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GOVERNMENT NOTICES • GOEWERMENTSKENNISGEWINGS

DEPARTMENT OF WATER AND SANITATION**NO. 1616****30 DECEMBER 2016****NATIONAL WATER ACT, 1998
(ACT NO.36 OF 1998)****CLASSES OF WATER RESOURCES AND RESOURCE QUALITY OBJECTIVES FOR THE
CATCHMENTS OF THE INKOMATI**

I, Sifiso Mkhize, in my capacity as Acting Director-General of the Department of Water and Sanitation, and duly authorised in terms of sections 13(1) and 63(1)(a) of the National Water Act, 1998 (Act No.36 of 1998), hereby publish the notice for the classes of water resources and the resource quality objectives for the catchments of the Inkomati.

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MR. SIFISO MKHIZE**ACTING DIRECTOR-GENERAL OF THE DEPARTMENT OF WATER AND SANITATION****DATE:** 24/11/2016

SCHEDULE

DESCRIPTION OF WATER RESOURCE

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

Water Management Area: Inkomati-Usuthu

Drainage Region: X Primary Drainage Region

River(s): Komati (X1), Crocodile (X2), Sabie-Sand (X3), and X4 river systems

CLASSES OF WATER RESOURCES AS REQUIRED 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 1.1-1.4) and Ecological Categories (ECs) per biophysical node is set out in Table 1 to Table 4.
2. Integrated Units of Analysis (IUA) are classified in terms of their extent of permissible utilisation and protection as either Class I: indicating high environmental protection and minimal utilisation; or Class II indicating moderate protection and moderate utilisation; and Class III indicating sustainable minimal protection and high utilisation.
3. Table 1 to Table 4 provides the IUA, its Water Resource Classes and its respective catchment configuration. The catchment configuration consists of a number of biophysical nodes representing river reaches or resource units. The target EC for each unit in the IUA is provided.

RESOURCE QUALITY OBJECTIVES OF WATER RESOURCES AS REQUIRED IN TERMS OF SECTION 13(1)(b) OF THE NATIONAL WATER ACT, 1998

1. Resource Quality Objectives (RQO) are defined for each prioritised resource unit (RU) for every IUA in terms of water quantity, habitat and biota, and water quality, as shown in Table 5 – 20 respectively.
2. Where specified, the ecological category or Recommended Ecological Category (REC) 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.
3. Resource quality objectives 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.

PROPOSED WATER RESOURCE CLASSES FOR THE CATCHMENTS OF THE INKOMATI**Table 1: Summary of Water Resource Classes and Ecological Categories in the Komati (X1) River System**

IUAs	Class for IUAs	Biophysical node	River Name	Target EC
X1-1: Catchment upstream of Nooitgedacht Dam	II	X11A-01300		B
		X11A-01354		C
		X11A-01358	Vaalwaterspruit	C
		X11A-01295	Vaalwaterspruit	C
		X11A-01248	Vaalwaterspruit	C
		X11B-01370	Boesmanspruit	B
		X11B-01361		B/C
		X11B-01272	Boesmanspruit	B/C
X1-2: Komati River between Nooitgedacht and Vygeboom Dam	II	EWRK1	Komati	C
X1-3: All tributaries between Nooitgedacht and Vygeboom Dam excluding the main Komati River	II	X11C-01147	Witkloofspruit	C
		X11D-01129	Klein-Komati	C
		X11D-01137	Waarkraalloop	C
		X11E-01237	Swartspruit	B
		X11F-01133	Bankspruit	B
		X11G-01188	Ndubazi	B
		X11G-01143	Gemakstroom	C
X1-4: Gladdespruit catchment	III	EWRG1	Mngubhudle	D
		X11K-01165	Poponyane	C
		X11K-01199		D
X1-5: Komati River downstream of Vygeboom Dam to Swaziland	II	EWRK2	Komati	C
X1-6: All tributaries downstream of Vygeboom Dam in X1-6 excluding the Gladdespruit	I	EWRT1	Teespruit	C
		X12A-01305	Buffelspruit	B
		X12B-01246	Hlatjiwe	C
		X12C-01242	Phophenyane	B
		X12C-01271	Buffelspruit	B
		X12D-01235	Seekoeispruit	C
		X12H-01338	Sandspruit	B
		X12H-01340		B
		X12H-01318	Sandspruit	C
		X12J-01202	Mtsoli	B
		X12K-01333	Mlondozi	B/C
		X12K-01332	Mhlangampepa	B
X1-7: Lomati catchment upstream of Swaziland	II	X14A-01173	Lomati	B/C
		X14B-01166	Ugutugulo	C

IUAs	Class for IUAs	Biophysical node	River Name	Target EC
X1-8: Lomati catchment downstream of Driekoppies Dam	III	EWRL1	Lomati	C
		X14G-01128	Lomati	D/E
X1-9: Komati catchment downstream of Swaziland to the Lomati River confluence	III	X13J-01205	Mbiteni	D
		X13J-01141	Mzinti	D
		EWK3A	Komati	D
X1-10: Komati catchment downstream of the Lomati River	III	X13K-01114	Komati	D
		X13K-01136	Mambane	D
		X13K-01068	Nkwakwa	C/D
		X13K-01038	Komati	E
		X13L-01000	Ngweti	D
		X13L-01027	Komati	E
		X13L-00995	Komati	D

Table 2: Summary of Water Resource Classes and Ecological Categories in the Crocodile (X2) River System

