DEPARTMENT OF WATER AND SANITATION

NO. 467 **22 APRIL 2016**

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

CLASSES AND RESOURCE QUALITY OBJECTIVES OF WATER RESOURCES FOR THE OLIFANTS-DOORN CATCHMENTS

I, Nomvula Paula Mokonyane, in my capacity as Minister of Water and Sanitation Affairs, and duly authorised in terms of section 13 (4) of the National Water Act (Act No. 36 of 1998) hereby publish the notice for the classes of water resources and resource quality objectives for catchments of the Olifants Doorn, in the schedule, to be issued under section 13(4) of the National Water Act (Act No36 of 1998).

Acting Director: Water Resource Classification
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MRS NP MOKONYANE
MINISTER OF WATER AND SANITATION
DATE: 17.03.2016

CLASSES AND RESOURCE QUALITY OBJECTIVES OF WATER RESOURCES FOR THE CATCHMENTS OF THE OLIFANTS-DOORN IN TERMS OF SECTION 13(1)(a) AND (b) OF THE NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998)

SCHEDULE

1. DESCRIPTION OF WATER RESOURCE

1. The classes and resource quality objectives are determined for all or part of every significant water resource within the catchments of the Olifants-Doorn as set out below:

Drainage Region:	E Primary Drainage Region
River(s):	Olifants and Doring River System
Drainage Region:	G3 Secondary Drainage Region
River(s):	Papkuil, Verlorevlei, Langvlei, Jakkalsvlei and Sandlaagte River Systems
Drainage Region:	F6 Secondary Drainage Region
River(s):	Brak and Sout River Systems

2. The Minister has in terms of section 12 of the National Water Act, 1998 (Act No.36 of 1998) (the Act), prescribed a system for classifying water resources by promulgating Regulation 810, Government Gazette 33541 dated 17 September 2010. In terms of section 13(1) of the Act, the Minister must, as soon as reasonably practicable after the Minister has prescribed a system for classifying water resources and subject to subsection (4), by notice in the Gazette, determine for all or part of every significant water resource, a class in accordance with the prescribed classification system.

3. The Minister, in terms of section 13(1) (a) of the Act, has determined the following classes of each significant water resource for catchments of the Olifants-Doorn.

4. The Minister, in terms of section 13(1) (b) of the Act, has determined the following resource quality objectives of each significant water resource for catchments of the Olifants-Doorn.

5. Where specified, the ecological category means the assigned ecological condition by the Minister to a water resource that reflects the ecological condition of that water resource in terms of the deviation of its biophysical components from a predevelopment condition.

2. DETERMINATION OF THE CLASS OF WATER RESOURCES IN TERMS OF SECTION 13(1)(a) OF THE NATIONAL WATER ACT, 1998

1. A summary of the water resource classes for Integrated Units of Analysis (Figure 1) and ecological categories per quaternary catchment (Figure 2) is set out in Table 1.

2. Integrated Units of Analysis (IUA) are classified in terms of their extent of permissible utilization and protection as either Class I: indicating high environmental protection and minimal utilization (Doring Rangelands); or Class II indicating moderate protection and moderate utilization (Upper Olifants Irrigation, Olifants Doring Dry lands, Kouebokkeveld); and Class III indicating sustainable minimal protection and high utilization (Lower Olifants Irrigation). The Mainstream Cumulative Category refers to flows and impacts generated in the quaternary catchment plus all the upstream flows and impacts. Average tributary Incremental ecological category refers to only the proportion of flow that comes from the runoff in the segment of the river or tributary).

3. A summary of resource quality objectives for hydrology, water quality, biota and habitat for resource units (quaternary catchments) is set out in Tables 2 – 6 respectively.

