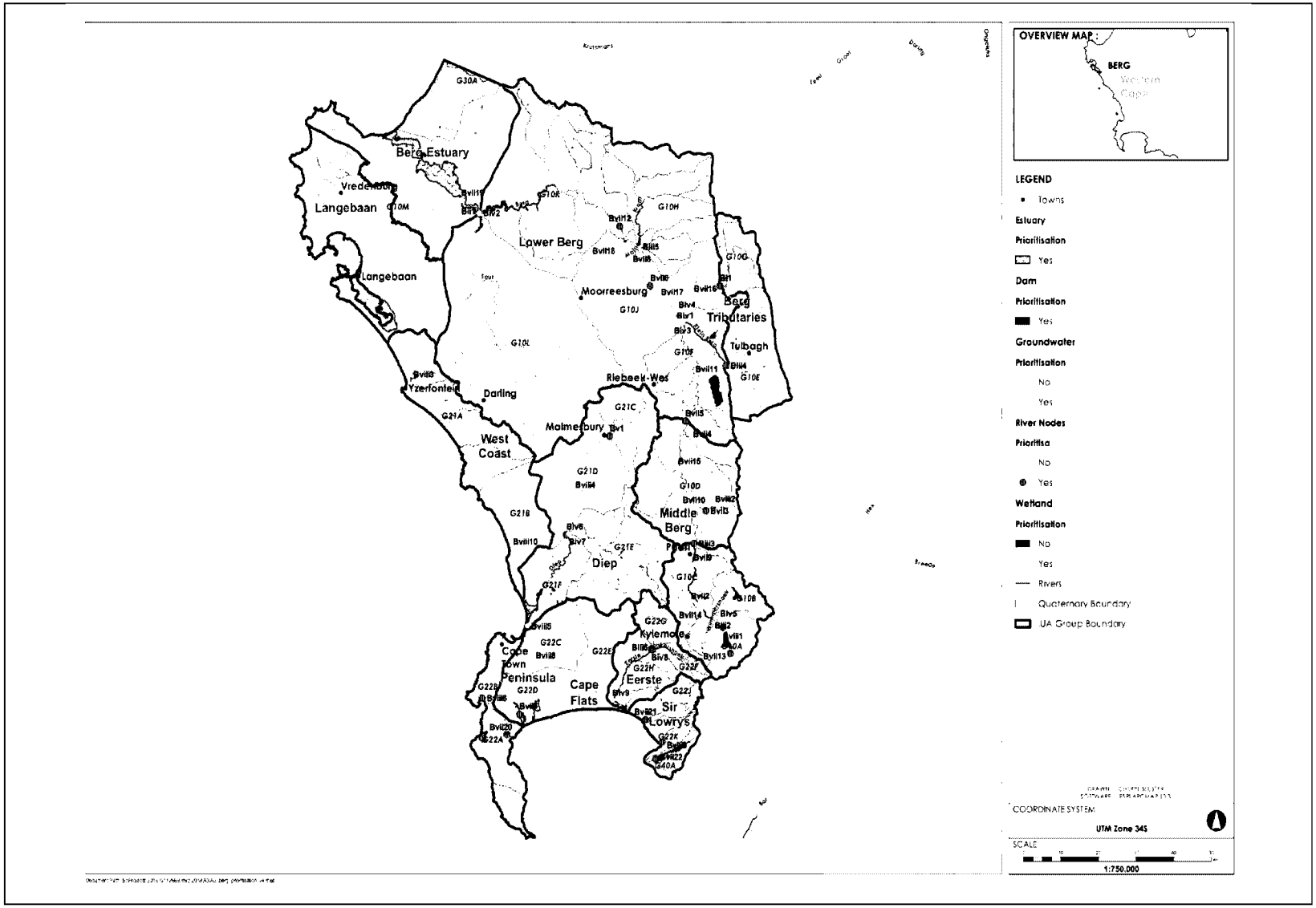


Figure 2: Proposed Priority Resource Units for the Berg Catchment

Table 1: Summary of recommended Water Resource Classes for each IUA and the Target Ecological Category (TEC) for priority biophysical river and estuary nodes

Integrated Unit of Analysis (IUA)	Water Resource Class for IUA	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	% nMAR*
A1 Berg Estuary	II	**G10M**	**A1-E01**	**Berg (Groot)**	**Bxi1**	**C**	**52**
A2 Langebaan	II	**G10M**	**A2-E04**	**Langebaan**	**Bxi3**	A	**N/A**
D8 Upper Berg	II	G10A	D8-R01	Berg	Bvii13	A	98
		G10A	D8-R02	Berg	Bviii1	**C**	27
		G10C	D8-R03	Berg	Biii3	**D**	53
D9 Middle Berg	III	G10C	D9-R04	Pombers	Bviii11	**C**	366
		G10D	D9-R05	Kromme	Bvii3	**D**	89
		G10D	D9-R06	Berg	Bvii5	**D**	49
C5 Berg Tributaries	II	G10E	C5-R07	Klein Berg	Biii4	**C**	82
		G10G	C5-R08	Vier-en-Twintig	Bi1	**B/C**	23
B4 Lower Berg	III	G10J	B4-R09	Berg	Bvii6	**D**	52
		G10K	B4-R10	Berg	Bvii12	**D**	51
D10 Diep	III	G21D	D10-R11	Diep	Bv1	**D**	66
		G21D	D10-R12	Diep	Biv6	**D**	68
		G21F	**D10-E03**	**Rietvlei/ Diep**	**Bxi7**	**C**	**78**
E11 Peninsula	II	G22B	E11-R13	Hout Bay	Bviii6	**D**	97
		G22A	E11-R14	Silvermine	Bvii20	**C**	98
		G22A	**E11-E04**	**Wildevöelvlei**	**Bxi14**	**C**	**107**
E12 Cape Flats	III	G22D	E12-R15	Keysers	Bvii7	**D**	93
		G22K	**E12-E05**	**Zandvlei**	**Bxi9**	**C**	93
		G22K	**E12-E05**	**Zeekoevlei**	**Bxi9**	**D**	**N/A**
D6 Eerste	III	G22F	D6-R16	Eerste (Jonkershoek)	Biii6	**C**	**93**
		G22G	D6-R17	Klippies	Biv8	**D**	77
		G22H	**D6-E06**	**Eerste**	**Bxi3**	**D**	90
D7 Sir Lowry's	II	G22J	D7-R18	Lourens	Bvii21	**D**	**114**
		G22K	D7-R19	Sir Lowry's Pass*	Bviii9	**C**	84
		G40A	D7-R20	Steenbras	Bvii22	**B/C**	81
		G22J	**D7-E07**	**Lourens**	**Bxi4**	**D**	**85**

*Note: This is based on the estimated/simulated flow requirement in the system to meet downstream TECs as well as with current demands. Note that this will differ from the minimum flow requirement to meet the EWR at any given node. In some cases, the flow is above 100% of natural due to the impact of releases to meet downstream demands.

Table 2: Resource Quality Objectives for RIVERS in priority Resource Units in the Integrated Unit of Analysis D8 Upper Berg

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D8 Upper Berg	II	G10A	D8-R01	Berg River	Bvii13	A	Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in an A category	Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Maintenance flows (million cubic metres) Low: 3.209 2.041 1.149 0.771 0.640 0.695 1.107 2.328 3.706 4.569 4.707 4.255 Maintenance flows (million cubic metres) High: 0.440 0.073 0.000 0.000 0.000 0.000 0.000 2.022 3.153 4.160 0.664 1.327
							Quality	Nutrients	Phosphate (PO_4-P)	River nutrient levels must be maintained in an oligotrophic condition.	≤ 0.025 milligrams per litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 0.70 milligrams per litre (50th percentile)
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at levels that do not adversely affect aquatic ecosystems	≤ 30 milliSiemens/metre EC (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	5.0 ≤ pH ≤ 7.0 (5th and 95th percentiles)
									Dissolved oxygen		DO ≥ 8 milligrams per litre (5th percentile)
								Toxins	N/A	Unimpacted catchment, no concerns about toxic substances	N/A
								Pathogens	E coli	Concentrations of waterborne pathogens should be maintained in an Ideal category for full contact recreation	95%tile ≤ 130 cfu/100ml E coli / Faecal coliforms
							Habitat	Geomorphology	D50	Sand particle size	0.860 > D50 > 0.275
								Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 62% = C category
									Exotic species	Marginal zone cover abundance	No exotic plant species.
									Terrestrial woody species		No terrestrial woody species.
									Indigenous riparian woody species		Cover 5-25%.
									Non-woody indigenous species		Cover 25-50%.
									Reeds		No reeds
									Exotic species	Lower zone cover abundance	Cover < 5%.
									Terrestrial woody species		Cover < 10%.

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D8 Upper Berg	II	G10A	D8-R02	Berg River	Bviii1	C	Biota	Fish	Indigenous riparian woody species	Indigenous species richness	Cover 25-60%
									Non-woody indigenous species		Cover 25-50%
									Reeds		No reeds
									Exotic species		Cover < 10%.
									Terrestrial woody species		Cover </= 15%.
									Indigenous riparian woody species	Upper zone cover abundance	Cover 25-50%
									Non-woody indigenous species		Cover 40-70%.
									FRAI score	Fish condition	> 80% = B category
									Number of indigenous fish species.		Three species present: *Sandelia capensis, Galaxia zebratus* and *Pseudobarbus burgi*
									Sandelia capensis		FROC = 5
									Galaxias zebratus		FROC = 5
									Pseudobarbus burgi		FROC = 5
									Exotic fish species		No increase in the number of exotic fish present: *Onchorhyncus mykiss* (FROC = 5)
								Invertebrates	MIRAI score	Macroinvertebrate condition	> 78 % = B/C category
									SASS5 and ASPT score	SASS scores	SASS5 score >180, ASPT ≥ 7.2.
									Number of families	Diversity of invertebrate community	>/= 23 families, at an abundance of A to C.
							Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a C category	Maintenance flows (million cubic metres) — Months: Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep Low: 2.143 / 1.293 / 1.071 / 0.803 / 0.726 / 0.803 / 1.296 / 2.679 / 4.147 / 4.285 / 4.285 / 3.888 High: 0.000 / 0.544 / 0.544 / 0.000 / 0.000 / 0.000 / 0.778 / 0.000 / 4.666 / 10.109 / 0.000 / 0.000
								Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at an oligotrophic condition.	≤ 0.025 milligrams per litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 0.70 milligrams per litre (50th percentile)
							Quality	Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at levels that do not adversely affect aquatic ecosystems	≤ 30 milliSiemens/metre (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important	4.5 ≥ pH ≤ 7.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature

CONTINUES ON PAGE 130 - PART 2

Vol. 647 10 May Mei 2019 No. 42451

PART 2 OF 2

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
									Dissolved oxygen	for the maintenance of ecosystem health.	DO ≥ 8 milligrams per litre (5th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Ideal category for full contact recreation.	≤ 130 counts/100ml (95th percentile)
								Geomorphology	D50	Sand particle size	0.521 > D50 > 0.319
									VEGRAI level 3 score.	Vegetation condition	> 62% = C category
									Exotic species		No exotic plant species.
									Terrestrial woody species		No terrestrial woody species.
									Indigenous riparian woody species	Marginal zone cover abundance	Cover < 10%.
									Non-woody indigenous species		Cover 50-75%.
							Habitat	Riparian vegetation	Reeds		No reeds
									Exotic species		Cover < 5%.
									Terrestrial woody species		Cover < 10%.
									Indigenous riparian woody species	Lower zone cover abundance	Cover 50-75%.
									Non-woody indigenous species		Cover 25-50%.
									Reeds		No reeds
									FRAI score	Fish condition	> 62% = C category
								Fish	Number of indigenous fish species.		One species present: *Sandelia capensis*
									Sandelia capensis	Indigenous species richness	FROC = 5
							Biota		Exotic fish species		No increase in the number of exotic fish present: *Micropterus dolomieu* (FROC = 5)
									MIRAI score	Macroinvertebrate condition	> 62%= C category
								Invertebrates	SASS5 and ASPT score	SASS scores	SASS5 score >134, ASPT ≥ 6.1.
									Number of families	Diversity of invertebrate community	>/= 21 families, at an abundance of A to C.

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D8 Upper Berg	II	G10C	D8-R03	Berg River	Biii3	D	Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a D category	Months: Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep Maintenance flows (million cubic metres) Low: 5.803 / 2.080 / 1.612 / 1.612 / 1.456 / 1.612 / 4.368 / 8.382 / 9.776 / 10.102 / 10.102 / 8.112 High: 0.000 / 0.000 / 0.000 / 1.721 / 0.000 / 0.000 / 4.454 / 0.000 / 10.525 / 10.525 / 0.000 / 0.000
							Quality	Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at a mesotrophic or better condition.	≤ 0.075 milligrams/litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 1.75 milligrams/litre (50th percentile)
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at levels that do not adversely affect aquatic ecosystems	≤ 55 milliSiemens/metre (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≤ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		DO ≥ 6 milligrams per litre (5th percentile)
								Toxins	Ammonia	Toxicity levels must not pose a threat to aquatic ecosystems.	≤ 0.073 milligrams per litre (95th percentile)
									Atrazine		≤ 0.079 milligrams per litre (95th percentile)
									Endusulfan		≤ 0.0013 milligrams per litre (95th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation.	≤ 4000 counts/100ml (95th percentile)
								Geomorphology	D16, D50, D84	Sediment particle size	
							Habitat	Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 38% = D/E category
							Biota	Fish	FRAI score	Fish condition	> 58% C/D category

Table 3: Resource Quality Objectives for RIVERS in priority Resource Units in the Integrated Unit of Analysis D9 Middle Berg

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D9 Middle Berg	III	G10C	D9-R04	Pombers River	Bviii11	C	Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a C category	Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Maintenance flows (million cubic metres) Low: 8.464 4.928 3.100 2.589 2.677 2.572 3.544 4.752 7.862 10.082 12.024 11.405 Maintenance flows (million cubic metres) High: 1.615 0.000 0.000 0.000 0.000 0.000 1.615 4.153 4.153 21.48 8.076 0.000
							Quality	Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at an oligotrophic condition.	≤ 0.025 milligrams/litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 0.70 milligrams/litre (50th percentile)
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at levels that do not adversely affect aquatic ecosystems	≤ 30 milliSiemens/metre (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≤ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		DO ≥ 8 milligrams litre (5th percentile)
								Toxins	Ammonia	Toxicity levels must not pose a threat to aquatic ecosystems.	≤ 0.073 milligrams per litre (95th percentile)
									Atrazine		≤ 0.079 milligrams per litre (95th percentile)
									Endusulfan		≤ 0.0013 milligrams per litre (95th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Acceptable category for full contact recreation.	≤ 600 counts/100ml (95th percentile)
								Geomorphology	GAI score -	Geomorphological condition	> 38% D/E category
							Habitat	Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 22% = E category
							Biota	Invertebrates	MIRAI score	Macroinvertebrate condition	> 80% = B category
D9 Middle Berg	III	G10D	D9-R05	Kromme River	Bvii3	D	Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a D category.	Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Maintenance flows (million cubic metres) Low: 0.141 0.110 0.061 0.031 0.022 0.023 0.034 0.068 0.110 0.155 0.187 0.163 Maintenance flows (million cubic metres) High: 0.086 0.016 0.000 0.000 0.000 0.000 0.000 0.189 0.319 0.156 0.556 0.156
							Quality	Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river in an mesotrophic condition.	≤ 0.075 milligrams per litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 1.75 milligrams per litre (50th percentile)