IUAs	Class for IUAs	Biophysical node	River Name	Target EC
X2-1: Crocodile sub-catchment upstream of Kwena Dam	II	X21B-00898	Lunsklip	C/D
		X21B-00929	Gemsbokspruit	C/D
		X21B-00925	Lunsklip	C
		EWRC1	Crocodile	A/B
		EWRC2	Crocodile	B
		X21C-00859	Alexanderspruit	C
X2-2: Crocodile River downstream of the Kwena Dam to the Elands River	II	EWRC3	Crocodile	B/C
		X21D-00957	Buffelskloofspruit	B/C
		X21E-00897	Buffelskloofspruit	B
X2-3: Elands catchment upstream of the Weltevredespruit (excluded)	I	X21F-01100	Leeuspruit	C
		X21F-01092	Leeuspruit	C/D
		X21F-01091	Rietvleispruit	C
		EWRE1	Elands	B
X2-4: Elands River downstream of X2-3 to the Ngodwana confluence, including the Weltevredenspruit, the Ngodwana River upstream of the Ngodwana Dam and the Lupelele River	I	X21G-01090	Weltevredespruit	C
		X21G-01016	Swartkoppiespruit	C
		X21H-01060	Ngodwana	B
		X21K-01007	Lupelule	B
X2-5: Elands River downstream of the Ngodwana River	I	EWRE2	Elands	B
X2-6: Crocodile River to the Nels River	II	X22B-00987	Crocodile	C
		X22B-00888	Crocodile	C

IUAs	Class for IUAs	Biophysical node	River Name	Target EC
confluence		X22C-00946	Crocodile	C
		X22J-00993	Crocodile	C
X2-7: Houtbos and Visspruit Rivers	I	X22A-00824	Blystaanspruit	B
		X22A-00887	Beestekraalspruit	B/C
		X22A-00875	Houtbosloop	B
		X22A-00919	Houtbosloop	B/C
		X22A-00920		B
		X22A-00917	Houtbosloop	C
		X22A-00913	Houtbosloop	B
		X22C-00990	Visspruit	B/C
X2-8: Nels, Wit, and Gladdespruit rivers	II	X22D-00843	Nels	C
		X22D-00846		C
		X22F-00842	Nels	C
		X22E-00849	Sand	C
		X22E-00833	Kruisfonteinspruit	C
		X22F-00886	Sand	C
		X22F-00977	Nels	C/D
		X22C-01004	Gladdespruit	B/C
		X22H-00836	Wit	D
X2-9: Crocodile River to the Kaap confluence including the Blinkwater tributary	II	X22K-01042	Mbuzulwane	B
		X22K-01043	Blinkwater	B
		X22K-01029	Blinkwater	C
		EWRC4	Crocodile	C
X2-10: Kaap Catchment	II	X23B-01052	Noordkaap	C
		X23C-01098	Suidkaap	B/C
		EWRK7	Kaap	C
		X23E-01154	Queens	B/C
		X23F-01120	Suidkaap	C
X2-11: Crocodile River from the Kaap confluence to the Komati River.	II	EWRC5	Crocodile	C
		EWRC6	Crocodile	C
X2-12: Nsikazi River	II	X24A-00826	Nsikazi	C
		X24A-00860	Sithungwane	A
		X24A-00881	Nsikazi	B
		X24B-00903	Gutshwa	D
		X24B-00928	Nsikazi	A/B
		X24C-00969	Mnyeleni	A
		X24C-00978	Nsikazi	B
X2-13: Northern tributaries of the Crocodile	I	X24E-00973	Matjulu	B
		X24E-00922	Mlambeni	A/B

IUAs	Class for IUAs	Biophysical node	River Name	Target EC
River located in the KNP		X24G-00902	Mitomeni	A
		X24G-00876	Komapiti	A
		X24G-00844	Mbyamiti	A
		X24G-00823	Muhlambamadubo	A
		X24G-00820	Mbyamiti	A
		X24G-00904	Mbyamiti	A
		X24H-00882	Vurhami	A
		X24H-00892	Mbyamiti	A

Table 3: Summary of Water Resource Classes and Ecological Categories in the Sabie-Sand (X3) River System

IUAs	Class for IUAs	Biophysical node	River Name	Target EC
X3-1: Sabie catchment upstream of the Klein Sabie included confluence	I	X31A-00741	Klein Sabie	B/C
		X31A-00783		C
		X31A-00786		B
		X31A-00794		B
		X31A-00796		B
		X31A-00803		B/C
X3-2: Sabie River downstream of X3-1 to the Marite confluence including the Goudstroom, MacMac, Motitsi and Marite upstream of Inyaka Dam.	I	EWR S1	Sabie	B
		X31B-00792	Goudstroom	B/C
		EWR S4	Mac-Mac	B
		EWR S2	Sabie	B
		X31E-00647a	Marite (US of dam)	B
		X31F-00695	Motitsi	B
X3-3: Marite and Sabie River downstream of Inyaka Dam to the Sand confluence.	I	EWR S5	Marite	B/C
		EWR S3	Sabie	A/B
X3-4: Sabaan, Noord-Sand, Bejani, Saringwa, Musutlu rivers.	III	X31H-00819	White Waters	C
		X31J-00774	Noord-Sand	D
		X31D-00773	Sabani	C/D
		X31J-00835	Noord-Sand	D
		X31K-00713	Bejani	D
		X31L-00657	Matsavana	C
		X31M-00673	Musutlu	B/C
		X31L-00664	Saringwa	C
		X31L-00678	Saringwa	B/C
X3-5: Sabie River downstream of the Sand confluence to the RSA border.	I	X33A-00731	Sabie	A/B
		X33A-00737	Sabie	A/B
		X33B-00784	Sabie	A/B
		X33B-00804	Sabie	A/B