4. Resource quality objectives will apply from the date of approval by the Minister.

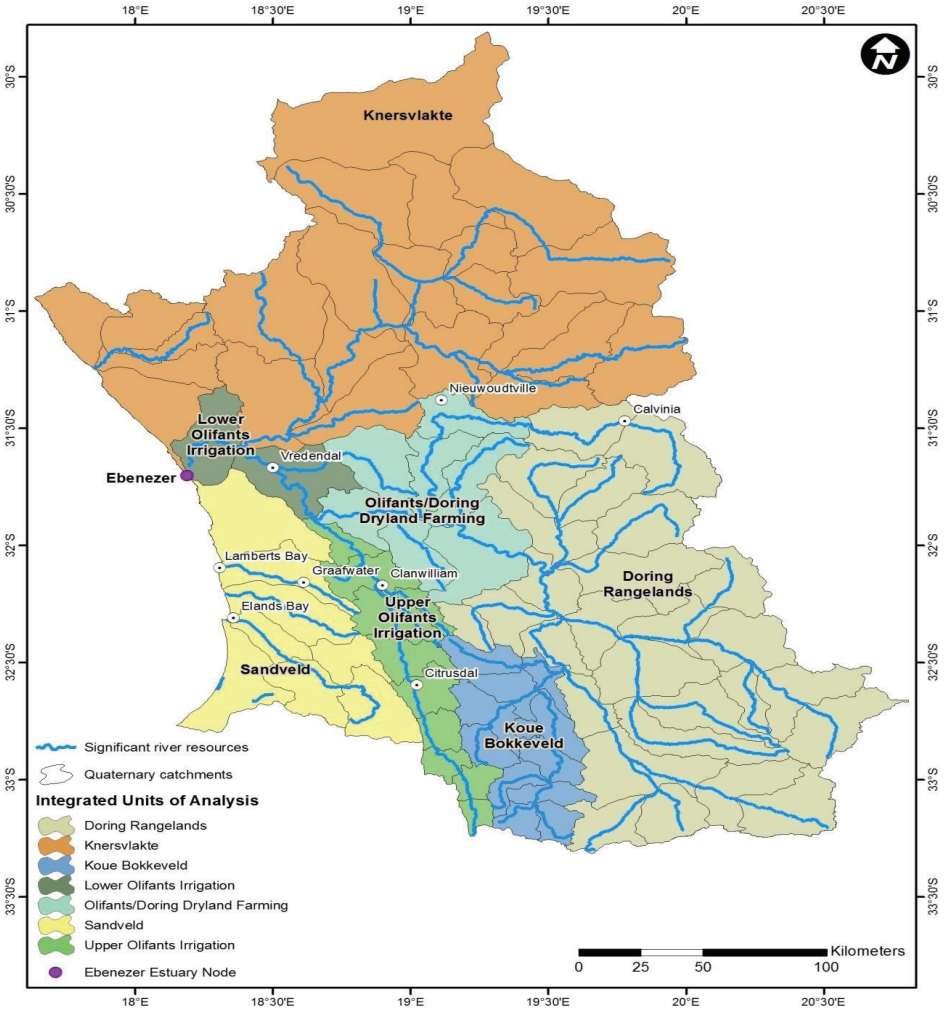

Figure1: Integrated Units of Analysis in the Olifants Doorn Catchments

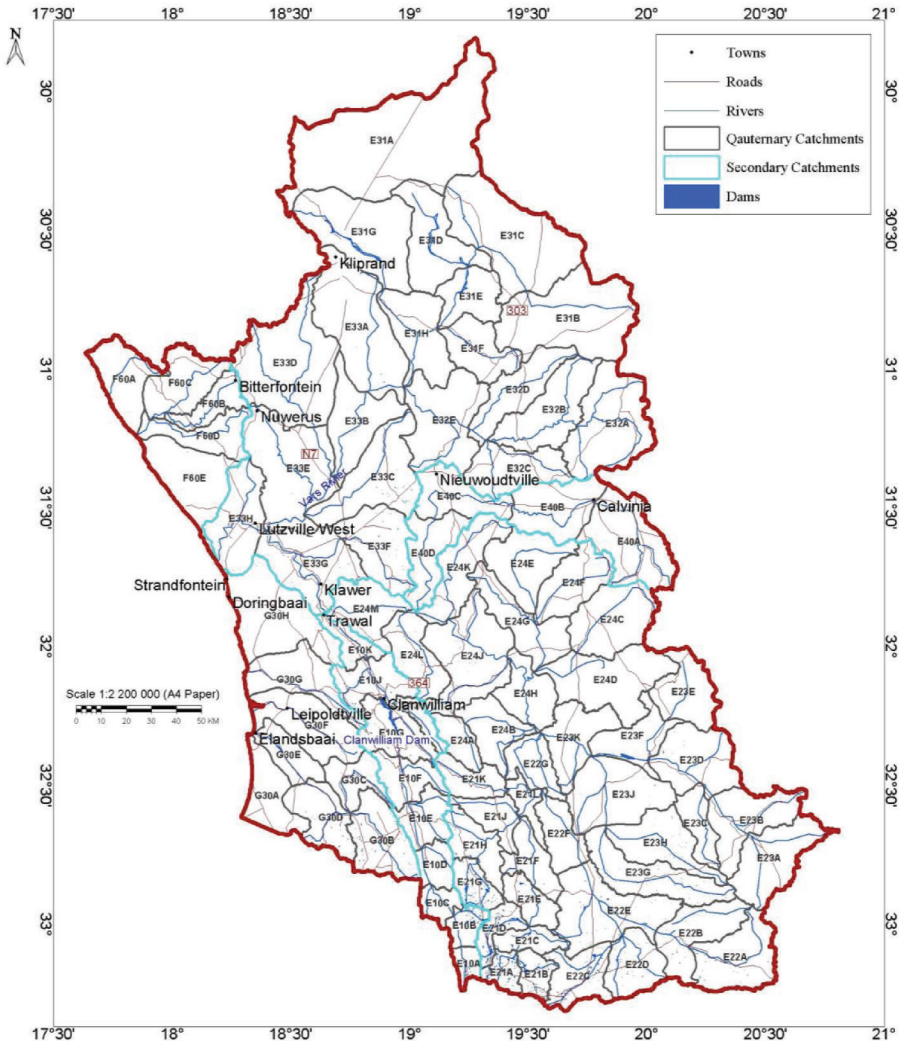

Figure 2: Quaternary catchments within Olifants Doorn

Table 1: Water Resource Classes and ecological categories for the Olifants-Doorn

IUA	Class for IUA	Quaternary catchment	River Name	Mainstem / Cumulative Ecological Category	Average Tributary / Incremental Ecological Category	Wetland area (% of quaternary) and [Ecological Category]
Lower Olifants Irrigation	III	E33G	Hol	D	C	1.9% [13% in A/B]
		E33H	Olifants	D	B	3.8% [5% in A/B]
		E33H-Est	Olifants Estuary	C		-
Upper Olifants Irrigation	II	E10A	Olifants	C	C	-
		E10B	Olifants	C	B	-
		E10C	Olifants	B	B	1.2% [85% in A/B]
		E10D	Olifants	D	C	5.4% [16% in A/B]
		E10E	Olifants	D	C	5.8% [10% in A/B]
		E10F	Olifants	D	C	-
		E10G-Rondegat	Rondegat	B	B	-
		E10G	Olifants	D	C	-
		E10H	Jan Dissels	C	C	3.3% [10% in A/B]
		E10J-Jan Dissels	Jan Dissels	D	D	-
		E10J	Olifants	D	C	1.1% [5.5% in A/B]
		E10K	Olifants	D	C	1.9% [50% in A/B]