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D9 Middle Berg	III	G10D	D9-R06	Berg River	Bvii5	D	Quality	Salts	Electrical conductivity (EC)	Salt concentrations must be maintained in an Ideal category.	≤ 30 milliSiemens/metre (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≤ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		DO ≥ 8 milligrams per litre (5th percentile)
								Toxins	Ammonia	Toxicity levels must not pose a threat to aquatic ecosystems.	≤ 0.073 milligrams per litre (95th percentile)
									Atrazine		≤ 0.079 milligrams per litre (95th percentile)
									Endusulfan		≤ 0.0013 milligrams per litre (95th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation.	≤ 2500 counts/100ml (95th percentile)
							Habitat	Geomorphology	GAI score -	Geomorphological condition	> 38% = D/E category
								Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 18% = F category
							Biota	Fish	FRAI score	Fish condition	> 22% = E category
								Invertebrates	MIRAI score	Macroinvertebrate condition	> 78% = B/C category
							Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a D category	Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Maintenance flows (million cubic metres) Low: 14.246 5.200 2.648 2.621 2.342 2.585 10.152 20.701 24.388 25.280 25.299 20.262 Maintenance flows (million cubic metres) High: 0.000 0.000 0.000 2.199 0.000 0.000 5.692 0.000 13.45 37.63 0.000 0.000
								Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at a eutrophic or better condition.	≤ 0.125 milligrams/litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 3.00 milligrams/litre (50th percentile)
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at present state levels.	95%tile ≤ 55 milliSiemens/metre EC
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≤ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		≥ 6 milligrams litre (5th percentile)
								Toxins	Ammonia	Toxicity levels must not pose a threat to aquatic ecosystems.	≤ 0.073 milligrams per litre (95th percentile)
									Atrazine		≤ 0.079 milligrams per litre (95th percentile)

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
									Endosulfan		≤ 0.0013 milligrams per litre (95th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation.	95%tile ≤ 2500 cfu/100ml Escherichia coli
								Geomorphology	D50	Sand particle size	0.714 > D50 > 0.251
									VEGRAI level 3 score.	Vegetation condition	> 52% = D category
									Exotic species		No exotic plant species.
									Terrestrial woody species		No terrestrial woody species.
									Indigenous riparian woody species	Marginal zone cover abundance	Cover 50-75%.
									Non-woody indigenous species		Cover 15-25%.
									Reeds		No reeds
									Exotic species		Cover < 5%.
							Habitat	Riparian vegetation	Terrestrial woody species		Cover < 10%.
									Indigenous riparian woody species	Lower zone cover abundance	Cover 50-75%.
									Non-woody indigenous species		Cover 15-25%.
									Reeds		No reeds
									Exotic species		Cover < 10%.
									Terrestrial woody species		Cover </= 15%.
									Indigenous riparian woody species	Upper zone cover abundance	Cover 50-75%.
									Non-woody indigenous species		Cover 10-20%
								Fish	FRAI score	Fish condition	> 52% = D category
							Biota		Exotic fish species	Indigenous species richness	No increase in the number of exotic fish present: *Cyprinus carpio* (FROC = 5), *Tilapia sparrmanii, Clarias gariepinus, Gambusia affinis*
								Invertebrates	MIRAI score	Macroinvertebrate condition	> 62% = C category
									SASS5 and ASPT score	SASS scores	SASS5 score >90, ASPT ≥ 4.6.
									Number of families	Diversity of invertebrate community	>/= 18 families, at an abundance of A to C.

Table 4: Resource Quality Objectives for RIVERS in priority Resource Units in the Integrated Unit of Analysis C5 Berg Tributaries

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
C5 Berg Tributaries	II	G10E	C5-R07	Klein Berg River	Biii4	C	Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a C category	Months: Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep Maintenance flows (million cubic metres) Low: 1.422 / 1.110 / 0.754 / 0.398 / 0.305 / 0.291 / 0.338 / 0.618 / 1.002 / 1.391 / 1.744 / 1.619 Maintenance flows (million cubic metres) High: 0.638 / 0.141 / 0.000 / 0.000 / 0.000 / 0.000 / 0.000 / 0.802 / 1.516 / 0.831 / 2.913 / 0.831
								Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at a mesotrophic or better condition.	≤ 0.075 milligrams/litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 1.75 milligrams/litre (50th percentile)
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at levels that do not adversely affect aquatic ecosystems	≤ 55 milliSiemens/metre (95th percentile)
							Quality	System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≤ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		≥ 6 milligrams litre (5th percentile)
								Toxins	Ammonia	Toxicity levels must not pose a threat to aquatic ecosystems.	≤ 0.073 milligrams per litre (95th percentile)
									Atrazine		≤ 0.079 milligrams per litre (95th percentile)
									Endusulfan		≤ 0.0013 milligrams per litre (95th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation.	≤ 2500 counts/100ml (95th percentile)
							Habitat	Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 62% = C category
							Biota	Fish	FRAI score	Fish condition	> 58% = C/D category
C5 Berg Tributaries	II	G10G	C5-R08	Vier-en-Twintig	Bi1	B/C	Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a B/C category	Months: Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep Maintenance flows (million cubic metres) Low: 2.050 / 1.631 / 1.115 / 0.731 / 0.563 / 0.573 / 0.674 / 1.128 / 1.811 / 2.358 / 2.620 / 2.470 Maintenance flows (million cubic metres) High: 0.646 / 0.217 / 0.000 / 0.000 / 0.000 / 0.000 / 0.000 / 1.298 / 2.510 / 3.886 / 0.748 / 1.497

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
								Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at an oligotrophic condition.	≤ 0.025 milligrams per litre PO4-P
									Total inorganic nitrogen (TIN)		≤ 0.70 milligrams per litre TIN
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained in an Ideal category for aquatic ecosystems	≤ 30 milliSiemens/metre (95th percentile)
							Quality	System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	4.5 ≤ pH ≤ 7.0 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		≥ 8 milligrams per litre (5th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Ideal category for full contact recreation.	≤ 130 counts/100ml (95th percentile)
							Habitat	Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 88% = A/B category
							Biota	Fish	FRAI score	Fish condition	> 88% = A/B category
								Invertebrates	MIRAI score	Macroinvertebrate condition	> 82% = B category

Table 5: Resource Quality Objectives for RIVERS in priority Resource Units in the Integrated Unit of Analysis B4 Lower Berg

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric												
											Months	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
B4 Lower Berg	III	G10J	B4-R09	Berg River	Bvii6	D	Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a D category	Maintenance flows (million cubic metres)	Low	26.184	15.280	9.579	8.000	8.272	7.947	10.951	14.684	24.346	31.158	37.184	1.619
												High	2.496	0.000	0.000	0.000	0.000	0.000	2.496	6.418	6.418	33.196	12.479	0.831
							Quality	Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at a mesotrophic or better condition.	≤ 0.075 milligrams/litre (50th percentile)												
									Total inorganic nitrogen (TIN)		≤ 1.75 milligrams/litre (50th percentile)												

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at levels that do not adversely affect aquatic ecosystems	≤ 55 milliSiemens/metre (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≤ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		≥ 6 milligrams litre (5th percentile)
								Toxins	Atrazine	Toxicity levels must not pose a threat to aquatic ecosystems.	≤ 0.079 milligrams per litre (95th percentile)
									Endusulfan		≤ 0.0013 milligrams per litre (95th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Acceptable category for full contact recreation.	≤ 1000 counts/100ml (95th percentile)
								Geomorphology	GAI score -	Geomorphological condition	> 68% = B/C category
									D50	Sand particle size	0.576 > D50 > 0.349
									VEGRAI level 3 score.	Vegetation condition	> 42% = D category
								Riparian vegetation	Exotic species	Marginal zone cover abundance	No exotic plant species.
									Terrestrial woody species		No terrestrial woody species.
									Indigenous riparian woody species		Cover 30-50%.
									Non-woody indigenous species		Cover 30-50%.
									Reeds		Cover 30-50%.
									Exotic species	Lower zone cover abundance	Cover < 5%.
									Terrestrial woody species		Cover < 10%.
									Indigenous riparian woody species		Cover 50-75%.
									Non-woody indigenous species		Cover 5-10%.
									Reeds		No reeds
									Exotic species	Upper zone cover abundance	Cover < 10%.
									Terrestrial woody species		Cover </= 15%.
									Indigenous riparian woody species		Cover 30-50%.
									Non-woody indigenous species		Cover 30-50%.

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
B4 Lower Berg	III	G10K	B4-R10	Berg River	Bvii12	D	Biota	Fish	FRAI score	Fish condition	> 18% = F category
									Exotic fish species	Indigenous species richness	No increase in the number of exotic fish present: *Cyprinus carpio, Oreochromis mossambicus, Tilapia sparrmanii, Micropterus punctulatus, Clarias gariepinus* and *Gambusia affinis.*
								Invertebrates	MIRAI score	Macroinvertebrate condition	> 42% = D category
									SASS5 and ASPT score	SASS scores	SASS5 score >80, ASPT ≥ 5.0
									Number of families	Diversity of invertebrate community	>/= 15 families, at an abundance of A to C.
							Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a D category	Months: Oct, Nov, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep Maintenance flows (million cubic metres) Low: 17.1, 10.1, 6.56, 5.58, 5.73, 5.55, 7.43, 9.88, 15.9, 20.4, 24.4, 23.0 Maintenance flows (million cubic metres) High: 2.760, 0.000, 0.000, 0.000, 0.000, 0.000, 2.760, 0.000, 16.380, 6.480, 37.175, 0.000
							Quality	Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at an mesotrophic condition.	≤ 0.075 milligrams/litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 1.75 milligrams/litre (50th percentile)
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at levels that do not adversely affect aquatic ecosystems	≤ 55 milliSiemens/metre (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≤ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient
									Dissolved oxygen		≥ 6 milligrams litre (5th percentile)
								Toxins	Atrazine	Toxicity levels must not pose a threat to aquatic ecosystems.	≤ 0.079 milligrams per litre (95th percentile)
									Endusulfan		≤ 0.0013 milligrams per litre (95th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation.	≤ 2500 counts/100ml (95th percentile)
							Habitat	Geomorphology	GAI score -	Geomorphological condition	> 68% = B/C category
							Habitat		D50	Sand particle size	0.860 > D50 > 0.275
								Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 42% = D category
									Exotic species	Marginal zone cover	No exotic plant species.

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
								Geomorphology	Terrestrial woody species	abundance	No terrestrial woody species.
								Riparian vegetation	Indigenous riparian woody species		Cover 30-50%
									Non-woody indigenous species		Cover 50-75%.
									Reeds		Cover 15-25%.
								Fish	FRAI score	Fish condition	85% (B category)
									Exotic fish species	Indigenous species richness	No increase in the number of exotic fish present: *Cyprinus carpio, Oreochromis mossambicus, Tilapia sparrmanii, Micropterus punctulatus, Clarias gariepinus* and *Gambusia affinis.*
								Invertebrates Fish	MIRAI score	Macroinvertebrate condition	81.4% (B/C category)
									SASS5 and ASPT score	SASS scores	SASS5 score >85, ASPT ≥ 4.2.
									Number of families	Diversity of invertebrate community	>/= 19 families, at an abundance of A to C.

Table 6: Resource Quality Objectives for RIVERS in priority Resource Units in the Integrated Unit of Analysis D10 Diep

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
											Months: Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep
							Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a D category	Maintenance flows (million cubic metres) Low: 0.079 / 0.053 / 0.029 / 0.020 / 0.017 / 0.015 / 0.021 / 0.043 / 0.090 / 0.130 / 0.157 / 0.106
											Maintenance flows (million cubic metres) High: 0.026 / 0.003 / 0.000 / 0.000 / 0.000 / 0.000 / 0.000 / 0.116 / 0.294 / 0.120 / 0.473 / 0.120
D10 Diep	III	G21D	D10-R11	Diep River	Bv1	D		Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at a mesotrophic or better condition.	≤ 0.075 milligrams/litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 1.75 milligrams/litre (50th percentile)
							Quality	Salts	Electrical conductivity (EC)	Diep River is naturally saline and should be maintained in its current status.	≤ 450 milliSiemens/metre (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≥ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		≥ 6 milligrams litre (5th percentile)

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D10 Diep	III	G21D	D10-R12	Diep River	Biv6	D	Quality	Toxins	Atrazine	Toxicity levels must not pose a threat to aquatic ecosystems.	≤ 0.079 milligrams per litre (95th percentile)
									Endusulfan		≤ 0.0013 milligrams per litre (95th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation.	≤ 2500 counts/100ml (95th percentile)
							Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a D category	Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Maintenance flows (million cubic metres) Low: 0.176 0.118 0.062 0.043 0.037 0.033 0.043 0.083 0.171 0.237 0.280 0.226 Maintenance flows (million cubic metres) High: 0.077 0.006 0.000 0.000 0.000 0.000 0.000 0.207 0.535 0.809 0.146 0.293
								Nutrients	Phosphate (PO_4-P)	River nutrient levels must be improved to eutrophic conditions.	≤ 0.125 milligrams/litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 2.5 milligrams/litre (50th percentile)
								Salts	Electrical conductivity (EC)	Diep River is naturally saline and should be maintained in its current status.	≤ 350 milliSiemens/metre (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≤ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		≥ 6 milligrams litre (5th percentile)
								Toxins	Atrazine	Toxicity levels must not pose a threat to aquatic ecosystems.	≤ 0.079 milligrams per litre (95th percentile)
									Endusulfan		≤ 0.0013 milligrams per litre (95th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation.	≤ 2500 counts/100ml (95th percentile)
							Habitat	Geomorphology	GAI score	Geomorphological condition	> 22% = E category
								Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 18% = F category
							Biota	Fish	FRAI score	Fish condition	> 22% = E category
								Invertebrates	MIRAI score	Macroinvertebrate condition	> 22% = E category

Table 7: Resource Quality Objectives for RIVERS in priority Resource Units in the Integrated Unit of Analysis E11 Peninsula

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
E11 Peninsula	II	G22B	E11-R13	Hout Bay	Bviii6	D	Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a D category	Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Maintenance flows (million cubic metres) Low: 0.132 0.071 0.038 0.029 0.026 0.025 0.037 0.070 0.142 0.221 0.252 0.204 Maintenance flows (million cubic metres) High: 0.037 0.003 0.000 0.000 0.000 0.000 0.000 0.121 0.302 0.543 0.094 0.188
							Quality	Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river in a eutrophic or better condition.	≤ 0.125 milligrams per litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 2.50 milligrams per litre (50th percentile)
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at levels that do not adversely affect aquatic ecosystems	≤ 55 milliSiemens/metre (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≥ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		≥ 6 milligrams per litre (5th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Acceptable category for full contact recreation.	≤ 4000 counts/100ml (95th percentile)
							Habitat	Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 22% = E category
							Biota	Fish	FRAI score	Fish condition	> 18% = E/F category
								Invertebrates	MIRAI score	Macroinvertebrate condition	> 42% = D category
E11 Peninsula	II	G22A	E11-R14	Silvermine River	Bvii20	C	Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a C category	Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Maintenance flows (million cubic metres) Low: 0.167 0.105 0.053 0.035 0.029 0.027 0.037 0.069 0.138 0.235 0.287 0.233 Maintenance flows (million cubic metres) High: 0.017 0.002 0.000 0.000 0.000 0.000 0.000 0.036 0.088 0.053 0.191 0.053
							Quality	Nutrients	Phosphate (PO_4-P)	Nutrient levels must be	≤ 0.075 milligrams/litre (50th percentile)