IUAs	Class for IUAs	Biophysical node	River Name	Target EC
		X33B-00829	Sabie	A/B
		X33D-00811	Sabie	A/B
		X33D-00861	Sabie	A/B
X3-6: Southern and northern tributaries of the Sabie in the KNP downstream of the Sand confluence including the Phabeni.	I	X31K-00771	Phabeni	B
		X31M-00763	Nwaswitshaka	A
		X33A-00661	Nwatindlopfu	A
		X33A-00806	Nwatimhiri	A
		X33B-00694	Salitje	A
		X33B-00834	Lubyelubye	A
		X33C-00701	Mnondozi	A
		X33D-00864	Mosehla	A
		X33D-00894	Nhlowa	A
		X33D-00908	Shimangwana	A
		X33D-00911	Nhlowa	A
X3-7: Mutlumuvi catchment.	II	X32E-00629	Nwarhele	C
		X32E-00639	Ndlobesuthu	D/E
		EWR S6	Mutlumuvi	C
		X32F-00628	Nwarhele	C/D
X3-8: Sand catchment to the Khokhovela included confluence	II	EWR S7	Tlulandziteka	C
		X32B-00551	Motlamogatsana	C
		X32C-00558	Nwandlamuhari	C
		X32C-00564	Mphyanyana	C
		X32C-00606	Nwandlamuhari	C
		X32G-00549	Khokhovela	C
X3-9: Sand catchment downstream of the Khokhovela confluence.	I	X32H-00560	Phungwe	A
		EWR S8	Sand	B
		X32J-00651	Mutlumuvi	A

Table 4: Summary of Water Resource Classes and Ecological Categories in the X4 River Systems

IUAs	Class for IUAs	Biophysical node	River Name	Target EC
IUA X4: Nwanedzi and Mwaswitsontso rivers	I	X40A-00437	Shinkelengane	A
		X40A-00454	Mmondzo	A
		X40A-00479	Nwanedzi	A
		X40A-00492	Rihlazen	A
		X40A-00433	Mtomeni	A
		X40A-00420	Gudzani	A
		X40A-00426	Mavumbye	A
		X40A-00475	Mavumbye	A/B
		X40A-00459	Nwanedzi	A
		X40A-00486	Nwanedzi	A/B
		X40A-00469	Nwanedzi	B
		X40B-00534	Nungwini	A
		X40B-00537	Gwini	A
		X40B-00532	Mrunzuluku	A
		X40B-00497	Sweni	A
		X40B-00531	Mrunzuluku	A
		X40B-00530	Mrunzuluku	A
		X40B-00511	Sweni	A
		X40C-00592	Ripape	A
		X40C-00513	Nwaswitsontso	B
		X40D-00663	Shilolweni	A
		X40D-00594	Metsimetsi	A
		X40D-00598	Nwaswitsontso	A/B
		X40D-00660	Nwaswitsontso	A

RESOURCE QUALITY OBJECTIVES

Resource Quality Objectives for each Resource Unit (RU) are presented in Tables below. All RQOs are applicable from the date signed off, unless otherwise stated.

Table 5-7 provides an indication of the hydrological RQOs for Rivers expressed in terms of flow at the Ecological Water Requirement (EWR) sites. These summarised statistics are representative of the required flow regime in the river where the variability is dependent on the seasonal and temporal pattern of natural flow conditions. The mean monthly flows represent low flow requirements for all the months.

Table 5: RIVERS: Summary of key hydrological RQOs of the KOMATI RIVER System (X1)

RU	Biophysical node	River	Target EC	nMAR ¹ (MCM)	Low flows (%nMAR) ²	Total flows (%nMAR)	Months	RQO ³	
								(m³/s)	
								90%	60%
IUA X1-2									
MRU Komati B	X11G-01142	Komati	C	158.6	16.1	27.5	Oct	0.25	0.49
	EWR K1	Nov	0.34	0.60					
		Dec	0.45	0.72					
		Jan	0.54	0.86					
		Feb	0.62	0.89					
		Mar	0.60	1.06					
		Apr	0.61	0.98					
		May	0.49	0.85					
		Jun	0.37	0.68					
		Jul	0.32	0.50					
		Aug	0.26	0.40					
		Sep	0.23	0.38					
IUA X1-4									
MRU Komati G	X11J-01106	Mngubhudle	D	29.5	19.9	26.9	Oct	0.002	0.004
	EWR G1	Nov	0.003	0.004					
		Dec	0.003	0.004					
		Jan	0.003	0.005					
		Feb	0.004	0.006					
		Mar	0.003	0.005					
		Apr	0.004	0.006					
		May	0.003	0.005					
		Jun	0.003	0.005					
		Jul	0.003	0.004					
		Aug	0.002	0.003					
		Sep	0.076	0.085					
IUA X1-5									
MRU Komati C	X12H-01258	Komati	C	545.6	9.3	18.3	Oct	0.60	0.82
	EWR K2	Nov	0.72	0.99					
		Dec	0.85	1.24					
		Jan	1.03	1.48					
		Feb	1.16	1.65					
		Mar	1.24	1.73					
		Apr	1.24	1.75					
		May	1.17	1.56					
		Jun	0.96	1.39					
		Jul	0.76	1.10					
		Aug	0.64	0.87					
		Sep	0.56	0.78					
IUA X1-5									
MRU	X12E-01287	Teespruit	C	56.4	22.6	35.3	Oct	0.21	0.27