Olifants Doring Dryland	II	E24J	Doring	B	B	0.001% [99% in A/B]
		E24K	Doring	B	B	-
		E24L	Brandewyn	B	B	0.001% [100% in A/B]
		E24M	Doring	B	B	0.001% [100% in A/B]
		E33F	Troe-Troe / Droe	D	D	-
		E40C	Oorlogskloof / Koebee	C	B	-
		E40D	Oorlogskloof / Koebee	B	B	-
Kouebokkeveld	II	E21A	Kruis	C	C	-
		E21B	Welgemoed	D	D	-
		E21C	Winkelhaak	C	B	0.5% [98% in A/B]
		E21D	Houdenbeks	D	D	-
		E21E	Riet	B	B	-
		E21F	Riet	B	B	0.001% [91% in A/B]
		E21G	Leeu	D	D	-
		E21H-Twee	Twee	B	B	-
		E21H	Leeu	B	B	-
		E21J	Groot	B	B	-
		E21K	Maatjies	B	B	1.7% [99% in A/B]
		E21L	Groot	B	B	-
Doring Rangelands	I	E22A	Doring	B	B	-
		E22B	Doring	B	B	-
		E22C	Tankwa	A/B	A/B	-
		E22D	Tankwa	A/B	A/B	-
		E22E	Doring	B	B	-
		E22F	Doring	B	B	-
		E22G	Doring	B	B	0.3% [100% in A]}
		E23A	Tankwa	A/B	A/B	0.1% [100% in A/B]
		E23B	Tankwa	A/B	A/B	0.1% [100% in A/B]
		E23C	Tankwa	A/B	A/B	0.001% [100% in A/B]
		E23D	Tankwa	A/B	A/B	0.7% [100% in A/B]
		E23E	Tankwa	A/B	A/B	-
		E23F	Tankwa	B	A/B	0.001% [100% in A/B]
		E23G	Ongeluks	A/B	A/B	-
		E23H	Ongeluks	A/B	A/B	-
		E23J	Ongeluks	A/B	A/B	-
		E23K	Tankwa	B	A/B	-
		E24A	Tra-tra	B	B	0.1% [100% in A/B]