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
									Total inorganic nitrogen (TIN)	maintained in the river at a mesotrophic or better condition.	≤ 1.75 milligrams/litre (50th percentile)
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at levels that do not adversely affect aquatic ecosystems	≤ 350 milliSiemens/metre (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≤ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		≥ 6 milligrams litre (5th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Ideal category for intermediate contact recreation. In the long term the aim should be to improve the river to an Acceptable category for full contact recreation.	≤ 1000 counts/100ml (95th percentile)
							Habitat	Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 62% = C category
							Biota	Fish	FRAI score	Fish condition	> 82% = B category
								Invertebrates	MIRAI score	Macroinvertebrate condition	> 62% = C category

Table 8: Resource Quality Objectives for RIVERS in priority Resource Units in the Integrated Unit of Analysis E12 Cape Flats

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
											Months: Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep
E12 Cape Flats	III	G22D	E12-R15	Keysers River	Bvii7	D	Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a D category	Maintenance flows (million cubic metres) Low: 0.038 / 0.024 / 0.014 / 0.011 / 0.009 / 0.009 / 0.012 / 0.019 / 0.035 / 0.056 / 0.066 / 0.054 High: 0.012 / 0.001 / 0.000 / 0.000 / 0.000 / 0.000 / 0.000 / 0.027 / 0.068 / 0.139 / 0.026 / 0.051
							Quality	Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at a eutrophic or better condition.	≤ 0.125 milligrams/litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 3.0 milligrams/litre (50th percentile)

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at present day levels.	≤ 85 milliSiemens/metre (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≤ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		≥ 6 milligrams litre (5th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in a Tolerable category for intermediate contact recreation. In the long term the aim should be to improve the river to an Acceptable, and then Ideal category for intermediate contact recreation.	≤ 4000 counts/100ml (95th percentile)
							Habitat	Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 38% = D/E category
							Biota	Fish	FRAI score	Fish condition	> 62% = C category

Table 9: Resource Quality Objectives for RIVERS in priority Resource Units in the Integrated Unit of Analysis D6 Eerste

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D6 Eerste	III	G22F	D6-R16	Jonkershoek River	Biii6	C	Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a C category	Maintenance flows (million cubic metres): Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Low: 0.639 0.543 0.349 0.200 0.142 0.126 0.186 0.335 0.522 0.645 0.714 0.693 High: 0.245 0.067 0.000 0.000 0.000 0.000 0.000 0.454 0.747 1.052 0.206 0.412
							Quality	Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at a mesotrophic or better condition.	≤ 0.075 milligrams/litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 1.75 milligrams/litre (50th percentile)
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at present day levels.	≤ 55 milliSiemens/metre (95th percentile)

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D6 Eerste	III	G22G	D6-R17	Klippies River	Biv8	D	Quality	System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≤ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		≥ 6 milligrams litre (5th percentile)
								Toxins	Ammonia	Toxicity levels must not pose a threat to aquatic ecosystems.	≤ 0.073 milligrams per litre (95th percentile)
									Atrazine		≤ 0.079 milligrams per litre (95th percentile)
									Endusulfan		≤ 0.0013 milligrams per litre (95th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation. In the long term the aim should be to improve the river to an Ideal category for intermediate contact recreation.	≤ 2500 counts/100ml (95th percentile)
							Habitat	Geomorphology	GAI score	Geomorphological condition	> 62% = C category
								Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 62% = C category
							Biota	Fish	FRAI score	Fish condition	> 42% = D category
								Invertebrates	MIRAI score	Macroinvertebrate condition	> 62% = C category
							Quantity	Low flows	Maintenance low flows	Flows sufficient to maintain the river in a D category	Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Maintenance flows (million cubic metres) Low: 0.164 0.156 0.135 0.091 0.064 0.054 0.058 0.077 0.111 0.133 0.153 0.163 Maintenance flows (million cubic metres) High: 0.146 0.066 0.000 0.000 0.000 0.000 0.000 0.081 0.182 0.100 0.291 0.100
								High flows	Maintenance high flows		
								Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at a eutrophic or better condition.	≤ 0.125 milligrams/litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 3.0 milligrams/litre (50th percentile)
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at present day levels.	≤ 55 milliSiemens/metre (95th percentile)

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
									Endusulfan		≤ 0.0013 milligrams per litre (95th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in a Tolerable category for intermediate contact recreation. In the long term the aim should be to improve the river to an Acceptable, and then Ideal category for intermediate contact recreation.	≤ 4000 counts/100ml (95th percentile)
							Habitat	Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 22% = E category
							Biota	Fish	FRAI score	Fish condition	> 18% = D/E category
								Invertebrates	MIRAI score	Macroinvertebrate condition	> 62% = C category

Table 10: Resource Quality Objectives for RIVERS in priority Resource Units in the Integrated Unit of Analysis D7 Sir Lowrys

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
											Months: Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep
							Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a D category	Maintenance flows (million cubic metres) Low: 0.523 / 0.448 / 0.277 / 0.151 / 0.108 / 0.100 / 0.141 / 0.254 / 0.410 / 0.520 / 0.592 / 0.568 High: 0.355 / 0.083 / 0.000 / 0.000 / 0.000 / 0.000 / 0.000 / 0.563 / 1.007 / 1.463 / 0.297 / 0.593
D7 Sir Lowry's	II	G22J	D7-R18	Lourens River	Bvii21	D		Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at a mesotrophic or better condition.	≤ 0.075 milligrams/litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 1.75 milligrams/litre (50th percentile)
							Quality	Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at present day levels.	≤ 55 milliSiemens/metre (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≤ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		≥ 6 milligrams litre (5th percentile)
								Toxins	Ammonia	Toxicity levels must not pose a	≤ 0.073 milligrams per litre (95th percentile)

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D7 Sir Lowry's	II	G22J	D7-R19	Sir Lowry's Pass River	Bviii9	C			Atrazine	threat to aquatic ecosystems.	≤ 0.079 milligrams per litre (95th percentile)
									Endosulfan		≤ 0.0013 milligrams per litre (95th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation. In the long term the aim should be to improve the river to an Ideal category for intermediate contact recreation.	≤ 2500 counts/100ml (95th percentile)
							Habitat	Geomorphology	GAI score	Geomorphological condition	> 42% = D category
								Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 42% = D category
							Biota	Fish	FRAI score	Fish condition	> 22 % = E category
								Invertebrates	MIRAI score	Macroinvertebrate condition	> 42% = D category
							Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a C category	Maintenance flows (million cubic metres) Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Low: 1.077 0.959 0.599 0.301 0.204 0.186 0.257 0.459 0.755 0.984 1.141 1.145 High: 0.380 0.086 0.000 0.000 0.000 0.000 0.000 0.420 0.787 1.211 0.263 0.525
							Quality	Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at a mesotrophic or better condition.	≤ 0.075 milligrams/litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 1.75 milligrams/litre (50th percentile)
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at present day levels.	≤ 55 milliSiemens/metre (95th percentile)
								System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	6.5 ≤ pH ≤ 8.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		≥ 6 milligrams litre (5th percentile)
								Toxins	Ammonia	Toxicity levels must not pose a threat to aquatic ecosystems.	≤ 0.073 milligrams per litre (95th percentile)
									Atrazine		≤ 0.079 milligrams per litre (95th percentile)
									Endosulfan		≤ 0.0013 milligrams per litre (95th percentile)

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D7 Sir Lowry's	II	G40A	D7-R20	Steenbras River	Bvii22	B/C		Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation. In the long term the aim should be to improve the river to an Ideal category for intermediate contact recreation.	≤ 2500 counts/100ml (95th percentile)
							Habitat	Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 42% = D category
							Biota	Fish	FRAI score	Fish condition	> 42% = D category
								Invertebrates	MIRAI score	Macroinvertebrate condition	> 62% = C category
							Quantity	Low flows High flows	Maintenance low flows Maintenance high flows	Flows sufficient to maintain the river in a B/C category	Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Maintenance flows (million cubic metres) Low: 0.427 0.323 0.235 0.180 0.149 0.144 0.173 0.247 0.384 0.506 0.582 0.502 Maintenance flows (million cubic metres) High: 0.000 0.000 0.000 0.000 0.000 0.000 0.000 0.077 0.077 0.307 0.307 0.077
								Nutrients	Phosphate (PO_4-P)	Nutrient levels must be maintained in the river at a oligotrophic condition.	≤ 0.025 milligrams/litre (50th percentile)
									Total inorganic nitrogen (TIN)		≤ 0.70 milligrams/litre (50th percentile)
								Salts	Electrical conductivity (EC)	Salt concentrations need to be maintained at present day levels.	≤ 55 milliSiemens/metre (95th percentile)
							Quality	System variables	pH range	pH, temperature, and dissolved oxygen are important for the maintenance of ecosystem health.	5.0 ≤ pH ≤ 7.5 (5th and 95th percentiles)
									Water temperature		2°C difference from ambient water temperature
									Dissolved oxygen		≥ 6 milligrams litre (5th percentile)
								Toxins	Iron	Toxicity levels must not pose a threat to aquatic ecosystems.	≤ 0.1 milligrams per litre (95th percentile)
									Manganese		≤ 0.18 milligrams per litre (95th percentile)
								Pathogens	Escherichia coli	Concentrations of waterborne pathogens should be maintained in an Acceptable category for full contact recreation.	≤ 165 counts/100ml (95th percentile)
							Habitat	Geomorphology	GAI score	Geomorphological condition	> 82% = B category

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
								Riparian vegetation	VEGRAI level 3 score.	Vegetation condition	> 78% = B/C category
							Biota	Fish	FRAI score	Fish condition	> 52% = D category
								Invertebrates	MIRAI score	Macroinvertebrate condition	> 92% = A category

Table 11: Resource Quality Objectives for ESTUARIES in priority Resource Units in the Integrated Unit of Analysis A1 Berg Estuary

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
A1 Berg Estuary	II	G10M	A1-E01	Berg (Groot) Estuary	Bxi1	C	Quantity	Surface flow	Flow	River inflow should never drop below 0.6 $m^3.s^{-1}$ and should not below 1 $m^3.s^{-1}$ for longer than 4 months; Flood frequency Should not increase/decrease by more than 10% from 2004 baseline conditions	Months: Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep / Annual MMR/MAR (% Natural): 31.21 (46%) / 12.55 (36%) / 3.92 (25%) / 1.61 (19%) / 1.50 (23%) / 1.66 (20%) / 9.13 (36%) / 22.18 (26%) / 64.25 (42%) / 123.35 (61%) / 137.15 (68%) / 78.34 (63%) / 486.86 (52%)
								Nutrients	DIN	Inorganic nutrient concentrations not to exceed TPCs for macrophytes and microalgae	Estuary (low flows < 1 $m^3.s^{-1}$, summer): DIN <300 µg/l; DRP <100 µg/l in Zones A and B, DIN <80 µg/l ; DRP <30 µg/l in Zones C and D Estuary (high flows > 5 $m^3.s^{-1}$, winter): DIN <800 µg/l; DRP <60 µg/l in Zones A-D River inflow (< 1 $m^3.s^{-1}$, summer): DIN <80 µg/l; DRP <20 µg/l River inflow (>5 $m^3.s^{-1}$, winter): DIN <800 µg/l; DRP <60 µg/l
									DIP		
							Quality	Salinity	Salinity	Salinity distribution not to exceed TPCs for fish, invertebrates, macrophytes and microalgae	Salinity <20 for longer than 3 months at 20 km upstream from the mouth; Salinity <1 ppt above 40 km upstream of the mouth; Salinity of Salinity everywhere in estuary <35; Groundwater salinity on floodplain <45; TDS of river inflow <3500 mg/l
								System variables	Temperature	System variables not to exceed TPCs for biota	"River inflow: 7 < pH < 8.5 Estuary: 7 < pH < 8.5 " "River inflow: DO >4 mg/l Estuary DO >4 mg/l" Zones A and B <1.0 m during low flow (< $1m^3.s^{-1}$) ≤185 Enterococci/100 ml) (90th percentile, hazen system)
									pH		
									Dissolved oxygen		
									Secchi depth		
								Pathogens	Enterococci	Concentrations of waterborne pathogens should be maintained in an Acceptable category for contact recreation	
									Escherichia coli		
							Habitat	Hydrodynamics	Mouth state	Habitat health adequate for	Permanently open

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
									Tidal variation	microalgae, macrophytes, invertebrates, fish, birds and recreational use	<10% change from present state
								Sediments	Sediment characteristics, Channel shape/size		Bathymetry and sediment MdØ change <10% from baseline
								Microalgae	Biomass and community composition of phytoplankton and benthic microalgae community	Phytoplankton biomass and composition suitable for invertebrates, fish, birds and recreational use	Blue-green algae <10% of phytoplankton cell counts, Benthic microphytobenthic < 40 mg/m^2 chlorophyll a, The frequency of dinoflagellates < 5% of the total phytoplankton counts
							Biota	Macrophytes	Extent, distribution and richness of macrophytes	Macrophyte cover and composition suitable for invertebrates, fish, birds and recreational use	Maintain the present distribution (2003-2005) and abundance of the different plant community types and estuarine habitats (intertidal mudflats with *Zostera capensis* 206 ha, intertidal salt marsh 499 ha, open pan 1159 ha, halophytic floodplain 1521 ha, xeric floodplain 919.1 ha, reeds and sedges 586.6 ha and sedge pan 292.5 ha), Prevent an increase in mats of macroalgae in the lower intertidal reaches, Reduce the area covered by water hyacinth (*Eicchornia crassipes*) in the upper reaches by 50% compared to the present state (2003-2005), Prevent an increase in size of the open pan dry areas (1159 ha in 2003-2005), Prevent a decrease in size of the sedge pan areas (293 ha in 2003-2005). *Juncus maritimus*, and waterblommetjies *Aponogeton distachyos* are present, Prevent the spread of invasive aliens in the riparian zone (e.g. *Acacia mearnsii* and *Eucalyptus camaldulensis*), Maintain intact reed and sedge stands along the banks of the estuary by ensuring that salinity is not greater than 20 ppt for 3 months at 20 km from the month during summer, Prevent an increase in bare ground in the halophytic and xeric floodplain habitats by maintaining the present-day flooding patterns
								Invertebrates	Macrofauna community composition, abundance and richness	Abundance and community composition of Invertebrates suitable for fish, birds	Retain present species richness, distribution of species and mix (low species abundance, high dominance) in Zones A to the middle reaches of Zone C. One or two species will always be present at high densities compared to others (e.g. *Pseudodiaptomus hessei, Grandidierella sp.)* in these Zones (A to C), Indicator species such as *Capitella capitata*, should not dominate benthic species at any site, *Callianassa kraussi* and *Upogebia africana* distribution patterns remain similar to present state.