RU	Biophysical node	River	Target EC	nMAR ¹ (MCM)	Low flows (%nMAR) ²	Total flows (%nMAR)	Months	RQO ³	
								(m ³ /s)	
								90%	60%
Komati T	EWR T1						Nov	0.23	0.29
							Dec	0.25	0.31
							Jan	0.27	0.34
							Feb	0.29	0.35
							Mar	0.31	0.36
							Apr	0.32	0.36
							May	0.31	0.36
							Jun	0.30	0.35
							Jul	0.27	0.33
							Aug	0.23	0.30
							Sep	0.21	0.27
IUA X1-8									
MRU	X14H-01066	Lomati	C	294.3	11.7	17.3	Oct	0.50	0.66
Komati M	EWR L1						Nov	0.45	0.68
							Dec	0.61	0.84
							Jan	0.84	1.05
							Feb	0.99	1.17
							Mar	1.15	1.29
							Apr	1.05	1.27
							May	1.03	1.24
							Jun	0.92	1.12
							Jul	0.72	0.97
							Aug	0.56	0.75
							Sep	0.42	0.64
IUA X1-9									
MRU	X13J-01130	Komati	D	1021.7	9.9	17.2	Oct	0.67	1.55
Komati D	EWR K3A						Nov	0.78	1.82
							Dec	0.98	2.16
							Jan	0.35	2.54
							Feb	1.55	2.80
							Mar	1.80	2.94
							Apr	1.65	2.96
							May	1.68	2.79
							Jun	1.32	2.61
							Jul	0.96	2.24
							Aug	0.77	1.80
							Sep	0.61	1.54

1 nMAR is the natural Mean Annual Runoff in million cubic meters per annum.

2 %nMAR is flow required at the nodes expressed as a percentage of the natural Mean Annual Runoff, Low flows and Total flows.

3 Percentage points on the monthly low flow frequency distribution continuum at the nodes, expressed as the percentage of the months (90% and 60%) that the flow should equal or exceed the indicated minimum values. Note that the detailed flow RQOs are provided in the technical document.

Table 6: RIVERS: Summary of key hydrological RQOs of the CROCODILE RIVER System (X2)

RU	Biophysical node	River	Target EC	nMAR ¹ (MCM)	Low flows (%nMAR) ²	Total flows (%nMAR)	Months	RQO ³	
								(m ³ /s)	
								90%	60%
IUA X2-1									
MRU Croc A	X21A-00930	Crocodile	A/B	15.6	24.4	30.3	Oct	0.03	0.07
	EWR C1						Nov	0.05	0.10
							Dec	0.07	0.12
							Jan	0.09	0.16
							Feb	0.12	0.21
							Mar	0.10	0.19
							Apr	0.10	0.19
							May	0.09	0.15

RU	Biophysical node	River	Target EC	nMAR ¹ (MCM)	Low flows (%nMAR) ²	Total flows (%nMAR)	Months	RQO ³	
								(m³/s)	
								90%	60%
							Jun	0.07	0.12
							Jul	0.05	0.10
							Aug	0.04	0.08
							Sep	0.03	0.06
MRU Croc A	X21B-00962 EWR C2	Crocodile	B	76.1	30.93	35.63	Oct	0.25	0.41
							Nov	0.34	0.60
							Dec	0.39	0.73
							Jan	0.53	1.02
							Feb	0.68	1.32
							Mar	0.60	1.15
							Apr	0.60	1.15
							May	0.49	0.93
							Jun	0.42	0.77
							Jul	0.35	0.62
							Aug	0.27	0.46
							Sep	0.24	0.38
							IUA X2-2		
MRU Croc B	X21E-00943 (EWR C3)	Crocodile	B/C	194	40.22	48.8	Oct	1.24	2.46
							Nov	1.20	2.47
							Dec	1.27	2.36
							Jan	1.36	2.48
							Feb	1.67	2.97
							Mar	1.48	2.65
							Apr	1.54	2.78
							May	1.43	2.59
							Jun	1.53	2.75
							Jul	1.51	2.71
							Aug	1.53	2.74
							Sep	1.37	2.65
IUA X2-9									
MRU Croc D	X21K-01018 EWR C4	Crocodile	C	824.8	25.96	31.74	Oct	2.10	4.37
							Nov	2.69	5.46
							Dec	3.34	6.59
							Jan	4.32	8.34
							Feb	6.02	11.46
							Mar	5.60	10.63
							Apr	5.34	10.20
							May	4.27	8.25
							Jun	3.61	7.09
							Jul	2.87	5.75
							Aug	2.30	4.74
							Sep	2.06	4.32
IUA X2-10									
MRU Kaap A	X23G-01057 EWR C7	Kaap	C	179.5	16.38	21.84	Oct	0.19	0.45
							Nov	0.32	0.67
							Dec	0.47	0.89
							Jan	0.61	1.12
							Feb	0.86	1.53
							Mar	0.84	1.49
							Apr	0.82	1.42
							May	0.68	1.24
							Jun	0.61	1.13
							Jul	0.47	0.89
							Aug	0.29	0.62
							Sep	0.17	0.44
IUA X2-11									
MRU Croc E	X24H-00934 EWR C6 ⁴	Crocodile	C	1165.6	n/a	12.52573782	Oct	1.15	1.70
							Nov	1.03	3.77
							Dec	2.37	5.26

RU	Biophysical node	River	Target EC	nMAR ¹ (MCM)	Low flows (%nMAR) ²	Total flows (%nMAR)	Months	RQO ³	
								(m ³ /s)	
								90%	60%
MRU Croc E	X24D-00994 EWR C5 ⁴	Crocodile	C	1117.4	n/a	22.19437981	Jan	3.48	7.45
							Feb	6.13	11.37
							Mar	4.44	10.63
							Apr	1.42	8.79
							May	1.27	1.69
							Jun	1.33	1.54
							Jul	1.26	1.53
							Aug	1.27	1.56
							Sep	1.26	1.44
							Oct	4.33	5.76
							Nov	4.39	6.52
							Dec	4.79	7.87
							Jan	5.32	9.29
							Feb	6.59	12.13
							Mar	6.03	11.16
							Apr	5.87	10.59
							May	5.28	9.17
							Jun	4.90	7.82
							Jul	4.34	6.46
							Aug	4.41	5.88
							Sep	4.31	5.57

1 nMAR is the natural Mean Annual Runoff in million cubic meters per annum.

2 %nMAR is flow required at the nodes expressed as a percentage of the natural Mean Annual Runoff, Low flows and Total flows.