IUA	Class for IUA	Quaternary catchment	River Name	Mainstem / Cumulative Ecological Category	Average Tributary / Incremental Ecological Category	Wetland area (% of quaternary) and [Ecological Category]
Doring Rangelands	I	E24B	Tra-tra	B	B	0.001% [95% in A/B]
		E24C	Bos	C	A/B	0.8% [100% in A/B]
		E24D	Bos	C	A/B	0.1% [100% in A/B]
		E24E	Wolf	A/B	A/B	-
		E24F	Wolf	A/B	A/B	0.001% [79% in A/B]
		E24G	Wolf	A/B	A/B	0.001% [100% in A/B]
		E24H	Doring	B	B	-
		E40A	Oorlogskloof	C	C	-
		E40B	Oorlogskloof	C	C	0.001% [100% in A/B]
Knersvlakte	I	E31A	Kromme	B	B	0.3% [100% in A/B]
		E31B	Kromme	B	B	0.1% [99% in A/B]
		E31C	Kromme	B	B	0.001% [100% in A/B]
		E31D	Kromme	B	B	-
		E31E	Kromme	B	B	-
		E31F	Kromme	B	B	-
		E31G	Kromme	B	B	-
		E31H	Hantams	B	B	-
		E32A	Hantams	B	B	0.1% [95% in A/B]
		E32B	Hantams	B	B	0.001% [100% in A/B]
		E32C	Hantams	B	B	0.1% [24% in A/B]
		E32D	Hantams	B	B	-
		E32E	Hantams	B	B	2.2% [48% in A/B]
		E33A	Sout	C	B	0.001% [100% in A/B]
		E33B	Sout	C	B	0.2% [100% in AB]
		E33C	Sout	C	C	1.1% [92% in A/B]
		E33D	Sout	C	C	-
		E33E	Sout	C	C	1% [99% in A/B]
		F60A	Brak	B	B	0.001% [1% in A/B]
		F60B	Klein-Goerap	B	B	-
		F60C	Sout	B	B	0.001% [1% in A/B]
		F60D	Groot-Goerap	B	B	0.001% [19% in A/B]
		F60E	Groot-Goerap	B	B	0.001% [3.5% in A/B]
Sandveld	III	G30A	Papkuils	C	C	4.1% [35% in A/B]
		G30B	Kruismans	C	C	0.9% [10% in A/B]
		G30C	Bergvallei	C	C	1.5% [7% in A/B]
		G30D	Verlorevlei	C	C	0.8% [3% in A/B]
		G30E	Verlorevlei	B	C	7.9% [3% in A/B]
		G30E-Est	Verlorevlei	C		-
		G30F	Langvlei	C	C	1.5% [5% in A/B]
		G30G	Jakkalsvlei	C	C	0.9% [11% in A/B]
		G30H	Sandlaagte	C	C	1.4% [25% in A/B]

The Olifants Estuary (E33H) and Verlorenvlei Estuary (G30E) should both be maintained in a minimum C Ecological Category

Table 2 Hydrological resource quality objectives for RIVERS in the Olifants-Doorn

IUA	Quaternary	Node	River	Location for monitoring	Hydrology					
					Month with lowest flow	Mean of month with lowest flow (m3/s)	Instantaneous drought absolute minimum (m3/s)[1]	%nMAR	Floods in addition to Desktop Model	Implications of flood RQOs
Upper Olifants Irrigation	E10K	R 13	Olifants	E1R001/ EWR Site 2	February	0.200	0.050	9.3	-	None
	E10J[2]	R 23	Olifants	E1H016	February	Formal stipulations for lowflows are not appropriate at E10J because the Olifants River in this quaternary is used as a conduit for irrigation releases from Clanwilliam Dam. However, an absolute minimum of 0.02 m^3/s has been set as to protect the river in periods when irrigation releases are not being made.			-	None
	E10H	R 24	Jan Dissel	Above causeway	February	n/a	0.01	n/a	-	None
				Causeway to E1H006	February and March	0.060	0.01	19.7	-	None
		Q7 (in E10J)		E1H006 to confluence		0	0	n/a	-	None
	E10G	R 34	Rondegat	EWR Site 3	February	0.020	0.001	42.7	-	None
	E10E/ E10F	R 33	Olifants	E1H013/ EWR Site 1	February	0.110	0.003	37.8	-	None
	E10D	R 40	Olifants	E1H013	February	0.070	0.002	37.8	>60% of natural floods for July, August and September	Limited in-channel dams
	E10C	R42	Olifants	-	February	0.030	0.002	36.6	>60% of natural floods for July, August and September	Limited in-channel dams
Olifants/ Doring Dryland	E24M	R 14	Doring	E2H003	February	0	0	48.5	>80% of natural floods for July, August and September	No in-channel dams
	E40D	R 17	Koebee	Koebee	February	0.030	0.001	26.5	>80% of natural floods for July, August and September	No in-channel dams
	E40C	R 11	Oorlogskloof	Upstream of Oorlogskloof Nature Reserve (ONR)	February	0.002	0.001	17.7	>80% of natural floods for July, August and September	No in-channel dams
				In ONR (Brakwater: -31° 27' 52.3368", 19° 4' 51.3192")						
	E33F	Q1	Troe-Troe	E3H001	February	0	0	11.2	-	None
Koue Bokkeveld	E21K	R 37	Matjies	Matjies	December/ January	0.005	-	60.4	>80% of natural floods for July, August and September	No in-channel dams

[2] The lower portion of the Jan Dissels River falls in the quaternary, but is discussed under E10H.