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
								Fish	Fish community composition, abundance and richness	Abundance and community composition of fish community suitable for birds	Retain the full complement of estuarine resident (7 species) and estuary associated marine (5 species) present in the estuary with population sizes sufficient to ensure their persistence in perpetuity, Ensure that exotic freshwater species do not increase to levels where they can exclude any more indigenous species through predation or competitive interactions, Maintain recruitment of adult and juvenile fish at present levels. This requires maintaining sufficient flow for freshwater plume (temperature, salinity and olfactory gradient) entering the sea. This implies that there should be a significant number of 0 -1-year-old fish and no missing year classes.
								Birds	Avifauna community composition, abundance and richness	Health avifauna community contributing to conservation of avifauna species in SA	Retain at least 90% of the baseline species richness, abundance and diversity of the bird community determined using regression slope based on a 3-year running average

Table 12: Resource Quality Objectives for ESTUARIES in priority Resource Units in the Integrated Unit of Analysis A2 Langebaan

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
A2 Langebaan	II	G10M	A2-E02	Langebaan	Bxi3	A	Quality	Nutrients	NO_3	Inorganic nutrient concentrations not to exceed TPCs for macrophytes and microalgae	NO_3 <1.3 $mg.l^{-1}$
								Salinity	Salinity	Salinity distribution not to exceed TPCs for fish, invertebrates, macrophytes and microalgae	Salinity at the head of the lagoon <40; Rest of the lagoon 34 < Salinity < 36
								System variables	Dissolved oxygen	System variables not to exceed TPCs for biota	>4 $mg.l^{-1}$
									Secchi depth		Sechii depth >1 m
								Pathogens	Enterococci	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation	≤185 Enterococci/100 ml) (90th percentile, hazen system)
									Escherichia coli		≤500 E. coli/100 ml (90th percentile, hazen system)

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
							Habitat	Hydrodynamics	Tidal amplitude	Habitat health adequate for microalgae, macrophytes, invertebrates, fish, birds and recreational use	Tidal amplitude should not change more than 10% from present state (2017)
								Sediments	Sediment characteristics, Channel shape/size		Bathymetry and sediment MdØ change <10% from baseline
							Biota	Microalgae	Biomass and community composition of phytoplankton and benthic microalgae community	Phytoplankton biomass and composition suitable for invertebrates, fish, birds and recreational use	Maintain low phytoplankton biomass (chlorophyll- a < 20 µg/ℓ) and a diversity of phytoplankton groups.
								Macrophytes	Extent, distribution and richness of macrophytes	Macrophyte cover and composition suitable for invertebrates, fish, birds and recreational use	Maintain the distribution and area cover of macrophyte habitats particularly the salt marsh and seagrass. Maintain the large groundwater fed rush habitat.
								Invertebrates	Macrofauna community composition, abundance and richness	Abundance and community composition of Invertebrates suitable for fish, birds	In terms of Invertebrates Langebaan lagoon is currently in an A category. The invertebrate communities are in good health with species richness, abundances and composition scoring highly.
								Fish	Fish community composition, abundance and richness	Abundance and community composition of fish community suitable for birds	The fish community should include healthy populations of exploited fish species, specifically the harders, white stumpnose, blacktail, elf and smooth hound shark juveniles should all be present in beach seine net sampling surveys (at least 10 hauls in 3 different sites) of the nearshore areas. Adults of these species should remain the main components in the catches of line and net fisheries in the lagoon, and catch rates should remain stable or increase.
								Birds	Avifauna community composition, abundance and richness	Health avifauna community contributing to conservation of avifauna species in SA	Retain at least 90% of the baseline species richness, abundance and diversity of the bird community determined using regression slope based on a 3-year running average.

STAATSKOERANT, 10 MEI 2019 No. 42451 151

Table 13: Resource Quality Objectives for ESTUARIES in priority Resource Units in the Integrated Unit of Analysis D10 Diep

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D10 Diep	II	G21F	D10-E03	Rietvlei/Diep	Bviii5	D	Quantity	Surface flow	Flow	Freshwater inflow adequate to maintain water quality and habitat suitable for flora and fauna	Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Annual MMR/MAR (% Nat): 80 % 80 % 80 % 93 % 100 % 100 % 80 % 80 % 80 % 80 % 80 % 80 % 80 %
							Quality	Nutrients	DIN	Inorganic nutrient concentrations not to exceed TPCs for macrophytes and microalgae	River inflow: <800 µg.l^{-1} Lower estuary (Milnerton lagoon): <1000 µg.l^{-1}
									DIP		River inflow: <60 µg.l^{-1} Lower estuary (Milnerton lagoon): <500 µg.l^{-1}
								Salinity	Salinity	Salinity distribution not to exceed TPCs for fish, invertebrates, macrophytes and microalgae	Average salinity in lower estuary (Milnerton lagoon) = 20, maximum = 35
								System variables	Dissolved oxygen	System variables (temperature, pH, dissolved oxygen, suspended solids and turbidity) not to exceed TPCs for biota	>4 mg.l^{-1}
								Pathogens	Enterococci	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation	≤185 Enterococci/100 ml) (90th percentile, hazen system)
									Escherichia coli		≤500 E. coli/100 ml (90th percentile, hazen system)
							Habitat	Hydrodynamics	Mouth state	Habitat health adequate for microalgae, macrophytes, invertebrates, fish, birds and recreational use	Permanently open
									Tidal variation		<10% change from present state
								Sediments	Sediment characteristics, Channel shape/size		Bathymetry and sediment MdØ change <10% from baseline
							Biota	Microalgae	Biomass and community composition of phytoplankton and benthic microalgae community	Phytoplankton biomass and composition suitable for invertebrates, fish, birds and recreational use	Maintain low phytoplankton biomass (chlorophyll- a < 50 µg/ℓ) and a diversity of phytoplankton groups.

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
								Macrophytes	Extent, distribution and richness of macrophytes	Macrophyte cover and composition suitable for invertebrates, fish, birds and recreational use	Maintain the distribution and area cover of macrophyte habitats particularly the salt marsh
								Invertebrates	Macrofauna community composition, abundance and richness	Abundance and community composition of Invertebrates suitable for fish, birds	Restore and maintain species richness, distribution of species and mix (low species abundance, high dominance); Indicator species such as *Capitella capitata*, should not dominate benthic species at any site; *Callianassa kraussi* and *Upogebia africana* distribution patterns similar to reference state.
								Fish	Fish community composition, abundance and richness	Abundance and community composition of fish community suitable for birds	Restore and maintain the full complement of estuarine resident and estuary associated marine present in the estuary with population sizes sufficient to ensure their persistence in perpetuity; Ensure that exotic freshwater species do not increase to levels where they can exclude any more indigenous species through predation or competitive interactions; Maintain recruitment of adult and juvenile fish at present levels.
								Birds	Avifauna community composition, abundance and richness	Health avifauna community contributing to conservation of avifauna species in SA	Retain at least 90% of the baseline species richness, abundance and diversity of the bird community determined using regression slope based on a 3-year running average.

Table 14: Resource Quality Objectives for ESTUARIES in priority Resource Units in the Integrated Unit of Analysis E11 Peninsula

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
E11 Peninsula	II	G22A	E11-E04	Wildevöelvlei	Bxi14	D	Quantity	Surface flow	Flow	Freshwater inflow does not exceed requirements for maintaining water quality and habitat suitable for flora and fauna	Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Annual MMR/MAR (% Nat): 120 % 120 % 120 % 120 % 120 % 120 % 120 % 120 % 120 % 120 % 120 % 120 % 120 %
							Quality	Nutrients	DIN	Inorganic nutrient concentrations not to exceed TPCs for macrophytes and microalgae	River inflow: <1000 µg.l^{-1} Wildevoelvlei: <1000 µg.l^{-1}; Lower Estuary (backshore lagoon): <200 µg.l^{-1} Wastewater inlow: <500 µg.l^{-1}
									DIP		Wildevoelvlei: <500 µg.l^{-1}; Lower estuary (backshore lagoon): <50 µg.l^{-1}

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
								Salinity	Salinity	Salinity distribution not to exceed TPCs for fish, invertebrates, macrophytes and microalgae	Average salinity in lower estuary (backshore lagoon) >10, maximum = 35, average salinity in Wildevoelvlei > 2
								System variables	Dissolved oxygen	System variables not to exceed TPCs for biota	>4 $mg.l^{-1}$
								Pathogens	Enterococci	Concentrations of waterborne pathogens should be maintained in an Acceptable category for full contact recreation	≤185 Enterococci/100 ml) (90th percentile, hazen system)
									Escherichia coli		≤500 E. coli/100 ml (90th percentile, hazen system)
							Habitat	Hydrodynamics	Mouth state Tidal variation	Habitat health adequate for microalgae, macrophytes, invertebrates, fish, birds and recreational use	Mouth should remain open >70% of the time <10% change from present state
								Sediments	Sediment characteristics, Channel shape/size		Bathymetry and sediment MdØ change <10% from baseline
								Microalgae	Biomass and community composition of phytoplankton and benthic microalgae community	Phytoplankton biomass and composition suitable for invertebrates, fish, birds and recreational use	Improvement from current hypereutrophic state where toxic cyanobacteria are common and flow to the sea
							Biota	Macrophytes	Extent, distribution and richness of macrophytes	Macrophyte cover and composition suitable for invertebrates, fish, birds and recreational use	Retain present species richness, distribution of species and mix (low species abundance, high dominance); Maintain the fringing vegetation around the vleis as this is important for bank stabilisation and nutrient uptake; Improve connectivity between the sea, channel and lower vlei; Control the spread of invasive floating aquatic macrophyte species present in the vleis e.g. water fern.
								Invertebrates	Macrofauna community composition, abundance and richness	Abundance and community composition of Invertebrates suitable for fish, birds	Move from a D category to a C category. The estuary should have a viable population of Callichirus kraussi in the backwater lagoon (10/m2). In addition, the invertebrate community should include 2 other estuarine species in the canal. At least three marine invertebrate species present near the mouth.

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
								Fish	Fish community composition, abundance and richness	Abundance and community composition of fish community suitable for birds	Maintain fish assemblage that includes at least two species of mullet, *Liza richardsonii* and either/both *Mugil cephalus* and *Pseudomyxus capensis*. Substantial seasonal fluctuations in abundance of these mullet species are expected to occur, but mullet should remain more abundant than the alien freshwater species currently inhabiting the vleis.
								Birds	Avifauna community composition, abundance and richness	Health avifauna community contributing to conservation of avifauna species in SA	Retain at least 90% of the baseline species richness, abundance and diversity of the bird community determined using regression slope based on a 3-year running average.

Table 15: Resource Quality Objectives for ESTUARIES in priority Resource Units in the Integrated Unit of Analysis E12 Cape Flats

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
											Months: Oct / Nov / Dec / Jan / Feb / Mar / Apr / May / Jun / Jul / Aug / Sep / Annual
							Quantity	Surface flow	Flow	Freshwater inflow adequate to maintain water quality and habitat suitable for flora and fauna.	MMR/MAR (% Nat): 74 % / 64 % / 69 % / 68 % / 61 % / 66 % / 68 % / 76 % / 81 % / 87 % / 88 % / 85 % / 84 %
E12 Cape Flats	III	G22K	E12-E05	Zandvlei	Bxi9	D	Quality	Nutrients	DIN	Inorganic nutrient concentrations not to exceed TPCs for macrophytes and microalgae	River inflow: <1000 µg.l-1 Estuary: <150 µg.l-1
									DIP		River inflow: <300 µg.l-1 Estuary: <100 µg.l-1
								Salinity	Salinity	Salinity distribution not to exceed TPCs for fish, invertebrates, macrophytes and microalgae	15 < Average salinity <35
								System variables	Dissolved oxygen	System variables not to exceed TPCs for biota	>4 mg.l-1
								Pathogens	Enterococci	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation.	≤185 Enterococci/100 ml) (90th percentile, hazen system) ≤500 E. coli/100 ml (90th percentile, hazen system)
									Escherichia coli		
							Habitat	Hydrodynamics	Mouth state	Habitat health adequate for	Mouth should remain open >20% of the time

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
								Sediments	Sediment characteristics, Channel shape/size	microalgae, macrophytes, invertebrates, fish, birds and recreational use	Bathymetry and sediment MdØ change <10% from baseline
								Microalgae	Biomass and community composition of phytoplankton and benthic microalgae community	Phytoplankton biomass and composition suitable for invertebrates, fish, birds and recreational use	Maintain low phytoplankton biomass (chlorophyll- a < 20 µg/ℓ) and a diversity of phytoplankton groups.
								Macrophytes	Extent, distribution and richness of macrophytes	Macrophyte cover and composition suitable for invertebrates, fish, birds and recreational use	Maintain and/or restore distribution and area cover of macrophyte habitats particularly salt marsh
							Biota	Invertebrates	Macrofauna community composition, abundance and richness	Abundance and community composition of Invertebrates suitable for fish, birds	Restore and maintain species richness, distribution of species and mix (low species abundance, high dominance); Indicator species such as *Capitella capitata*, should not dominate benthic species at any site; *Callianassa kraussi* and *Upogebia africana* distribution patterns similar to reference state.
								Fish	Fish community composition, abundance and richness	Abundance and community composition of fish community suitable for birds	Restore and maintain the full complement of estuarine resident and estuary associated marine present in the estuary with population sizes sufficient to ensure their persistence in perpetuity; Ensure that exotic freshwater species do not increase to levels where they can exclude any more indigenous species through predation or competitive interactions; Maintain recruitment of adult and juvenile fish at present levels.
								Birds	Avifauna community composition, abundance and richness	Health avifauna community contributing to conservation of avifauna species in SA	Retain at least 90% of the baseline species richness, abundance and diversity of the bird community determined using regression slope based on a 3-year running average.
E12 Cape Flats	III	G22K	E12-E05	Zeekoevlei	Bxi20	D	Quantity	Surface flow	Flow	Freshwater inflow adequate to maintain water quality and habitat suitable for flora and fauna	Months: Oct, Nov, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Annual MMR/MAR (% Nat): 120 % 120 % 120 % 120 % 120 % 120 % 120 % 120 % 120 % 120 % 120 % 120 % 120 %
							Quality	Nutrients	Escherichia coli DIN	Inorganic nutrient	River inflow: <1000 µg.l-1

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
									DIP	concentrations not to exceed TPCs for macrophytes and microalgae	Lower estuary: <1000 µg.l-1 River inflow: <500 µg.l-1 Lower estuary: <500 µg.l-1
								Salinity	Salinity	Salinity distribution not to exceed TPCs for fish, invertebrates, macrophytes and microalgae	Average salinity in lower >10, maximum = 35
								System variables	Dissolved oxygen	System variables (temperature, pH, turbidity, dissolved oxygen, suspended solids and turbidity) not to exceed TPCs for biota	>4 $mg.l^{-1}$
								Pathogens	Enterococci	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation	≤185 Enterococci/100 ml) (90th percentile, hazen system)
									Escherichia coli		≤500 E. coli/100 ml (90th percentile, hazen system)
							Habitat	Hydrodynamics	Mouth state	Habitat health adequate for microalgae, macrophytes, invertebrates, fish, birds and recreational use	Mouth should remain open >30% of the time
								Microalgae	Biomass and community composition of phytoplankton and benthic microalgae community	Phytoplankton biomass and composition suitable for invertebrates, fish, birds and recreational use	Phytoplankton biomass (measured as chlorophyll-a) <100 µg/ℓ) and a diversity of phytoplankton groups.
							Biota	Macrophytes	Extent, distribution and richness of macrophytes	Macrophyte cover and composition suitable for invertebrates, fish, birds and recreational use	Maintain and/or restore distribution and area cover of macrophyte habitats particularly salt marsh
								Invertebrates	Macrofauna community composition, abundance and richness	Abundance and community composition of Invertebrates suitable for fish, birds	Restore and maintain species richness, distribution of species and mix (low species abundance, high dominance); Indicator species such as *Capitella capitata*, should not dominate benthic species at any site; *Callianassa kraussi* and *Upogebia africana* distribution patterns similar to reference state.