3 Percentage points on the monthly low flow frequency distribution continuum at the nodes, expressed as the percentage of the months (90% and 60%) that the flow should equal or exceed the indicated minimum values. Note that the detailed flow RQOs are provided in the technical document.

4 The monthly flow requirements for EWR 5 and 6 represent the total flow defined by the current operating rule where the revised Present Ecological State low flows and releases for water users defines the minimum requirements for the respective EWR sites.

Table 7: RIVERS: Summary of key hydrological RQOs of the SABIE AND SAND RIVER System (X3)

RU	Biophysical node	River	Target EC	nMAR ¹ (MCM)	Low flows (%nMAR) ²	Total flows (%nMAR)	Months	RQO ⁻³	
								(m ³ /s)	
								90%	70%
IUA X3-2									
MRU	X31B-00757	Sabie	B	132	34.77	40.31	Oct	0.512	0.864
Sabie A	EWR S1						Nov	0.579	0.995
							Dec	0.645	1.133
							Jan	0.752	1.337
							Feb	0.974	1.771
							Mar	0.920	1.695
							Apr	0.931	1.720
							May	0.816	1.496
							Jun	0.772	1.404
							Jul	0.662	1.190
							Aug	0.578	1.011
	Sep	0.541	0.919						
MRU	X31D-00755	Sabie	B	261.7	23.72	28.2	Oct	0.377	0.693
Sabie A	EWR S2						Nov	0.498	0.945
							Dec	0.716	1.150
							Jan	1.105	1.521
							Feb	1.343	1.890

RU	Biophysical node	River	Target EC	nMAR ¹ (MCM)	Low flows (%nMAR) ²	Total flows (%nMAR)	Months	RQO ^{*3}	
								(m ³ /s)	
								90%	70%
							Mar	1.381	2.049
							Apr	1.504	2.093
							May	1.352	1.846
							Jun	1.166	1.796
							Jul	0.872	1.456
							Aug	0.620	1.073
							Sep	0.477	0.892
MRU X31C-00683 Mac A EWR S4	MacMac	B	65.78	37.15	45.31	Oct	0.250	0.438	
						Nov	0.304	0.518	
						Dec	0.372	0.627	
						Jan	0.471	0.772	
						Feb	0.655	1.063	
						Mar	0.638	1.036	
						Apr	0.636	1.036	
						May	0.533	0.877	
						Jun	0.487	0.810	
						Jul	0.393	0.660	
						Aug	0.316	0.539	
						Sep	0.270	0.472	
						IUA X3-3			
MRU X31K-00715 Sabie B EWR S3	Sabie	A/B	493.69	30.86	37.94	Oct	1.572	2.572	
						Nov	1.843	3.124	
						Dec	2.192	3.890	
						Jan	2.679	4.933	
						Feb	3.691	7.001	
						Mar	3.524	6.732	
						Apr	3.456	6.532	
						May	2.889	5.370	
						Jun	2.633	4.799	
						Jul	2.204	3.904	
						Aug	1.856	3.173	
						Sep	1.676	2.762	
MRU X31G-00728 Mar A EWR S5 ^{*5}	Marite	B/C	156.4	21.64	28.57	Oct	0.352	0.509	
						Nov	0.424	0.652	
						Dec	0.531	0.877	
						Jan	0.676	1.175	
						Feb	0.958	1.741	
						Mar	0.919	1.684	
						Apr	0.860	1.545	
						May	0.657	1.143	
						Jun	0.578	0.970	
						Jul	0.478	0.769	
						Aug	0.409	0.624	
						Sep	0.374	0.547	

RU	Biophysical node	River	Target EC	nMAR ¹ (MCM)	Low flows (%nMAR) ²	Total flows (%nMAR)	Months	RQO ³	
								(m ³ /s)	
								90%	70%
IUA X3-7									
MRU	X32F-00597	Mutlumuvi	C	45	26.01	28.46	Oct	0.076	0.148
Mut A	EWR S6						Nov	0.110	0.193
							Dec	0.165	0.279
							Jan	0.235	0.397
							Feb	0.360	0.575
							Mar	0.362	0.561
							Apr	0.339	0.526
							May	0.261	0.418
							Jun	0.231	0.373
							Jul	0.184	0.316
							Aug	0.154	0.267
							Sep	0.110	0.197
IUA X3-8									
MRU	X32A-00583	Tlulandziteka	C	28.896	20.44	32.67	Oct	0.026	0.071
Sand A	EWR S7						Nov	0.022	0.066
							Dec	0.078	0.129
							Jan	0.137	0.219
							Feb	0.190	0.289
							Mar	0.208	0.309
							Apr	0.178	0.288
							May	0.134	0.223
							Jun	0.105	0.197
							Jul	0.082	0.164
							Aug	0.047	0.105
							Sep	0.026	0.081
IUA X3-9									
MRU	X32J-00602	Sand	B	133.6	18.48	25.46	Oct	0.076	0.240
Sand B	EWR S8						Nov	0.138	0.329
							Dec	0.189	0.482
							Jan	0.343	0.791
							Feb	0.587	1.495
							Mar	0.567	1.402
							Apr	0.449	1.057
							May	0.304	0.639
							Jun	0.243	0.541
							Jul	0.226	0.492
							Aug	0.153	0.377
							Sep	0.104	0.283

¹ nMAR is the natural Mean Annual Runoff in million cubic meters per annum.

² %nMAR is flow required at the nodes expressed as a percentage of the natural Mean Annual Runoff, Low flows and Total flows.

³ Percentage points on the monthly low flow frequency distribution continuum at the nodes, expressed as the percentage of the months (90% and 70%) that the flow should equal or exceed the indicated minimum values. Note that the detailed flow RQOs are provided in the technical document.