IUA	Quaternary	Node	River	Location for monitoring	Hydrology					
					Month with lowest flow	Mean of month with lowest flow (m3/s)	Instantaneous drought absolute minimum (m3/s)[1]	%nMAR	Floods in addition to Desktop Model	Implications of flood RQOs
	E21L		Groot	E2H002	February	0.017	0.001	48.1	>80% of natural floods for July, August and September	No in-channel dams
	E21J	R38	Groot	EWR Site 6	February	0.010	0.001	48.1	>80% of natural floods for July, August and September	No in-channel dams
		-		Brandkraals	February	-	0.001	48.1	>80% of natural floods for July, August and September	No in-channel dams
	Tributary of Leeu in E21H	A1	Twee	Twee	February	0.125	0.001	60.4	>80% of natural floods for July, August and September	No in-channel dams
	E21G	R 41	Leeu	E2H007	February	0.010	0.001	13.2	>60% of natural floods for July, August and September	Limited in-channel dams
Doring Rangelands	E23K	R27	Tankwa	Tankwa	The Tankwa River is ephemeral. Thus minimum lowflows do not apply.			26.4	>80% of natural floods for July, August and September (incremental)	No in-channel dams
Knersvlakte	E33C	R8	Vars	None	The Vars, Geelbek and Hol Rivers are ephemeral. Thus minimum lowflows do not apply.			17.0	-	None
	E33D		Geelbek					17.1	-	None
	E33E		Hol					17.4	-	None
	E32E	R 3	Doring(b)[3]	None	The Doring(b) River is ephemeral. Thus minimum lowflows do not apply.			26.2	-	None
Sandveld	G30D	R 53	Verlorevlei	G3H001	March	0.019	0.001	20.7	>60% of natural floods for July, August and September	Limited in-channel dams
	G30F	R56	Langvlei	River Node R56: 32°12'40.05"S, 18°23'8.25"E / Upstream of the Wadrif Pan and Wetland	March	0.010	0.001	19.3	-	None
	G30G	R 57	Jakkals	River	March	0.005	0.001	19.2	-	None

[3] Different river from the main Doring River.

Table 3 Hydrological resource quality objectives for ESTUARIES, VLEIS AND WETLANDS in priority RUs in the Olifants-Doorn

IUA	Quaternary	NODE	Waterbody	Hydrology				
				Month with lowest flow	Mean of month with lowest flow (m3/s)	Instantaneous drought absolute minimum (m3/s)	Floods in addition to Desktop Model	%nMAR
Lower Olifants Irrigation	E33H	E	Olifants Estuary	April	1.23	0.01	Doring River floods unimpeded by large dams	57.6
Sandveld	G30E	R52	Verlorenvlei	March	0.29	0.04	>60% of natural floods for July, August and September	46.0
	G30F	R56*	Wadrift wetlands	March	-	-	>60% of natural floods for July, August and September	14.8
			Wadrift saltpan	March	-	-	>60% of natural floods for July, August and September	37.7
	G30G	R 57	Jakkals	March	0.03	0.006	>60% of natural floods for July, August and September	19.2
	G30H	Q5	Sandlaagte	March	0.02	-	>60% of natural floods for July, August and September	12.8

Table 4 Resource quality objectives for water quality for rivers in the Olifants-Doorn