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
								Fish	Fish community composition, abundance and richness	Abundance and community composition of fish community suitable for birds	Restore and maintain the full complement of estuarine resident and estuary associated marine present in the estuary with population sizes sufficient to ensure their persistence in perpetuity; Ensure that exotic freshwater species do not increase to levels where they can exclude any more indigenous species through predation or competitive interactions; Maintain recruitment of adult and juvenile fish at present levels.
								Birds	Avifauna community composition, abundance and richness	Health avifauna community contributing to conservation of avifauna species in SA	Retain at least 90% of the baseline species richness, abundance and diversity of the bird community determined using regression slope based on a 3-year running average.

Table 16: Resource Quality Objectives for ESTUARIES in priority Resource Units in the Integrated Unit of Analysis D6 Eerste

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric												
											Months	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
D6 Eerste	III	G22H	D6-E06	Eerste Estuary	Bxi3	D	Quantity	Surface flow	Flow	Freshwater inflow adequate to maintain water quality and habitat suitable for flora and fauna	MMR/MAR (% Nat)	120 %	120 %	120 %	120 %	120 %	120 %	120 %	120 %	120 %	120 %	120 %	120 %	120 %
							Quality	Nutrients	DIN	Inorganic nutrient concentrations not to exceed TPCs for macrophytes and microalgae	River inflow: <1000 µg.l^{-1} Lower estuary: <1000 µg.l^{-1}													
									DIP		River inflow: <500 µg.l^{-1} Lower estuary: <500 µg.l^{-1}													
								Salinity	Salinity	Salinity distribution not to exceed TPCs for fish, invertebrates, macrophytes and microalgae	Average salinity in lower >10, maximum = 35													
								System variables	Dissolved oxygen	System variables not to exceed TPCs for biota	>4 mg.l-^{1}													
								Pathogens	Enterococci	Concentrations of waterborne pathogens should be maintained in an Acceptable category for full contact recreation	≤185 Enterococci/100 ml) (90th percentile, hazen system)													
									Escherichia coli		≤500 E. coli/100 ml (90th percentile, hazen system)													
							Habitat	Hydrodynamics	Mouth state	Habitat health adequate for	Permanently open													

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
									Tidal variation	microalgae, macrophytes, invertebrates, fish, birds and recreational use	<10% change from present state
								Microalgae	Biomass and community composition of phytoplankton and benthic microalgae community	Phytoplankton biomass and composition suitable for invertebrates, fish, birds and recreational use	Maintain low phytoplankton biomass (chlorophyll- a < 20 µg/ℓ) and a diversity of phytoplankton groups.
								Macrophytes	Extent, distribution and richness of macrophytes	Macrophyte cover and composition suitable for invertebrates, fish, birds and recreational use	Restore and maintain the distribution and area cover of macrophyte habitats particularly salt marsh
							Biota	Invertebrates	Macrofauna community composition, abundance and richness	Abundance and community composition of Invertebrates suitable for fish, birds	Restore and maintain species richness, distribution of species and mix (low species abundance, high dominance); Indicator species such as Capitella capitata, should not dominate benthic species at any site; Callianassa kraussi and Upogebia africana distribution patterns similar to reference state.
								Fish	Fish community composition, abundance and richness	Abundance and community composition of fish community suitable for birds	Restore and maintain the full complement of estuarine resident and estuary associated marine present in the estuary with population sizes sufficient to ensure their persistence in perpetuity; Ensure that exotic freshwater species do not increase to levels where they can exclude any more indigenous species through predation or competitive interactions; Maintain recruitment of adult and juvenile fish at present levels.
								Birds	Avifauna community composition, abundance and richness	Health avifauna community contributing to conservation of avifauna species in SA	Retain at least 90% of the baseline species richness, abundance and diversity of the bird community determined using regression slope based on a 3-year running average.

STAATSKOERANT, 10 MEI 2019 No. 42451 159

Table 17: Resource Quality Objectives for ESTUARIES in priority Resource Units in the Integrated Unit of Analysis D7 Sir Lowry's

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
											Months: Oct, Nov, Dec, Jan, Feb, Mar, Apr, May, Jun, Jul, Aug, Sep, Annual
							Quantity	Surface flow	Flow	Freshwater inflow adequate to maintain water quality and habitat suitable for flora and fauna	MMR/MAR (% Nat): 83 %, 56 %, 27 %, 16 %, 10 %, 18 %, 35 %, 49 %, 78 %, 89 %, 90 %, 88 %, 76 %
D7 Sir Lowry's	II	G22J	D7-E07	Lourens Estuary	Bxi4	D	Quality	Nutrients	DIN	Inorganic nutrient concentrations not to exceed TPCs for macrophytes and microalgae	River inflow: <350 µg.l^{-1}; Lower estuary: <300 µg.l^{-1}
									DIP		River inflow: <80 µg.l^{-1}; Lower estuary: <80 µg.l^{-1}
								Salinity	Salinity	Salinity distribution not to exceed TPCs for fish, invertebrates, macrophytes and microalgae	Average salinity in lower estuary >15, maximum = 35
								System variables	Dissolved oxygen	System variables not to exceed TPCs for biota	>4 mg.l^{-1}
								Pathogens	Enterococci	Concentrations of waterborne pathogens should be maintained in an Acceptable category for intermediate contact recreation	≤185 Enterococci/100 ml) (90th percentile, hazen system)
									Escherichia coli		≤500 E. coli/100 ml (90th percentile, hazen system)
							Habitat	Hydrodynamics	Mouth state	Habitat health adequate for microalgae, macrophytes, invertebrates, fish, birds and recreational use	Permanently open
									Tidal variation		<10% change from present state
								Sediments	Sediment characteristics, Channel shape/size		Bathymetry and sediment MdØ change <10% from baseline
							Biota	Microalgae	Biomass and community composition of phytoplankton and benthic microalgae community	Phytoplankton biomass and composition suitable for invertebrates, fish, birds and recreational use	Maintain low phytoplankton biomass (chlorophyll- a < 20 µg/ℓ) and a diversity of phytoplankton groups.
								Macrophytes	Extent, distribution and richness of macrophytes	Macrophyte cover and composition suitable for invertebrates, fish, birds and recreational use	Restore and maintain the distribution and area cover of macrophyte habitats particularly salt marsh

IUA	Class	Quaternary Catchment	RU	Resource Name	Biophysical Node Name	TEC	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
								Invertebrates	Macrofauna community composition, abundance and richness	Abundance and community composition of Invertebrates suitable for fish, birds	Restore and maintain species richness, distribution of species and mix (low species abundance, high dominance); Indicator species such as Capitella capitata, should not dominate benthic species at any site; Callianassa kraussi and Upogebia africana distribution patterns similar to reference state.
								Fish	Fish community composition, abundance and richness	Abundance and community composition of fish community suitable for birds	Restore and maintain the full complement of estuarine resident and estuary associated marine present in the estuary with population sizes sufficient to ensure their persistence in perpetuity; Ensure that exotic freshwater species do not increase to levels where they can exclude any more indigenous species through predation or competitive interactions; Maintain recruitment of adult and juvenile fish at present levels.
								Birds	Avifauna community composition, abundance and richness	Health avifauna community contributing to conservation of avifauna species in SA	Retain at least 90% of the baseline species richness, abundance and diversity of the bird community determined using regression slope based on a 3-year running average.

Table 18: Resource Quality Objectives for DAMS in priority Resource Units in the Berg Catchment

IUA	Class	Quaternary Catchment	RU	Resource Name	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric												
D8 Upper Berg	II	G10A	D8-D01	Berg Dam	Quantity	Low flows	Dam level Flow releases: Berg EWR1 in G10A nMAR = 141.68 million m3/a pMAR: 126.00 million m3/a REC = C category	During the dry season dam levels must be sufficient for releases for irrigation and human use and protection of ecosystem function downstream. Water intake temperature to be managed.	Months	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Annual
									Maintenance low flows (million cubic metres)	2.143	1.293	1.071	0.803	0.726	0.803	1.296	2.679	4.147	4.285	4.285	3.888	29.177
						High flows		During the wet season high flow ecological releases are made according to the decision-support system.	Maintenance high flows (million cubic metres)	0.000	0.544	0.544	0.000	0.000	0.000	0.778	0.000	4.666	10.109	0.000	0.000	11.839
					Quality	Nutrients	Ortho-phosphate (PO_4-P)	The system must be maintained in a mesotrophic (moderately enriched) state or better to protect against nuisance algal blooms and excessive water treatment costs.	≤ 0.015 milligrams/litre (50th percentile)													
							Total inorganic nitrogen (TIN)1		≤ 0.07 milligrams/litre (50th percentile)													

STAATSKOERANT, 10 MEI 2019 No. 42451 161

IUA Class	Quaternary Catchment	RU	Resource Name	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D8 Upper Berg	II	G10B	D8-D02 Wemmershoek Dam		Salts	Electrical conductivity	Salt levels must be maintained at concentrations where they do not impact negatively on the ecosystem, are maintained in an Ideal category for domestic and irrigation water supply.	≤ 30 milliSiemens/metre (95th percentile)
					System variables	pH	The water in the dam is naturally acidic and it should be maintained within the historical range.	5.5 ≥ pH ≤ 7.5 (5th and 95th percentiles)
					Pathogens	E coli	The dam must be maintained in a state that is in an Ideal category for full contact recreation to protect its domestic water supply purpose.	≤ 130 counts/100ml (95th percentile)
				Quantity	Low flows	Dam levels	Dam levels must be sufficient for urban and industrial use water supply, and to supply some irrigators.	% of dam volume. No EWR site
				Quality	Nutrients	Ortho-phosphate (PO_4-P) Total inorganic nitrogen (TIN)	The reservoir is currently in a Natural state and should be kept in an oligotrophic state. for supply to the City of Cape Town and Paarl. As a key domestic water supply reservoir this status should be maintained and protected.	≤ 0.005 milligrams/litre (50th percentile)
						Ortho-phosphate (PO_4-P) Total inorganic nitrogen (TIN)	The reservoir is currently in a Natural state and should be kept in an oligotrophic state. for supply to the City of Cape Town and Paarl. As a key domestic water supply reservoir this status should be maintained and protected.	≤ 0.50 milligrams/litre (50th percentile)
B4 Lower Berg	II	G10F	B4-D03 Voelvlei Dam	Quantity	Low flows	Dam levels	Dam levels must be sufficient for urban and industrial use water supply via the two WTWs, and releases to Berg River for human and irrigation use.	% of dam volume. No EWR site
				Quality	Nutrients	Ortho-phosphate (PO_4-P)	The reservoir is currently in an Eutrophic state and should be	≤ 0.025 milligrams/litre (50th percentile)

IUA Class	Quaternary Catchment	RU	Resource Name	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
						Total inorganic nitrogen (TIN)	improved to a mesotrophic state or better to protect the water supply to the City of Cape Town and Swartland towns against harmful algal blooms and taste & odour problems in treated domestic water.	≤ 0.70 milligrams/litre (50th percentile)
					Salts	Electrical conductivity	Salt levels must be maintained at concentrations where they do not impact negatively on the ecosystem, and are in an Ideal category for domestic water use and for irrigation water use.	≤ 30 milliSiemens/metre (95th percentile)
					Pathogens	E coli, Faecal coliforms	The system must be maintained in a state that is in an Acceptable category for intermediate contact recreation	≤ 2000 counts/100ml (95th percentile)
				Quantity	Low flows	Dam levels	Water levels in the weir must be sufficient for supply for human use via the Withoogte WTW.	% of dam volume
B4 Lower Berg	II	G10K	B4-D04	Misverstand Weir	Nutrients	Ortho-phosphate (PO_4-P)	The reservoir is currently in a Eutrophic state and should be in the short term be maintained in its current state or better. The long-term objective should be to improve the nutrient status to a mesotrophic state or better to protect the water supply to the West Coast towns.	≤ 0.025 milligrams/litre (50th percentile)
						Total inorganic nitrogen (TIN)		≤ 2.5 milligrams/litre (50th percentile)
				Quality	Salts	Electrical conductivity	Salt levels must be maintained at concentrations where they do not impact negatively on the ecosystem, and are in an Ideal category for domestic and industrial water use, and for irrigation water use.	≤ 70 milliSiemens/metre (95th percentile)
					Pathogens	E. coli	The reservoir must be maintained in a state that is safe for domestic water use (with treatment) and for intermediate contact recreation as the dam is a popular recreation venue.	≤ 1000 counts/100 ml (95th percentile)
						Faecal coliforms		≤ 1000 counts/100 ml (95th percentile)

IUA	Class	Quaternary Catchment	RU	Resource Name	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric
D7 Sir Lowry's	II	G40A	D7-D05	Upper Steenbras Dam	Quantity	Low flows	Dam levels	Dam levels must be sufficient for releases to the Lower Steenbras Dam for urban and industrial use and protection of ecosystem functioning downstream of the Lower Steenbras Dam, hydropower energy generation via the Steenbras Pumped Storage Scheme as well as for water supply to the Western Cape Water Supply System (City of Cape Town) via the Faure WTW.	% of dam volume
						Nutrients	Ortho-phosphate (PO_4-P) Total inorganic nitrogen (TIN)	The system must be maintained in a mesotrophic state or better.	≤ 0.015 milligrams/litre (50th percentile)
							Ortho-phosphate (PO_4-P) Total inorganic nitrogen (TIN)		≤ 0.07 milligrams/litre (50th percentile)
					Quality	Salts	Electrical conductivity	Salt levels must be maintained at concentrations where they do not impact negatively on the ecosystem, and are in an Ideal category for domestic and industrial water use, and for hydropower generation.	≤ 30 milliSiemens/metre (95th percentile)
						Pathogens	E. coli	The system must be maintained in a state that is safe for municipal use (with treatment).	≤ 130 counts/100 ml (95th percentile)
							Faecal coliforms		≤ 130 counts/100 ml (95th percentile)
D7 Sir Lowry's	II	G40A	D7-D06	Lower Steenbras Dam	Quantity	Low flows	Dam level Spills from dam. Flow releases: Berg EWR8 in G40A below Lower Steenbras Dam nMAR = 54.88 million m3/a	Dam levels must remain sufficient to provide for supply to the Western Cape Water Supply System (City of Cape Town) via the Steenbras WTW, and low flows to the lower Steenbras River and estuary for the protection of ecosystem functioning downstream.	Months: Oct Nov Dec Jan Feb Mar Apr May Jun Jul Aug Sep Annual Maintenance low flows (million cubic metres): 0.427 0.323 0.235 0.180 0.149 0.144 0.173 0.247 0.384 0.506 0.582 0.502 3.852

IUA Class	Quaternary Catchment	RU	Resource Name	Component	Sub-component	Indicator	RQO Narrative	RQO Numeric											
					High flows		High flow ecological releases should be made during the wet season to meet flood requirements, but within the constraints of the existing outlet structure, and utilising spills where possible.	Maintenance high flows (million cubic metres)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.077	0.077	0.307	0.307	0.077	0.845
				Quality	Nutrients	Ortho-phosphate (PO_4-P)	The reservoir must be maintained in a mesotrophic state or better.	≤ 0.015 milligrams/litre (50th percentile)												
						Total inorganic nitrogen (TIN)	Salt levels must be maintained at concentrations where they do not impact negatively on the ecosystem, and are in an Ideal category for domestic and industrial water use.	≤ 0.07 milligrams/litre (50th percentile)											
					Salts	Electrical conductivity		≤ 30 milliSiemens/metre (95th percentile)											
					Pathogens	E. coli	The reservoir must be maintained in a state that is safe for contact recreation.	≤ 130 counts/100 ml (95th percentile)											
						Faecal coliforms		≤ 130 counts/100 ml (95th percentile)											