⁴ Note that EWR C5 currently receives much more flow than natural at times. Any additional increases will degrade the system and the RQO will not be achieved.

Habitat and biota RQOs are provided as Ecological Categories. There are generic narrative and numerical RQOs associated with the Ecological Categories and Table 8 describes these for each Ecological Category.

Table 8: Generic numerical and narrative RQOs associated with Ecological Categories

ECOLOGICAL CATEGORY	GENERIC NARRATIVE RQO	INSTREAM AND RIPARIAN HABITAT NARRATIVE RQO	FISH, MACROINVERTEBRATE AND RIPARIAN VEGETATION NARRATIVE RQO	NUMERICAL RQO
A	Unmodified, near natural.	Very similar to natural reference conditions	Assemblage attributes as specified	$\geq A (\geq 92\%)$
A/B				$\geq A/B (\geq 88\%)$
B	Largely natural with few modifications.	Largely natural with few modifications. The flow regime has been only slightly modified and pollution is limited to sediment. A small change in natural habitats may have taken place. However, the ecosystem functions are essentially unchanged.	Assemblage attributes as specified	$\geq B (\geq 82\%)$
B/C				$\geq B/C (\geq 78\%)$
C	Moderately modified.	Moderately modified. Loss and change of natural habitat and biota have occurred, but the basic ecosystem functions are still predominantly unchanged.	Assemblage attributes as specified	$\geq C (\geq 62\%)$
C/D				$\geq C/D (\geq 58\%)$
D	Largely modified.	Largely modified. A large loss of natural habitat, biota and basic ecosystem functions has occurred.	Assemblage attributes as specified	$\geq D (\geq 42\%)$
D/E				$\geq D/E (\geq 38\%)$
E	Seriously modified.	Seriously modified. The loss of natural habitat, biota and basic ecosystem functions is extensive.	Assemblage attributes as specified	20-39%
F	Critically / Extremely modified.	Critically / Extremely modified. Modifications have reached a critical level and the system has been modified completely with an almost complete loss of natural habitat and biota. In the worst instances the basic ecosystem functions have been destroyed and the changes are irreversible.	Assemblage attributes as specified	0-19%

Table 9 to Table 11 provides the habitat and biota RQOs for each IUA for HIGH priority Resource Units.

Table 9: Habitat and biota RQOs for RIVERS for geomorphology, riparian vegetation, macro-invertebrate and fish in priority Resource Units of the KOMATI RIVER System (X1)

IUA	RESOURCE UNIT (Biophysical node) (River)	Geomorphology	Fish	Macro-invertebrates	Riparian vegetation
IUA X1-2	MRU KOMATI B (EWR K1) (Komati River)	C	C	B/C	C
IUA X1-4	MRU KOMATI G (EWR G1) (Gladdespruit River)	D	D	D	D
IUA X1-5	MRU KOMATI C (EWR K2) (Komati River)	C	C	C	C
IUA X1-5	MRU KOMATI T (EWR T1) (Teewaterspruit River)	C	C	C	C
IUA X1-8	MRU KOMATI M (EWR L1) (Lomati River)	D	C	C	B/C
IUA X1-9	MRU KOMATI D (EWR K3) (Komati River)	D/E	C/D	D	D
IUA X1-2	MRU KOMATI B (EWR K1) (Komati River)	C	C	B/C	C

Table 10: Habitat and biota RQOs for RIVERS for habitat integrity, geomorphology, riparian vegetation, macro-invertebrate and fish in priority Resource Units of the CROCODILE RIVER System (X2)

IUA	RESOURCE UNIT (Biophysical node) (River)	Instream Habitat Integrity	Riparian Habitat Integrity	Geomorphology	Fish	Macro-invertebrates	Riparian vegetation
IUA X2-1	MRU CROC A (EWR C1) (Crocodile River)	B	B	B	A	B	A
IUA X2-1	MRU CROC A (EWR C2) (Crocodile River)	B	B	B	B	B	A/B
IUA X2-2	MRU CROC B (EWR C3) (Crocodile River)	C	C	C	B	C	C
IUA X2-9	MRU CROC D (EWR C4) (Crocodile River)	C	C	B/C	B	C	C
IUA X2-11	MRU CROC E (EWR C5) (Crocodile River)	C	C	C/D	C	C	C
IUA X2-11	MRU CROC E (EWR C6) (Crocodile River)	C/D	C/D	C	C	C	C
IUA X2-10	MRU KAAP A (EWR C7) (Kaa River)	C	C	B	C	B	C/D

Table 11: Habitat and biota RQOs for RIVERS for geomorphology, riparian vegetation, macro-invertebrate and fish in priority Resource Units of the SABIE AND SAND RIVER System (X3)

IUA	RESOURCE UNIT (Biophysical node) (River)	Instream Habitat Integrity	Riparian Habitat Integrity	Geomorphology	Fish	Macro-invertebrates	Riparian vegetation
IUA X3-2	MRU SABIE A (EWR S1) (Sabie River)	B/C	B/C	B	B	B	B
IUA X3-2	MRU SABIE A (EWR S2) (Sabie River)	C	C	B	B	B	B
IUA X3-3	MRU SABIE B (EWR S3) (Sabie River)	B	B	B	B	B	A/B
IUA X3-2	MRU MAC A (EWR S4) MacMac River)	B	A/B	A	B/C	A/B	A/B
IUA X3-	MRU MAR A (EWR	C	B/C	C	B/C	B/C	B/C

3	S5) (Marite River)						
IUA X3-7	MRU MUT A (EWR S6) (Mutlumuvi River)	C	C	C	C	B/C	C
IUA X3-8	MRU SAND A (EWR S7) (Thulandziteka River)	C/D	C	C	C	C	C
IUA X3-9	MRU SAND B (EWR S8) (Sand River)	C	B/C	C	B	B	B

Table 12-14 provides the water quality RQOs for each IUA for priority Resource Units represented by EWR sites. Note that water quality includes both the target ecological target (TEC) and the user targets as narrative RQOs.