IUA	Quaternary	River	Location for monitoring	Target Water Quality Range (TWQR[4])	Geomorphology	Riparian vegetation	Macro-invertebrates	Fish
Upper Olifants Irrigation	E10K	Olifants	E1R001/ EWR Site 2	Should comply with the TWQRs for aquatic ecosystems as determined by the Department and the Fitness for use -Class I for agricultural use	Abundance and diversity of habitats should be equal to or greater than those measured in 2005.	Dominated by indigenous species. No *Sesbania punicea* and only isolated individuals of *Acacia longifolia*, *A. mearnsii*, *A. melanoxylon*, *Eucalyptus camaldulensis*. No *Azolla filiculoides*, *Lemna gibba* or other aquatic weeds	The abundance and diversity shall be equal to or greater than those measured in 2005	The abundance and diversity of fish shall be equal to or greater than those measured in 2005.
	E10J	Olifants	E1H016	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996) and the Fitness for use - Class I for agricultural use (DWAF 1996b).	-	-	-	-
	E10H	Jan Dissel	Above causeway	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996a) and the Fitness for use - Class I for agricultural use (DWAF 1996b).	Riffle-run sequence, with aquatic vegetation and stones in current.	Dominated by indigenous species. No *Sesbania punicea* and only isolated individuals of *Acacia longifolia, A. mearnsii, A. melanoxylon, Eucalyptus camaldulensis*. No *Azolla filiculoides, Lemna gibba* or other aquatic weeds.	Dominated by sensitive mountain stream taxa.	*Labeobarbus capensis, Austroglanis gilli*, *Austroglanis barnardi*, *Barbus calidus*, *Pseudobarbus phlegethon*, *Galaxias zebratus* should be present. There should be no alien species present
			Causeway to E1H006				-	
			E1H006 to confluence		-		-	-

[4] TWQR = Target Water Quality Range (as per South African Water Quality Guidelines)

IUA	Quaternary	River	Location for monitoring	Target Water Quality Range (TWQR[4])	Geomorphology	Riparian vegetation	Macro-invertebrates	Fish
Upper Olifants Irrigation (cont.)	E10G	Rondegat	EWR Site 3	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996a) and the Fitness for use - Class I for agricultural use (DWAF 1996b).	Riffle-run sequence, with aquatic vegetation and stones in current.	The indigenous riparian vegetation should be intact with no alien species	Dominated by sensitive mountain stream taxa.	*Labeobarbus capensis, Austroglanis gilli*, *Austroglanis barnardi*, *Barbus calidus*, *Pseudobarbus phlegethon*, *Galaxias zebratus* should be present. There should be no alien species present.
	E10E/ E10F	Olifants	E1H013/ EWR Site 1	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996a) and the Fitness for use - Class I for agricultural use (DWAF 1996b).	Riffle-run sequence, with aquatic vegetation and stones in current.	Dominated by indigenous species. No *Sesbania punicea* and only isolated individuals of *Acacia longifolia, A. mearnsii, A. melanoxylon, Eucalyptus camaldulensis*.	Community should be representative of a slightly impacted Western Cape foothill river.	*Labeobarbus capensis* should be present.
	E10C	Olifants	-	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996a) and the Fitness for use - Class I for agricultural use (DWAF 1996b).	-	-	-	*Labeobarbus capensis* should be present.
	E10D	Olifants	E1H013	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996a) and the Fitness for use - Class I for agricultural use (DWAF 1996b).	-	-	-	*Labeobarbus capensis* should be present.
Olifants/ Doring Dryland	E24M	Doring	E2H003	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996a)	Riffle/run-pool sequence, with deep pools.	Dominated by indigenous species. The presence of *Nerium oleander* should be strictly controlled.	Community should be dominated by Ephemeroptera, Trichoptera.	*Labeobarbus capensis*, *Barbus serra* and *Labeo seeberi* should be present.

IUA	Quaternary	River	Location for monitoring	Target Water Quality Range (TWQR[4])	Geomorphology	Riparian vegetation	Macro-invertebrates	Fish
Olifants/ Doring Dryland (cont.)	E40D	Koebee	Koebee	-	-	-	-	*Labeobarbus capensis*, *Barbus serra*, *Barbus anoplus* and *Labeo seeberi* should be present.
	E40C	Oorlogskloof	Upstream of Oorlogskloof Nature Reserve (ONR)	-	-	-	-	-
			In ONR (Brakwater: - 31° 27' 52.3368", 19° 4' 51.3192")	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996a) and the Fitness for use - Class I for agricultural use (DWAF 1996b).	-	-	-	*Labeobarbus capensis*, *Barbus serra*, *Barbus anoplus* and *Labeo seeberi* should be present.
	E33F	Troe-Troe	E3H001	-	-	-	-	None (insufficient data)
Koue Bokkeveld	E21K	Matjies	Matjies	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996a) and the Fitness for use - Class I for agricultural use (DWAF 1996b).	-	-	-	At least one of *Labeobarbus capensis*, *Barbus calidus*, *Pseudobarbus phlegethon*, *Barbus serra*, *Labeo seeberi* should be present.
	E21L	Groot	E2H002	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996a) and the Fitness for use - Class I for agricultural use (DWAF 1996b).	A riffle/run-pool sequence should be present at all flows.	Riparian vegetation should be intact and dominated by indigenous species. The presence of *Nerium oleander* should be strictly controlled. There should be no other alien species present.	Community should be dominated by Ephemeroptera, Trichoptera	*Labeobarbus capensis*, *Barbus serra* and *Labeo seeberi* should be present.
	Tributary of Leeu in E21H	Twee	Twee	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996a) and the Fitness for use - Class I for agricultural use (DWAF 1996b).	-	-	-	*Labeobarbus capensis*, *Barbus serra* and *Labeo seeberi* should be present.