Table 19: Resource Quality Objectives for GROUNDWATER in priority Resource Units in the Berg Catchment

IUA	Class	Quaternary Catchment	RU	Resource Name	Component	Sub Component	Indicator/ Measure	RQO Narrative	RQO Numeric
D8 Upper Berg	II	G10A	4-Paarl-Upper Berg	Groundwater (all)	Quantity	Abstraction	Seasonal abstraction: water level recovers from abstraction impact during wet season, under consideration of climate change and drought cycles. Permanent abstraction: water level decline stabilises under consideration of aquifer response time.	Groundwater use should be sustainable for all users and the environment	n/a
						Low flow in river	Compliance with the low flow requirements in the river (as per riverine RQO)	Maintain (groundwater component of) the low flow requirements in the river	Maintenance low flow requirements: 29.177 Mm3/a (34.39 %MAR) at G1H076 (Bvii13); 27.421 Mm3/a (19.35 %MAR) at G1H077 (Bviii1)
					Quality	Nutrients	NO_3 (as N)	Groundwater should be fit for domestic use after treatment; and groundwater quality shall not show a deteriorating trend from natural background	< 3.3 mg/l
						Salts	EC		< 70 mS/m
						System variable	pH		5.2 – 8.4
						Pathogens	E-coli		0 counts / 100 ml
						Pathogens	Total Coliform		<10 counts / 100ml
					Quantity	Discharge	Relative water levels between groundwater and suface water (in mamsl)	The natural gradient between groundwater and surface water should be maintained	n/a
		G10B	4-Paarl-Upper Berg	Groundwater (all)	Quantity	Discharge	Buffer zones	No groundwater abstraction around wetland and river FEPAs in accordance with the implementation manual for FEPAs.	250m
					Quality	Nutrients	NO_3 (as N)	Groundwater should be fit for domestic use after treatment; and groundwater quality shall not show a deteriorating trend from natural background	< 3.3 mg/l
						Salts	EC		< 70 mS/m
						System variable	pH		5.2 – 8.4
						Pathogens	E-coli		0 counts / 100 ml
						Pathogens	Total Coliform		<10 counts / 100ml
C5 Berg Tributaries	II	G10E	5-Tulbagh Valley	Groundwater (all)	Quantity	Abstraction	Seasonal abstraction: water level recovers from abstraction impact during wet season, under consideration of climate change and drought cycles. Permanent abstraction: water level decline stabilises under consideration of aquifer response time.	Groundwater use should be sustainable for all users and the environment	n/a

IUA	Class	Quaternary Catchment	RU	Resource Name	Component	Sub Component	Indicator/ Measure	RQO Narrative	RQO Numeric
B4 Lower Berg	II	G10J	6-24 Rivers	Groundwater (all)	Quantity	Discharge	Buffer zones	No groundwater abstraction around wetland and river FEPAs in accordance with the implementation manual for FEPAs.	250m
					Quality	Pathogens	E-coli	Groundwater should be fit for domestic use after treatment; and groundwater quality shall not show a deteriorating trend from natural background	0 counts / 100 ml
						Pathogens	Total Coliform		<10 counts / 100ml
						Nutrients	NO3 (as N)		n/a
						System variable	pH		n/a
						Salts	EC		n/a
						Discharge	Relative water levels between groundwater and suface water (in mamsl)	The natural gradient between groundwater and surface water should be maintained	n/a
					Quantity		Buffer zones	No groundwater abstraction around wetland and river FEPAs in accordance with the implementation manual for FEPAs.	250m
						Low flow in river	Compliance with the low flow requirements in the river (as per riverine RQO)	Maintain (groundwater component of) the low flow requirements in the river	Maintenance low flow requirements: 114.338 Mm3/a (13.28 %MAR) at G1H013 (Bvii6)
				Groundwater (Cenozoic coastal sand)	Quality	System variable	pH	Groundwater should be fit for domestic use after treatment; and groundwater quality shall not show a deteriorating trend from natural background	5.2 – 8.1
						Pathogens	E-coli		0 counts / 100 ml
						Pathogens	Total Coliform		<10 counts / 100ml
						Nutrients	NO3 (as N)		< 6.9 mg/l
						Salts	EC		< 942 mS/m
				Groundwater (Basement)	Quality	Nutrients	NO3 (as N)		<11.0 mg/l
						Salts	EC		< 875 mS/m

IUA	Class	Quaternary Catchment	RU	Resource Name	Component	Sub Component	Indicator/ Measure	RQO Narrative	RQO Numeric
A1 Berg Estuary and A2 Langebaan	=	G10M	8-West Coast		Quantity	Abstraction	Seasonal abstraction: water level recovers from abstraction impact during wet season, under consideration of climate change and drought cycles. Permanent abstraction: water level decline stabilises under consideration of aquifer response time.	Groundwater use should be sustainable for all users and the environment	n/a
						Groundwater level	Water level	Minimum water level in abstraction boreholes within 2.5km from the ocean to avoid saline intrusion	>1 mamsl
						Discharge	Relative water levels between groundwater and suface water (in mamsl)	The natural gradient between groundwater and surface water should be maintained	n/a
							Buffer zones	No groundwater abstraction around wetland and river FEPAs in accordance with the implementation manual for FEPAs.	250m
							Compliance with the groundwater flow requirements to the Langebaan Lagoon	Compliance to the groundwater flow requirements to the Langebaan Lagoon, as per estuary RQO requirement	Groundwater inflow not <10% of present day (2017) rate
							Compliance with the groundwater flow requirements to the Langebaan Lagoon	Compliance to the groundwater flow requirements to the Langebaan Lagoon, as per estuary RQO requirement	Ground water level not <10% below present day (2017) level
		G10M	8-West Coast	Groundwater (Cenozoic coastal sand)	Quality	Nutrients	NO3 (as N)	Groundwater should be fit for domestic use after treatment; and groundwater quality shall not show a deteriorating trend from natural background	< 11.0 mg/l
						System variable	pH		7.1 - 8.4
						Salts	EC		< 520 mS/m
				Groundwater	Quality	Nutrients	NO3 (as N)	Groundwater should be fit for	< 11.0 mg/l

IUA	Class	Quaternary Catchment	RU	Resource Name	Component	Sub Component	Indicator/ Measure	RQO Narrative	RQO Numeric
				(Basement)				domestic use after treatment; and groundwater quality shall not show a deteriorating trend from natural background	
						Salts	EC		< 1571 mS/m
				Groundwater (all)	Quality	Salts	PO_4	Groundwater should be fit for domestic use after treatment; and groundwater quality shall not show a deteriorating trend from natural background	< 0.3 mg/l
						Pathogens	E-coli		0 counts / 100 ml
						Pathogens	Total Coliform		<10 counts / 100ml
						Abstraction	Seasonal abstraction: water level recovers from abstraction impact during wet season, under consideration of climate change and drought cycles. Permanent abstraction: water level decline stabilises under consideration of aquifer response time.	Groundwater use should be sustainable for all users and the environment	n/a
				Groundwater (all)	Quantity		Relative water levels between groundwater and suface water (in mamsl)	The natural gradient between groundwater and surface water should be maintained	n/a
						Discharge			
N/A		G10L	8-West Coast				Buffer zones	No groundwater abstraction around wetland and river FEPAs in accordance with the implementation manual for FEPAs.	250m
				Groundwater (Cenozoic coastal sand)		Nutrients	NO3 (as N)	Groundwater should be fit for domestic use after treatment; and groundwater quality shall not show a deteriorating trend from natural background	< 8.2 mg/l
						Salts	EC		< 520 mS/m
				Groundwater (Basement)	Quality	Nutrients	NO3 (as N)	Groundwater should be fit for domestic use after treatment; and groundwater quality shall not show a deteriorating trend from natural background	< 11.0 mg/l
						Salts	EC		< 899 mS/m
				Groundwater (all)		Salts	PO_4		< 0.3 mg/l
						System variable	pH		6.7 - 8.3
						Pathogens	E-coli		0 counts / 100 ml
							Total Coliform		<10 counts / 100ml

IUA	Class	Quaternary Catchment	RU	Resource Name	Component	Sub Component	Indicator/ Measure	RQO Narrative	RQO Numeric
						Abstraction	Seasonal abstraction: water level recovers from abstraction impact during wet season, under consideration of climate change and drought cycles. Permanent abstraction: water level decline stabilises under consideration of aquifer response time.	Groundwater use should be sustainable for all users and the environment	n/a
				Groundwater (all)	Quantity	Groundwater level	Water level	Minimum water level in abstraction boreholes within 2.5km from the ocean to avoid saline intrusion	>1 mamsl
A3 West Coast	III	G21B	9-Atlantis			Discharge	Relative water levels between groundwater and suface water (in mamsl)	The natural gradient between groundwater and surface water should be maintained	n/a
							Buffer zones	No groundwater abstraction around wetland and river FEPAs in accordance with the implementation manual for FEPAs.	250m
				Groundwater (Cenozoic coastal sand)		Nutrients	NO3 (as N)	Groundwater should be fit for domestic use after treatment; and groundwater quality shall not show a deteriorating trend from natural background	< 2.3 mg/l
						Salts	EC		< 287 mS/m
				Groundwater (Basement)	Quality	Nutrients	NO3 (as N)		< 10.4 mg/l
						Salts	EC	Groundwater should be fit for domestic use after treatment; and groundwater quality shall not show a deteriorating trend from natural background	< 1052 mS/m
				Groundwater (all)		System variable	pH		6.7 – 8.3
						Pathogens	E-coli		0 counts / 100 ml
						Pathogens	Total Coliform		<10 counts / 100ml
D10 Diep	III	G21D	10-Malmesbury	Groundwater (all)	Quantity	Abstraction	Seasonal abstraction: water level recovers from abstraction impact during wet season, under consideration of climate change and drought cycles. Permanent abstraction: water level decline stabilises under consideration of aquifer response time.	Groundwater use should be sustainable for all users and the environment	n/a

IUA	Class	Quaternary Catchment	RU	Resource Name	Component	Sub Component	Indicator/ Measure	RQO Narrative	RQO Numeric
						Discharge	Buffer zones	No groundwater abstraction around wetland and river FEPAs in accordance with the implementation manual for FEPAs.	250m
						Low flow in river	Compliance with the low flow requirements in the river (as per riverine RQO)	Maintain (groundwater component of) the low flow requirements in the river	Maintenance low flow requirements: 0.578 (6.22 %MAR) at node Biv6 (no gauge)
				Superficial aquifers	Quantity	Discharge	Relative water levels between groundwater and suface water (in mamsl)	The natural gradient between groundwater and surface water should be maintained	n/a
				Groundwater (Cenozoic coastal sand)	Quality	Nutrients	NO3 (as N)	Groundwater should be fit for domestic use after treatment; and groundwater quality shall not show a deteriorating trend from natural background	< 7.1 mg/l
						Salts	EC		< 358 mS/m
				Groundwater (Basement)		Nutrients	NO3 (as N)		< 6.4 mg/l
						Salts	EC		< 617 mS/m
						System variable	pH		6.3 – 8.6
				Groundwater (all)		Pathogens	E-coli		0 counts / 100 ml
						Pathogens	Total Coliform		<10 counts / 100ml
						Groundwater level	Water level	Minimum water level in abstraction boreholes within 2.5km from the ocean to avoid saline intrusion	>1 mamsl
E12 Cape Flats	III	G22C, G22D, G22E	2-Cape Flats	Groundwater (all)	Quantity	Discharge	Buffer zones	No groundwater abstraction around wetland and river FEPAs in accordance with the implementation manual for FEPAs.	250m
						Low flow in river	Compliance with the lowflow requirements in the river	Maintain (groundwater component of) the low flow requirements in the river, as per surface water RQO requirement	Maintenance low flow: 0.348 Mm3/a (7.74 %MAR) at Bvii7 (no gauge)

STAATSKOERANT, 10 MEI 2019 No. 42451 171

IUA	Class	Quaternary Catchment	RU	Resource Name	Component	Sub Component	Indicator/ Measure	RQO Narrative	RQO Numeric
				Superficial aquifers	Quantity	Discharge	Relative water levels between groundwater and suface water (in mamsl)	The natural gradient between groundwater and surface water should be maintained	n/a
				Groundwater (Cenozoic coastal sand)		Nutrients	NO3 (as N)		< 9.2 mg/l
						System variable	pH		6.6 – 8.4
						Salts	EC		< 180 mS/m
				Groundwater (Basement)	Quality	Nutrients	NO3 (as N)	Groundwater should be fit for domestic use after treatment; and groundwater quality shall not show a deteriorating trend from natural background	< 11.0 mg/l
						Salts	EC		< 953 mS/m
				Groundwater (all)		Pathogens	E-coli		0 counts / 100 ml
							Total Coliform		<10 counts / 100ml

GENERAL NOTICES • ALGEMENE KENNISGEWINGS

DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES

NOTICE 263 OF 2019

PLANT IMPROVEMENT ACT, 1976
(ACT No. 53 OF 1976)

REGULATIONS RELATING TO ESTABLISHMENTS, VARIETIES, PLANTS AND PROPAGATING MATERIAL: AMENDMENT

The Minister of Agriculture, Forestry and Fisheries, acting under Section 34 of the Plant Improvement Act, 1976 (Act No. 53 of 1976), has made the following regulations in the Schedule.

SCHEDULE

Definition

1. In this Schedule "the Regulations" means the regulations published by Government Notice No. R. 1064 of 23 May 1980, as amended by Government Notices Nos. R. 1621 of 22 July 1983, R. 2173 of 28 September 1984, R. 1287 of 14 June 1985 (as corrected by Government Notice No. R. 1524 of 12 July 1985), R. 1522 of 12 July 1985, R. 256 of 14 February 1986, R. 1489 of 11 July 1986, R. 1903 of 12 September 1986, R. 1389 of 26 June 1987, R. 1700 of 7 August 1987, R. 86 of 22 January 1988, R. 2496 of 9 December 1988, R. 1518 of 14 July 1989, (as corrected by Government Notice No. R. 1976 of 15 September 1989), R. 2092 of 29 September 1989, R. 76 of 18 January 1991, R. 1638 of 12 July 1991, (as corrected by Government Notice No. R. 1971 of 16 August 1991), R. 2119 of 24 July 1992, R. 2618 of 18 September 1992, R. 891 of 28 May 1993, R. 1590 of 27 August 1993, R. 2057 of 29 October 1993, R. 513 of 18 March 1994, R. 1465 of 26 August 1994, R. 174 of 10 February 1995 (as corrected by Government Notice No. R. 319 of 3 March 1995), R. 1976 of 22 December 1995, R. 1177 of 19 July 1996, R. 97 of 24 January 1997, R. 1011 of 1 August 1997, R. 866 of 3 July 1998 (as corrected by Government Notice No. R. 949 of 24 July 1998), R. 1284 of 16 October 1998, R. 1015 of 27 August 1999, R. 232 of 17 March 2000, R. 919 of 15 September 2000, R. 1207 of 1 December 2000, R. 430 of 25 May 2001, R. 19 of 11 January 2002, R. 547 of 10 May 2002, R.1 of 3 January 2003, R. 410 of 28 March 2003, R. 577 of 2 May 2003, R. 185 of 11 March 2005, R. 477 of 27 May 2005; R. 849 of 2 September 2005 (as corrected by Government Notice No. R. 928 of 30 September 2005), R. 131 of 17 February 2006, R. 187 of 3 March 2006, R. 770 of 4 August 2006, R. 45 of 26 January 2007, R. 56 of 2 February 2007, R. 521 of 29 June 2007, R. 430 of 11 April 2008, R. 381 of 17 April 2009, R. 99 of 19 February 2010, R. 100 of 19 February 2010, R. 928 of 22 October 2010, R. 161 of 4 March 2011, R. 86 of 10 February 2012, R. 95 of 15 February 2013, R. 312 of 26 April 2013, R. 88 of 14 February 2014, R. 81 of 13 February 2015 (as corrected by No. 191 of 13 March 2015), No. 2 of 19 February 2016, No. 182 of 3 March 2017, No. 970 of 8 September 2017 and No. 1335 of 8 December 2017.