Table 12: RQOs for RIVERS for water quality (ecological and user) in priority Resource Units of the KOMATI RIVER System (X1)

IUA	RU	Target EC	Sub-Component	Narrative RQO	Numerical RQO
IUA X1-2	MRU KOMATI B (EWR K1)	B	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.02 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 50 mS/m (aquatic ecosystems: driver).
			Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (1996a) or the upper limit of the A category in DWAF (2008).
IUA X1-4	MRU KOMATI G (EWR G1) (Gladdespruit River)	C	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.02 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAF, 1996a).
				Ideal	As levels: 95th percentile of the data must be less than 0.020 mg/L As (aquatic ecosystems: driver).
				Ideal	Cn (free) levels: 95th percentile of the data must be less than 0.004 mg/L Cn (aquatic ecosystems: driver).
			Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
IUA X1-5	MRU KOMATI C (EWR K2) (Komati River)	B/C	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.02 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 55 mS/m (aquatic ecosystems: driver).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
			Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
IUA X1-5	MRU KOMATI T (EWR T1) (Teewaterspruit River)	B/C	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Faecal coliforms and <i>E.Coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
			Turbidity	Acceptable	Not available (Aquatic ecosystems driver).

IUA	RU	Target EC	Sub-Component	Narrative RQO	Numerical RQO
IUA X1-8	MRU KOMATI M (EWR L1) (Lomati River)	B/C	Nutrients (phosphate and Total Inorganic Nitrogen)	Tolerable	50th percentile of the data must be less than 0.075 mg/L PO ₄ -P (aquatic ecosystems: driver).
				Acceptable	50th percentile of the data must be less than 1 mg/L TIN-N (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Acceptable	95th percentile of the data must be less than or equal to 40 mS/m (aquatic ecosystems: driver).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
			Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
			Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (1996a) or the upper limit of the A category in DWAF (2008).
IUA X1-9	MRU KOMATI D (EWR K3) (Komati River)	D	Nutrients (phosphate and Total Inorganic Nitrogen)	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (aquatic ecosystems: driver).
				Acceptable	50th percentile of the data must be less than 1 mg/L (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Tolerable	95th percentile of the data must be less than or equal to 85 mS/m (Aquatic ecosystems: driver).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
			Periphyton	Acceptable	50th percentile of the data must be less than 21 mg/m ² (aquatic ecosystems: driver).
			Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (1996a) or the upper limit of the A category in DWAF (2008).

Not available: no numerical guideline.

TWQR = Target Water Quality Range (DWAF, 1996a).

DWAF (1996a): South African Water Quality Guidelines: Volume 7: Aquatic Ecosystems.

DWAF (1996b): South African water quality guidelines. Volume 2: Recreational Use.

Table 13: RQOs for RIVERS for water quality (ecological and user) in priority Resource Units of the CROCODILE RIVER System (X2)

IUA	RU	Target EC	Sub-Component	Narrative RQO	Numerical RQO
IUA X2-1	MRU CROC A (EWR C1) (Crocodile River)	A	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.015 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-120 counts per 100 ml (DWAF, 1996b).
IUA X2-1	MRU CROC A (EWR C2) (Crocodile River)	C	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
IUA X2-2	MRU CROC B (EWR C3) (Crocodile River)	C	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.015 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
			Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (1996a) or the upper limit of the A category in DWAF (2008).
IUA X2-9	MRU CROC D (EWR C4) (Crocodile River)	C	Nutrients (phosphate)	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Acceptable	95th percentile of the data must be less than or equal to 70 mS/m (aquatic ecosystems: driver).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
			Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (1996a) or the upper limit of the A category in DWAF (2008).
IUA X2-11	MRU CROC E (EWR C5) (Crocodile River)	C	Nutrients (phosphate)	Tolerable	50th percentile of the data must be less than 0.075 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Acceptable	95th percentile of the data must be less than or equal to 70 mS/m (aquatic ecosystems: driver).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).

			Temperature	Acceptable	A moderate change to instream temperatures should occur infrequently, i.e. vary by no more than 2°C (aquatic ecosystems: driver).
			Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
			Toxics	Acceptable	95th percentile of the data must be within the CEV for toxics (DWAf, 1996a) or the upper limit of the B category in DWAf (2008).
IUA X2-11	MRU CROC E (EWR C6) (Crocodile River)	C	Nutrients (phosphate)	Tolerable	Phosphate: 50th percentile of the data must be less than 125 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Acceptable	95th percentile of the data must be less than or equal to 70 mS/m (aquatic ecosystems: driver).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996b).
			Temperature	Acceptable	A moderate change to instream temperatures should occur infrequently, i.e. vary by no more than 2°C (aquatic ecosystems: driver).
			Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
			Toxics	Acceptable	95th percentile of the data must be within the CEV for toxics (DWAf, 1996a) or the B category in DWAf (2008).
IUA X2-10	MRU KAAP A (EWR C7) (KaaP River)	B	Nutrients (phosphate and Total Inorganic Nitrogen)	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (aquatic ecosystems: driver).
					50th percentile of the data must be < 4.0 mg/L TIN-N (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Acceptable	95th percentile of the data must be less than or equal to 200 mS/m (Aquatic ecosystems: driver).
			Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (1996a) or the upper limit of the A category in DWAf (2008).
				Ideal	As levels: 95th percentile of the data must be less than 0.020 mg/L As (aquatic ecosystems: driver).
				Ideal	Cn (free) levels: 95th percentile of the data must be less than 0.004 mg/L Cn (aquatic ecosystems: driver).

Not available: no numerical guideline.

TWQR = Target Water Quality Range (DWAf, 1996a).

CEV = Chronic Effects Value (DWAf, 1996a).