IUA	Quaternary	River	Location for monitoring	Target Water Quality Range (TWQR[4])	Geomorphology	Riparian vegetation	Macro-invertebrates	Fish
Koue Bokkeveld (cont.)	E21J	Groot	EWR Site 6	Oligotrophic and should comply with the TWQRs for aquatic ecosystems (DWAF 1996a) and the Fitness for use -Class I for agricultural use (DWAF 1996b).	A riffle/run-pool sequence should be present at all flows.	Riparian vegetation should be intact and dominated by indigenous species. The presence of *Nerium oleander* should be strictly controlled. There should be no other alien species present.	Community should be dominated by Ephemeroptera, Trichoptera	*Labeobarbus capensis*, *Barbus serra* and *Labeo seeberi* should be present.
			Brandkraals	Oligotrophic and should comply with the TWQRs for aquatic ecosystems (DWAF 1996a) and the Fitness for use -Class I for agricultural use (DWAF 1996b).	-	-	-	At least one of *Labeobarbus capensis*, *Barbus calidus*, *Pseudobarbus phlegethon*, *Barbus serra*, *Labeo seeberi* should be present.
	E21G	Leeu	E2H007	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996a) and the Fitness for use - Class I for agricultural use (DWAF 1996b).	-	-	-	*Labeobarbus capensis* and *Galaxias zebratus* should be present.
Sandveld	G30D	Verlorevlei	G3H001	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996a)	-	-	-	Indigenous species should dominate and *Pseudobarbus burgi* (Verlorenvlei), *Galaxias zebratus* and *Sandelia capensis* should be present.
	G30F	Langvlei	River Node R56: 32°12'40.05"S, 18°23'8.25"E / Upstream of the Wadrif Pan and Wetland	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996a)	-	-	-	Indigenous species should dominate and *Pseudobarbus burgi* (Verlorenvlei), *Galaxias zebratus* and *Sandelia capensis* should be present.
	G30G	Jakkals	River	Should comply with the TWQRs for aquatic ecosystems (DWAF 1996a)	-	-	-	-

Table 5 Resource quality objectives for Water Quality in ESTUARIES, VLEIS AND WETLANDS in the Olifants-Doorn

IUA	Quaternary	Waterbody	General conditions and land based activities that must be prohibited	WQ	Vegetation	Invertebrates	Fish	Amphibians	Birds
Lower Olifants Irrigation	E33H	Olifants Estuary	No major water resource developments in the Doring River (provision of the Reserve alone in the Doring River will be insufficient to maintain the ecological integrity of the Doring River in a B-category and estuary in a C-category).	Shall not deteriorate from that measured in 2004.	The diversity and extent of indigenous macrophytes shall equal that measured in summer 2004. The extent of invasive waterweeds and nuisance filamentous algae shall be less relative to summer 2004. Microalgae should be dominated by flagellates. Phytoplankton and blue-green algal growth should be limited.	The polychaete worm species *Capitella capitata* should not dominate the invertebrate fauna.	The fish fauna should be dominated by estuarine and partially estuarine dependent species, and should include a significant number of 0-1 year old fish, with no age classes missing.	-	The abundance and diversity of birds shall be equal to or greater than those measured summer 2004.
Olifants-Doring dryland farming & Knersvlakte	E40C & E32E	Nieuwoudtville wetlands (Oorlogskloof, Grasberg, Soetfontein and other rivers)	No expansion of agriculture or other landuses in the remaining intact wetland areas (around 3000 ha taken together).	-	No further encroachment of woody alien vegetation into wetland areas and no change in WET-Health scores	-	-	-	-
Sandveld	G30E	Verlorenvlei / Verlorenvlei estuary	Mouth should open for an extended period from winter through into spring.	Shall not deteriorate from that measured prior to 2010.	Macrophytes, micro- and macro-algae community structure should not deteriorate from that measured in 2009.	-	The population should be dominated by indigenous species.	The Cape dainty frog (*Cacosternum capense*) should continue to occur.	The abundance and diversity of birds shall be equal to or greater than those measured prior to 2010.
	G30F	Wadrift wetlands	There should be no expansion of agriculture or other landuses in remaining intact wetland areas.	-	The wetlands should remain intact and the extent of invasion by woody alien plants should not increase.	-	*Galaxias zebratus* and *Sandelia capensis* should be present.	-	The abundance and diversity shall be equal to or greater than those measured prior to 2010.