Substitution of Table 8 of the Regulations

2. The table in Annexure A is hereby substituting Table 8 of the Regulations:

DEPARTEMENT VAN LANDBOU, BOSBOU EN VISSERYE

KENNISGEWING 263 VAN 2019

PLANTVERBETERINGSWET, 1976
(WET No. 53 VAN 1976)

REGULASIES BETREFFENDE ONDERNEMINGS, VARIËTEITE, PLANTE EN VOORTPLANTINGSMATERIAAL: WYSIGING

Die Minister van Landbou, Bosbou en Visserye, handelende kragtens Artikel 34 van die Plantverbeteringswet, 1976 (Wet No. 53 van 1976), het die regulasies in die Bylae uitgevaardig.

BYLAE

Woordomskrywing

1. In hierdie Bylae beteken "die Regulasies" die regulasies gepubliseer by Goewermentskennisgewing No. R. 1064 van 23 Mei 1980, soos gewysig deur Goewermentskennisgewing Nos. R. 1621 van 22 Julie 1983, R. 2173 van 28 September 1984, R. 1287 van 14 Junie 1985 (soos verbeter deur R. 1524 van 12 Julie 1985), R. 1522 van 12 Julie 1985, R. 256 van 14 Februarie 1986, R. 1489 van 11 Julie 1986, R. 1903 van 12 September 1986, R. 1389 van 26 Junie 1987, R. 1700 van 7 Augustus 1987, R. 86 van 22 Januarie 1988, R. 2496 van 9 December 1988, R. 1518 van 14 Julie 1989 (soos verbeter deur R. 1976 van 15 September 1989), R. 2092 van 29 September 1989, R. 76 van 18 Januarie 1991, R. 1638 van 12 Julie 1991 (soos verbeter deur R. 1971 van 16 Augustus 1991), R. 2119 van 24 Julie 1992, R. 2618 van 18 September 1992, R. 891 van 28 Mei 1993, R. 1590 van 27 Augustus 1993, R. 2057 van 29 Oktober 1993, R. 513 van 18 Maart 1994, R. 1465 van 26 Augustus 1994, R.174 van 10 Februarie 1995 (soos verbeter deur by R. 319 van 3 Maart 1995), R. 1976 van 22 December 1995, R. 1177 van 19 Julie 1996, R. 97 van 24 Januarie 1997, R. 1011 van 1 Augustus 1997, R. 866 van 3 Julie 1998 (soos verbeter deur R. 949 van 24 Julie 1998), R. 1284 van 16 Oktober 1998, R. 1015 van 27 Augustus1999, R. 232 van 17 Maart 2000, R. 919 van 15 September 2000, R.1207 van 1 December 2000, R. 430 van 25 Mei 2001, R. 19 van 11 Januarie 2002, R. 547 van 10 Mei 2002, R. 1 van 3 Januarie 2003, R. 410 van 28 Maart 2003, R. 577 van 2 Mei 2003, R. 185 van 11 Maart 2005, R. 477 van 27 Mei 2005, R. 849 van 2 September 2005 (soos verbeter deur R. 928 van 30 September 2005), R. 131 van 17 Februarie 2006, R. 187 van 3 Maart 2006, R. 770 van 4 Augustus 2006, R. 45 van 26 Januarie 2007, R. 56 van 2 Februarie 2007, R. 521 van 29 Junie 2007, R. 430 van 11 April 2008, R. 381 of 17 April 2009, R. 99 van 19 Februarie 2010, R. 100 van 19 Februarie 2010, R. 928 van 22 Oktober 2010, R. 161 van 4 Maart 2011, R. 86 van 10 Februarie 2012, R. 95 van 15 Februarie 2013, R. 312 van 26 April 2013, R. 88 van 14 Februarie 2014, R. 81 van 13 February 2015 (soos verbeter deur No. 191 van 13 Maart 2015), No. 2 van 19 Februarie 2016, No. 182 van 3 Maart 2017, No. 970 van 8 September 2017 en No. 1335 van 8 Desember 2017.

Vervanging van Tabel 8 van die Regulasies

2. Tabel 8 van die Regulasies word hiermee deur die tabel in Aanhangsel A vervang:

ANNEXURE A / AANHANGSEL A

"TABLE 8/ TABEL 8

VARIETIES IN RESPECT OF WHICH CERTIFICATION IS REQUIRED
VARIËTEITE WAARVAN SERTIFISERING VEREIS WORD

Botanical name Botaniese naam	Common name Gewone naam	Denomination of variety/ Benaming van variëteit	Date of commencement / Datum van inwerkingtreding
Allium cepa L.	Onion / Ui	* Capricio ..... Radium ..... Rion 1 ..... Rion 2 ..... Rion 3 ..... Rion 4	2003-03-01 1988-06-01 1996-01-01 1996-01-01 1996-01-01 1996-01-01
Arachis hypogaea L. .	Groundnut / Grondboon	Akwa ..... Anel ..... * ARC-AkwaPlus ..... * ARC-Oleic 2 ..... * ARC-Opal 1 ..... * ARC-SelliePlus ..... Harts ..... * KANOSel ..... Kwarts ..... Mwenje ..... Nyanda ..... * SA Juweel..... Tamnut OL 06 ..... * Tufa	1997-07-01 1997-07-01 2016-12-01 2013-01-01 2013-01-01 2016-12-01 1995-01-30 2013-01-01 1995-01-30 2010-01-31 2010-01-31 2008-01-31 2016-12-01 2012-01-01
Avena sativa L.	Oats / Hawer	Le Tucana ..... Maluti ..... * Simonsberg ..... SSH 39 W ..... * SSH 405 ..... * SSH 491 ..... * Towerberg	2004-09-01 1997-07-01 2013-03-14 2016-12-01 2016-12-01 2000-06-01 2013-03-14
Brassica napus L.	Oil seed rape / Oliesaadraap	* Varola 54	2001-12-01
Cenchrus ciliaris L.	Blue buffalo grass / Bloubuffelsgras	Bergbuffel	2000-06-01
Cucurbita maxima Duchesne *ex* Lam.	Pumpkin & Squash / Pampoen en Skorsie	Flat White Boer-Van Niekerk/ Plat Wit Boer-Van Niekerk .... * Sunproof	1988-06-01 2003-03-01
Cucurbita pepo L.	Squash / Skorsie	Blanco ..... Rolet	2003-03-01 1988-06-01
Daucus carota L.	Carrot / Geelwortel	Brazilia	1991-12-01
Digitaria eriantha Steud.	Smuts finger grass / Smutsvingergras	Tip Top	1998-01-01
Eragrostis curvula (Schrad.) Nees	Weeping lovegrass / Oulandsgras	Agpal ..... Umgeni	2000-06-01 1995-10-01
Eragrostis tef. *(Zucc.)Trotter*	Teff / Tefgras	* Emerald ..... * Emerson..... * Highveld..... * Ivory..... * Rooiberg..... * Witkop.....	2007-02-01 2007-02-01 2007-02-01 2007-02-01 2007-02-01 2007-02-01

Botanical name Botaniese naam	Common name Gewone naam	Denomination of variety/ Benaming van variëteit	Date of commencement / Datum van inwerkingtreding
Festuca arundinacea Schreb.	Tall fescue / Langswenkgras	* Boschhoek * Jenna * Panalex * Verdant	2007-02-01 2007-02-01 2007-02-01 2007-02-01
Glycine max (L.)Merril.	Soybean / Sojaboon	* PAN 1867 * PAN 1454 R * PAN 1664 R * PAN 1666 R * SSS 4945 (tuc) * SSS 5052 (tuc) * SSS 5449 (tuc) * SSS 5755 (tuc) * SSS 6560 (tuc)	2012-01-01 2012-01-01 2012-01-01 2012-01-01 2016-12-01 2016-12-01 2016-12-01 2016-12-01 2016-12-01
Hordeum vulgare L. …	Barley / Gars	* Agulhas Cocktail * Elim * Hessekwa * Puma * S 5 * SabbiErica * SabbiNemesia	2018-12-01 2013-01-01 2018-12-01 2018-12-01 2006-02-01 2013-03-14 2013-01-01 2013-01-01
Lolium x hybridum Hausskn.	Hybrid ryegrass / Basterraaigras	* Captivate * Titan	2007-02-01 2007-02-01
Lolium multiflorum Lam.	Italian and westerwold Ryegrass / Italiaanse en Westerwold raaigras	* AgriBoost Agri-Hilton Agriton Burgundy * Captain Caversham * Dairy Delight Dargle * Enhancer Hutton * Kamma Midmar Mispah * Performer * Sophia * Springboard * Springfield * Sukari * Supreme Q * Sustainer * Winter Gold	2013-01-01 2007-02-01 2000-06-01 2007-02-01 2007-02-01 2007-02-01 2007-02-01 2007-02-01 2007-02-01 2007-02-01 2013-01-01 1988-06-01 2007-02-01 2007-02-01 2007-02-01 2007-02-01 2013-01-01 2013-01-01 2007-02-01 2013-01-01 2007-02-01
Lupinus albus L.	White lupin / Witlupien	* Alida Esta Vladimir	2003-03-01 2003-03-01 2003-03-01
Medicago sativa L.	Lucerne / Lusern	* S.A. Select	2004-09-01
Panicum maximum Jacq.	White buffalo grass / Witbuffelgras	Puk P 8	2007-02-01
Phaseolus vulgaris L.	Dry bean / Droëboon	Bonus * DBS 310 * DBS 360	1988-06-01 2006-02-01 2006-02-01

Botanical name Botaniese naam	Common name Gewone naam		Denomination of variety/ Benaming van variëteit	Date of commencement / Datum van inwerkingtreding
Phaseolus vulgaris L.	Dry bean / Droëboon		Jenny	2008-01-31
			Kranskop	2008-01-31
		*	Kranskop-HR 1	2008-01-31
			Majuba	1988-06-01
			Maskam	1988-06-01
			Mkuzi	1989-01-01
		*	OPS-KW 1	2008-01-31
			OPS-RS 1	2008-01-31
		*	OPS-RS 2	2008-01-31
		*	OPS-RS 4	2008-01-31
		*	PAN 116	2012-01-01
		*	PAN 123	2012-01-01
		*	PAN 128	2012-01-01
			PAN 148	2012-01-01
		*	PAN 9249	2012-01-01
		*	RS 5	2008-01-31
		*	Sederberg	2008-01-31
			Teebus	1988-06-01
		*	Teebus RCR 2	2008-01-31
		*	Teebus RR1	2008-01-31
Raphanus sativus L.	Fodder radish / Voerradys	*	Endurance	2018-12-01
		*	Geisha.....	2007-02-01
		*	Lomo.....	2007-02-01
		*	Samurai.....	2007-02-01
		*	Star 1650.....	2007-02-01
		*	Star 1651.....	2007-02-01
		*	Sterling.....	2007-02-01
Secale cereale L.	Rye / Rog	*	Blue Chip.....	2007-02-01
		*	Echo.....	2007-02-01
			LS 35.....	2007-02-01
			LS 62.....	2007-02-01
			NCD Grazer.....	2007-02-01
		*	PAN 263.....	2007-02-01
		*	Southern Blue.....	2007-02-01
		*	Southern Green.....	2007-02-01
		*	Trojan.....	2007-02-01
			Wintergrazer 70	2012-01-01
Solanum lycopersicum L. *(= Lycopersicon esculentum)*	Tomato / Tamatie		Rotam 4	1988-06-01
			Stevens	1988-06-01
Sorghum bicolor (L.) Moench.	Grain sorghum / Graansorghum		NS 5511	2009-01-31
			NS 5655	2012-01-01
Sorghum spp.	Perennial forage Sorghum / Meerjarige Voersorghum	*	Jaffa.....	2007-02-01
			Silk	1995-01-01
Trifolium repens L. ...	White clover / Witklawer	*	AgriDan	2013-01-01
		*	AgriMatt	2013-01-01
			Dusi	1988-03-01
Triticum aestivum L.	Wheat / Koring	*	Baviaans	2004-09-01
			Betta DN	1999-01-01
			Caledon	2004-09-01
		*	CRN 826	2004-09-01
		*	Duzi	2006-02-01

Botanical name Botaniese naam	Common name Gewone naam	Denomination of variety/ Benaming van variëteit	Date of commencement / Datum van inwerkingtreding
Triticum aestivum L.	Wheat / Koring	* Elands	2004-09-01
		Gariep	1997-07-01
		Kariega	1998-01-01
		* Komati	2004-09-01
		* Koonap	2013-03-01
		* Krokodil	2006-02-01
		* Kwartel	2013-03-01
		Limpopo	1999-01-01
		Mac B	2004-09-01
		* Matlabas	2006-02-01
		* Olifants	2004-09-01
		* PAN 3118	2003-03-01
		* PAN 3120	2012-01-01
		* PAN 3355	2012-01-01
		* PAN 3368	2012-01-01
		* PAN 3379	2012-01-01
		* PAN 3408	2012-01-01
		* PAN 3471	2012-01-01
		* PAN 3478	2012-01-01
		* Ratel	2013-03-01
		* Sabie	2010-01-31
		* Senqu	2013-03-01
		* SST 88	2000-06-01
		SST 94	2000-06-01
		* SST 015	2004-09-01
		* SST 027	2004-09-01
		* SST 047	2009-01-31
		* SST 056	2009-01-31
		* SST 087	2010-01-31
		* SST 0147	2018-12-01
		* SST 0166	2018-12-01
		SST 322	2004-09-01
		* SST 347	2009-01-31
		* SST 356	2009-01-31
		SST 363	1999-11-01
		* SST 374	2010-01-31
		* SST 387	2010-01-31
		* SST 398	2013-03-01
		SST 399	2009-01-31
		* SST 806	2009-01-31
		SST 822	1999-11-01
		* SST 835	2004-09-01
		* SST 843	2013-03-01
		* SST 866	2013-03-01
		* SST 867	2010-01-31
		* SST 875	2010-01-31
		* SST 876	1999-11-01
		* SST 877	2010-01-31
		* SST 884	2013-03-01
		* SST 895	2013-03-01
		* SST 896	2013-03-01
		* SST 3149	2016-12-01
		* SST 8125	2016-12-01
		* SST 8135	2016-12-01
		* SST 8154	2018-12-01
		* SST 8155	2018-12-01

Botanical name Botaniese naam	Common name Gewone naam	Denomination of variety/ Benaming van variëteit	Date of commencement / Datum van inwerkingtreding
Triticum aestivum L.	Wheat / Koring	* Steenbras ..... * Tankwa	2004-09-01 2010-01-31
Triticum durum Desf.	Durum wheat / Durum koring	* SSD 8113 * SSD 8124 * SSD 8133 * SSD 8143 * SSD 8154	2018-12-01 2018-12-01 2018-12-01 2018-12-01 2018-12-01
x *Triticosecale* Witt. ex A. Camus (*Triticum* x *Secale*)	Triticale / Korog, Tritikale	* AgBeacon ..... * AgBentley ..... * AgMarcell ..... Cloc 1 ..... Kiewiet ..... Rex ..... * Snel ..... * US 2007 ..... * US 2011 ..... * US 2014	2012-01-01 2016-12-01 2018-12-01 1993-11-30 1997-07-01 1997-07-01 2016-12-01 2008-01-31 2016-12-01 2016-12-01
Vigna unguiculata (L.) Walp	Cowpea / Akkerboon	* Agri-Nawa..... Encore.....	2007-02-01 2007-02-01
Zea mays L.	Yellow maize / Geelmielie	Colorado	2003-03-01
Zea mays L.	White maize / Witmielie	* Afric 1 ..... * Border King NI/05.... Mac Medium Pearl ... * Nelson's Choice..... Nevada ..... ZM 521 ..... ZM 1421 ..... ZM 1423 ..... ZM 1523 ..... ZM 1623	2004-09-01 2007-02-01 1995-01-30 2004-09-01 2003-03-01 2004-09-01 2008-01-31 2008-01-31 2008-01-31 2008-01-31
Zea mays L.	High Quality Protein White Maize / Hoë Proteïen Witmielie	Obatanpa SR ..... QS-King ..... Qsoba	2008-01-31 2009-01-31 2006-02-01

* Plant breeders' rights granted/ Planttelersregte toegeken.