IUA	Quaternary	Waterbody	General conditions and land based activities that must be prohibited	WQ	Vegetation	Invertebrates	Fish	Amphibians	Birds
		Wadrift saltpan	-	-	-	-	-	-	-
	G30G	Jakkals	There should be no expansion of agriculture or other landuses in remaining intact wetland areas.	-	-	-	-	-	-
	G30H	Sandlaagte	There should be no expansion of agriculture or other landuses in remaining intact wetland areas (around 678 ha taken together).	-	-	-	-	-	-

Table 6 Resource quality objectives for GROUNDWATER in the Olifants-Doorn

IUA	RU	Quaternary	Aquifer	PS	Hydrology			Water Quality		
					Discharge	Water level	Available yield	Nutrients	Salts	Pathogens
Upper Olifants Irrigation	40	E10D	Alluvium	A	No groundwater abstraction around wetland and river Freshwater Ecosystem Priority Areas (FEPAs) in accordance with the implementation manual for FEPAs. Compliance to the lowflow requirements in the river as per Reserve requirement	Not applicable	All users comply with the allocation schedule and individual licence conditions within the confirmed available yield	Shall not deteriorate from natural background. Fitness for use for domestic use in accordance with SANS 241:2011, after treatment		
			TMG	A	Not sufficient data	Not applicable	All users comply with the allocation schedule and individual licence conditions within the confirmed available yield	Shall not deteriorate from natural background.		
	33	E10E & E10F	Alluvium	B	No groundwater abstraction around wetland and river FEPAs in accordance with the implementation manual for FEPAs. Compliance to the lowflow requirements in the river as per Reserve requirement	Not applicable	All users comply with the allocation schedule and individual licence conditions within the confirmed available yield	Shall not deteriorate from natural background. Fitness for use for domestic use in accordance with SANS 241:2011, after treatment		
			TMG	B	Not sufficient data	Not applicable	All users comply with the allocation schedule and individual licence conditions within the confirmed available yield	Shall not deteriorate from natural background.		
Koue Bokkeveld	41	E21G	Bokkeveld	C	No groundwater abstraction around wetland and river FEPAs in accordance with the implementation manual for FEPAs. Compliance to the lowflow requirements in the river as per Reserve requirement	Not applicable	All users comply with the allocation schedule and individual licence conditions within the confirmed available yield	Shall not deteriorate from natural background. Fitness for use for domestic use in accordance with SANS 241:2011, after treatment		
			TMG	B	Not sufficient data	Not applicable	All users comply with the allocation schedule and individual licence conditions within the confirmed available yield	Shall not deteriorate from natural background.		

IUA	RU	Quaternary	Aquifer	PS	Hydrology			Water Quality		
					Discharge	Water level	Available yield	Nutrients	Salts	Pathogens
Olifants-Doring dryland farming	Q1	E33F	Gifberg	E	Not applicable	Not applicable	All users comply with the allocation schedule and individual licence conditions within the confirmed available yield	Shall not deteriorate from natural background.		
Sandveld	53	G30D	Sandveld	D	Compliance to the lowflow requirements in the river as per Reserve requirement	Not applicable	All users comply with the allocation schedule and individual licence conditions within the confirmed available yield	Shall not deteriorate from natural background. Fitness for use for domestic use in accordance with SANS 241:2011, after treatment		
	52	G30E	Sandveld	F	Compliance to the lowflow requirements in the river as per Reserve requirement	Minimum water level in abstraction boreholes within 10km from the ocean to avoid saline intrusion	All users comply with the allocation schedule and individual licence conditions within the confirmed available yield	Shall not deteriorate from natural background. Fitness for use for domestic use in accordance with SANS 241:2011, after treatment		
	56	G30F	Sandveld	F	No groundwater abstraction around wetland and river FEPAs in accordance with the implementation manual for FEPAs. Compliance to the lowflow requirements in the river as per Reserve requirement	Minimum water level in abstraction boreholes within 10km from the ocean to avoid saline intrusion	All users comply with the allocation schedule and individual licence conditions within the confirmed available yield	Shall not deteriorate from natural background. Fitness for use for domestic use in accordance with SANS 241:2011, after treatment		
	57	G30G	Sandveld	D	No groundwater abstraction around wetland and river FEPAs in accordance with the implementation manual for FEPAs. Compliance to the lowflow requirements in the river as per Reserve requirement	Minimum water level in abstraction boreholes within 10km from the ocean to avoid saline intrusion	All users comply with the allocation schedule and individual licence conditions within the confirmed available yield	Shall not deteriorate from natural background. Fitness for use for domestic use in accordance with SANS 241:2011, after treatment		