ECONOMIC DEVELOPMENT DEPARTMENT

NOTICE 264 OF 2019

COMPETITION TRIBUNAL

NOTIFICATION OF COMPLAINT REFERRAL

The Competition Tribunal gives notice in terms of Section 51(3) & (4) of the Competition Act 89 of 1998 as amended, that it received the complaint referrals listed below. The complaint(s) alleges that the respondent(s) engaged in a prohibited practice in contravention of the Competition Act 89 of 1998.

Case No.	Complainant	Respondent	Date received	Sections of the Act
CR010Apr19	Competition Commission	K.F Computers CC; SAAB Grintek Defense (Pty) Ltd	15/04/2019	4(1)(b)(iii)
CR011Apr19	Competition Commission	Mix Telematics Africa (Pty) Ltd; Fleetco South Africa CC; Carrus Information Technologies (Pty) Ltd; Hyper Auto CC; Soltrack CC; Tectra Telematics (Pty) Ltd	15/04/2019	4(1)(b)(ii)
CR013Apr19	Competition Commission	Mpact Ltd; New Era Packaging (Pty) Ltd	15/04/2019	4(1)(b)(i), (ii) & (iii)
CR012Apr19	Competition Commission	Compania Sud Americana De Vapores S.A; Mitsui O.S.K Lines Ltd	16/04/2019	4(1)(b)(i), (ii) & (iii)

The Chairperson
Competition Tribunal

ECONOMIC DEVELOPMENT DEPARTMENT

NOTICE 265 OF 2019

COMPETITION TRIBUNAL
NOTIFICATION OF DECISION TO APPROVE MERGER

The Competition Tribunal gives notice in terms of rules 34(b)(ii) and 35(5)(b)(ii) of the "Rules for the conduct of proceedings in the Competition Tribunal" as published in Government Gazette No. 22025 of 01 February 2001 that it approved the following mergers:

Case No.	Acquiring Firm	Target Firm	Date of Order	Decision
LM250Feb19	McCarthy (Pty) Ltd	The Motor Dealership t/a Vereeniging Auto Owned by Vereeniging Motors (Pty) Ltd	03/04/2019	Approved
LM251Feb19	2667980 Ontario Inc	AGT Food and Ingredients Inc	08/04/2019	Approved
LM261Feb19	Mercuria Energy Group Ltd	Aegean Marine Petroleum Network Inc	10/04/2019	Approved
LM264Mar19	Balwin Rental (Pty) Ltd	1056 Residential Units in The Greepark Developments	10/04/2019	Approved
LM271Mar19	The Industrial Development Corporation of South Africa	Celrose (Pty) Ltd	11/04/2019	Approved Subject to Conditions
LM267Mar19	K2012150042 South Africa (Pty) Ltd	Wanooka Properties (Pty) Ltd	24/04/2019	Approved

The Chairperson
Competition Tribunal

SOUTH AFRICAN RESERVE BANK

NOTICE 266 OF 2019

EXCHANGE CONTROL REGULATIONS

REPLACEMENT OF NOTICE NO. 107 OF 2019 PUBLISHED ON 1 MARCH 2019

The Financial Surveillance Department of the South African Reserve Bank hereby gives notice, for general information, that notice number 107 of 2019 is null and void and will be replaced for the purpose of Exchange Control Regulations published under Government Notice No. R.1111 of 1 December 1961, as amended.

.....

S E Mazibuko
Head of Department

BOARD NOTICES • RAADSKENNISGEWINGS

BOARD NOTICE 74 OF 2019

FINANCIAL SECTOR CONDUCT AUTHORITY

FINANCIAL MARKETS ACT, 2012

AMENDMENTS TO THE ZAR X (PTY) LTD LISTINGS REQUIREMENTS

The Financial Sector Conduct Authority (FSCA) hereby gives notice under section 11(6)(d)(ii) of the Financial Markets Act, 19 of 2012 (Act No. 19 of 2012) that the amendments to the ZAR X (Pty) Ltd Listings Requirements have been published on the official website of the FSCA (www.fsca.co.za).

The effective date of these amendments is the same date of publication of this notice.

J A BOYD
FINANCIAL SECTOR CONDUCT AUTHORITY

BOARD NOTICE 75 OF 2019

THE SOUTH AFRICAN PHARMACY COUNCIL

RULES RELATING TO GOOD PHARMACY PRACTICE

The South African Pharmacy Council intends to publish amendments and additional minimum standards to be added to Annexure A of the *Rules relating to good pharmacy practice* which was published on 17 December 2004, Government Gazette No: 27112, Board Notice 129 of 2004, in terms of section 35A(b)(ii) of the Pharmacy Act, 53 of 1974.

Interested parties are invited to submit, within **60 days** of publication of this notice, substantiated comments on or representation regarding the amendments to the existing minimum standards and/or the additional minimum standards. Comments must be addressed to The Registrar, South African Pharmacy Council, Private Bag X40040, Arcadia, or fax (012) 326-1496 or email BN@sapc.za.org

SCHEDULE

Rules relating to what constitutes good pharmacy practice

1. In these rules "the Act" shall mean the Pharmacy Act, 53 of 1974, as amended, and any expression to which a meaning has been assigned in the Act shall bear such meaning.

2. The following rules to Annexure A of the *Rules relating to good pharmacy practice* are hereby amended –

   (a) Rule 1.2.4: Minimum standards for pharmacy premises, facilities and equipment - Control of access to pharmacy premises;

   (b) Rule 3.6: Minimum standards for locum tenens pharmacists and pharmacy support personnel; and

   (c) Rule 4.2.3.3: Minimum standards for pharmacy administration and management - Standard Operating Procedures.

TA MASANGO
REGISTRAR

1.2. MINIMUM STANDARDS OF PHARMACY PREMISES, FACILITIES AND EQUIPMENT

Rule 1.2.4 Control of access to pharmacy premises

Rule 1.2.4(a) which reads, "The responsible pharmacist of a pharmacy must ensure that every key, key card or other device, or the combination of any device, which allows access to a pharmacy when it is locked, is kept only on his/her person or the person of another pharmacist at all times",

be replaced with

"The Responsible Pharmacist of a pharmacy must ensure that every key, key card or other device, or the combination of any device, which allows access to a pharmacy when it is locked, is kept only on his/her person, the person of another pharmacist and/or the person of the owner/delegated person.'"

3.6 MINIMUM STANDARDS FOR LOCUM TENENS PHARMACISTS AND PHARMACY SUPPORT PERSONNEL

Rule 3.6: Minimum standards for locum tenens pharmacist and pharmacy support personnel is replaced as follows:

(a) The qualifications and current registration status of locum tenens (locum) pharmacists and/or pharmacy support personnel (PSP) must be verified.
(b) Locum pharmacists and PSP must have the necessary information to ensure the compliant operation of the pharmacy.
(c) Operational information including Standard Operating Procedures (SoP), must be accessible to locum pharmacists and PSP. This information must include at least the following:
    (i) computer instructions (as applicable);
    (ii) names and contact details of key staff;
    (iii) contact details of key medical practitioners;
    (iv) instructions on use of alarm system (as applicable);
    (v) emergency contact numbers; (include plumber, electrician, IT, etc.);
    (vi) information pertaining to outstanding work;
    (vii) opening and closing procedure of the pharmacy.
(d) The responsible pharmacist must be able to demonstrate which registered persons were in the pharmacy at any particular time on any day in terms of the requirement for record keeping.

4.2 MINIMUM STANDARDS FOR PHARMACY ADMINISTRATION AND MANAGEMENT

The intent of this standard is to have the pharmacy organised in such a way that its services and processes contribute to the highest quality of pharmaceutical care. The pharmacy management plans the development and implementation of its goals and evaluates its effectiveness in achieving them.

Rule 4.2.3.3: Standard Operating Procedures is replaced as follows:

4.2.3.3 Standard Operating Procedures

A Standard Operating Procedure (SOP) is that set of instructions or steps which must be followed in order to complete a specific job or task safely, with no adverse impact on the environment, and in a way that maximises operational and production requirements. SOPs can be written for virtually any task undertaken in a pharmacy that has to be performed regularly and in a pre-determined way.

The responsible pharmacist is responsible for the existence of and adherence to SOPs in a pharmacy and must be involved in the compilation, regular review and dissemination of SOPs to all staff members.

SOP must-

(a) provide personnel with all the safety, health, environmental and operational information necessary to perform a job properly;
(b) ensure that operations are performed consistently to maintain quality control of processes and products;
(c) ensure that processes continue uninterrupted and are completed timeously;
(d) ensure that no failures occur that could harm anyone;
(e) ensure that approved procedures are followed in compliance with legislation;
(f) serve as a training document, e.g. pharmacist interns or pharmacist's assistants;
(g) serve as a historical record of the how, why, when of steps in an existing process;
(h) serve as an explanation of steps in a process so they can be reviewed in incident investigation.

The SOP must be reviewed annually and/or as required. SOPs are adapted to the operations of the specific pharmacy and staff is suitably trained on the SOPs.

4.2.3.3.1 Community pharmacy:

<u>Premises</u>

(a) good housekeeping (cleaning procedures, etc. as well as pest elimination);
(b) Access control – keys, who can be in dispensary & stockrooms etc.

<u>Services</u>

(a) SOP for professional services and procedures provided not included in the *Rules related to the services for which a pharmacist may levy a fee* in the pharmacy and clinic;
(b) informed consent;
(c) confidentiality;
(d) infection control;
(e) disposal of sharps & hazardous materials;
(f) needle stick injury & blood spill procedures (where applicable).

Management

(a) ADR & Quality reporting combined with handling of product complaints;
(b) storage, retrieval and disposal of records and patient information;
(c) receiving of medicines;
(d) storage of medicine;
(e) cold chain management;
(f) handling of S6 medicines;
(g) pre-packing and quality assurance procedures (where applicable);
(h) collection and delivery of medicines;
(i) effective stock rotation;
(j) stock-taking;
(k) disposal or removal of expired, damaged and/or contaminated stock as required;
(l) recall of medicine;
(m) Compounding of extemporaneous preparations, (where applicable);
(n) preparation of TPN/large volume parenterals (including quality assurance procedures) (where applicable);
(o) oncology mixing (including quality assurance procedures) (where applicable);
(p) preparation of IV admixtures (including quality assurance procedures) (where applicable);
(q) enquiry or complaint procedure;
(r) staff training.

4.2.3.3.2 Institutional pharmacy:

Premises

(a) good housekeeping (cleaning procedures, etc. as well as pest elimination);
(b) Access control – keys, who can be in dispensary & stockrooms, etc.

Services

(a) SOP for professional services and procedures provided that are not included in the *Rules related to the services for which a pharmacist may levy a fee* in the pharmacy and clinic (where applicable);
(b) informed consent (where applicable);
(c) confidentiality;
(d) infection control;
(e) disposal of sharps & hazardous materials;
(f) needle stick injury & blood spill procedures.

Management

(a) ADR & Quality reporting combined with handling of product complaints;
(b) storage, retrieval and disposal of records and patient information;
(c) receiving of medicines;
(d) storage of medicine;
(e) cold chain management;

(f) handling of S6 medicines;
(g) pre-packing and quality assurance procedures) (where applicable);
(h) effective stock rotation;
(i) stock-taking;
(j) disposal or removal of expired, damaged and/or contaminated stock as required;
(k) recall of medicine;
(l) Compounding of extemporaneous preparations, (where applicable);
(m) enquiry or complaint procedure;
(n) preparation of TPN/large volume parenterals (including quality assurance procedures) (where applicable);
(o) oncology mixing (including quality assurance procedures) (where applicable);
(p) preparation of IV admixtures (including quality assurance procedures) (where applicable);
(q) control over medicine kept in hospital or health facility, e.g. wards, theatres, etc. (including controls over issuing ward stock and medicine per patient to the wards);
(r) staff training.

4.2.3.3.3 Wholesale pharmacy:

Premises

(a) good housekeeping (cleaning procedures, etc. as well as pest elimination);
(b) Access control.

Management

(a) handling of product complaints;
(b) procurement of medicine;
(c) receiving of medicines;
(d) storage of medicine;
(e) cold chain management (including procedures to be followed in the event of a refrigerator power failure);
(f) handling of Specified S5 and S6 medicines;
(g) pre-packing and quality assurance procedures (where applicable);
(h) delivery of medicines;
(i) effective stock rotation;
(j) stock-taking;
(k) disposal or removal of expired, damaged and/or contaminated stock as required in regulation 44 published in terms of the Medicines Act;
(l) recall of medicine;
(m) verification that the person/organisation to whom medicines are supplied, are duly registered to be supplied with medicines;
(n) handling of section 21 medicines.

4.2.3.3.4 Consultant pharmacy:

(a) good housekeeping (cleaning procedures and pest elimination);

(b) SOP for professional services and procedures provided not included in the rules related to the services for which a pharmacist may levy a fee in the pharmacy and clinic (where applicable);
(c) storage, retrieval and disposal of records and patient information;
(d) Enquiry or complaint procedure.

4.2.3.3.4 Primary health facility:

Premises

(a) good housekeeping (cleaning procedures, etc. as well as pest elimination;
(b) Access control – keys, who can be in dispensary & stockrooms, etc.

Services

(a) SOP for professional services and procedures provided in the dispensary;
(b) informed consent;
(c) confidentiality and record keeping.

Management

(a) ADR & Quality reporting combined with handling of product complaints;
(b) storage, retrieval and disposal of records and patient information
(c) procurement of medicine;
(d) receiving of medicines;
(e) storage of medicine;
(f) cold chain management;
(g) handling of S6 medicines (where applicable);
(h) effective stock rotation;
(i) stock-taking;
(j) disposal or removal of expired, damaged and/or contaminated stock;
(k) recall of medicine;
(l) enquiry or complaint procedure;
(m) control over medicine kept in places other than the dispensary.

The following policies must be available in all pharmacies:

(a) Hygiene or infection control policy;
(b) Occupational health and safety policy.