DWAf (1996a): South African Water Quality Guidelines: Volume 7: Aquatic Ecosystems.

DWAf (1996b): South African water quality guidelines. Volume 2: Recreational Use.

Table 14: RQOs for RIVERS for water quality (ecological and user) in priority Resource Units of the SABIE AND SAND RIVER System (X3)

IUA	RU	Target EC	Sub-Component	Narrative RQO	Numerical RQO
IUA X3-2	MRU SABIE A (EWR S1) (Sabie River)	A/B	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.015 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
			Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (1996a) or the upper limit of the A category in DWAF (2008).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
IUA X3-2	MRU SABIE A (EWR S2) (Sabie River)	B	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.015 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
			Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (1996a) or the upper limit of the A category in DWAF (2008).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
IUA X3-3	MRU SABIE B (EWR S3) (Sabie River)	B	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.015 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
			Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
			Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (1996a) or the upper limit of the A category in DWAF (2008).
IUA X3-2	MRU MAC A (EWR S4) (Crocodile River)	A/B	Turbidity	Acceptable	Not available (aquatic ecosystems: driver).

IUA	RU	Target EC	Sub-Component	Narrative RQO	Numerical RQO
IUA X3-3	MRU MAR A (EWR S5) (Marite River)	B	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.015 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
			Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (1996a) or the upper limit of the A category in DWAF (2008).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
IUA X3-7	MRU MUT A (EWR S6) (Mutlumuvi River)	B	Nutrients (phosphate)	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Acceptable	95th percentile of the data must be less than or equal to 55 mS/m (aquatic ecosystems: driver).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
			Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
			Toxics	Acceptable	95th percentile of the data must be within the CEV for toxics (DWAF, 1996a) or the upper limit of the B category in DWAF (2008).
IUA X3-8	MRU SAND A (EWR S7) (Thulandziteka River)	C	Nutrients (phosphate)	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Electrical Conductivity (salts)	Acceptable	95th percentile of the data must be less than or equal to 42 mS/m (aquatic ecosystems: driver).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
			Turbidity	Acceptable	Not available (Aquatic ecosystems: driver).
			Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (1996a) or the upper limit of the A category in DWAF (2008).
IUA X3-9	MRU SAND B (EWR S8) (Sand River)	B	Nutrients (phosphate)	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (aquatic ecosystems: driver).
			Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).

Not available: no numerical guideline.

TWQR = Target Water Quality Range (DWAF, 1996a).

CEV = Chronic Effects Value (DWAF, 1996a).

DWAF (1996a): South African Water Quality Guidelines: Volume 7: Aquatic Ecosystems.

DWAF (1996b): South African water quality guidelines. Volume 2: Recreational Use.

Tables 15 – 17 provide the water quality RQOs for priority RUs (other than EWR sites) in the respective river systems.

Table 15: RIVERS: Summary of key WATER QUALITY RQOs in WQ priority RUs of the KOMATI RIVER System (X1)

IUA	RU	Sub-Component	Narrative RQO	Numerical RQO
IUA X1-1	RU K1: X11A-01358, X11A-01248, X11A-01295	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
		Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996b).
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAf, 1996a) or the upper limit of the A category in DWAf (2008).
		Sulphate	Ideal	95th percentile of the data must be less than 30 mg/L (industrial cat 3: driver).
		pH	Acceptable	5th percentile of 5.9-6.5; 95th percentile of 8.0-8.8 (aquatic ecosystems: driver).
IUA X1-1	RU K2: X11B-01370, X11B-01361, X11B-01272.	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
		Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996b).
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAf, 1996a) or the upper limit of the A category in DWAf (2008).
		Sulphate	Acceptable	95th percentile of the data must be less than 80 mg/L (industrial cat 3: driver).
		pH	Acceptable	5th percentile of 5.9-6.5; 95th percentile of 8.0-8.8 (aquatic ecosystems: driver).
IUA X1-3	RU K3: X11C-01147, X11D-01129, X11D-01137.	Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAf, 1996a) or the upper limit of the A category in DWAf (2008).
		Sulphate	Acceptable	95th percentile of the data must be less than 30 mg/L (industrial cat 3: driver).
		pH	Acceptable	5th percentile of 5.9-6.5; 95th percentile of 8.0-8.8 (aquatic ecosystems: driver).
IUA X1-3	RU K4: X11E-01237.	Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics or the upper limit of the A category in DWAf (2008).
		Turbidity	Acceptable	Not available (aquatic ecosystems: driver).

IUA	RU	Sub-Component	Narrative RQO	Numerical RQO
IUA X1-10	RU K13: X13L-01000.	Electrical Conductivity (salts)	Tolerable	95th percentile of the data must be less than or equal to 85 mS/m (aquatic ecosystems: driver).
		Nutrients (phosphate)	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996b).
		Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
IUA X1-10	MRU Komati E: X13K-01114, X13K-01038, X13L-01027, X13L-00995.	Nutrients (phosphate)	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Electrical Conductivity (salts)	Tolerable	95th percentile of the data must be less than or equal to 85 mS/m (aquatic ecosystems: driver).
		Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996b).
		Toxics	Acceptable	95th percentile of the data must be within the CEV for toxics (DWAf, 1996a) or the upper limit of the B category in DWAf (2008).
		Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
		Temperature	Acceptable	A moderate change to instream temperatures should occur infrequently, i.e. vary by no more than 2°C (aquatic ecosystems: driver).

Not available: no numerical guideline.

TWQR = Target Water Quality Range (DWAf, 1996a).

CEV = Chronic Effects Value (DWAf, 1996a).

DWAf (1996a): South African Water Quality Guidelines: Volume 7: Aquatic Ecosystems.

DWAf (1996b): South African water quality guidelines. Volume 2: Recreational Use.

Table 16: RIVERS: Summary of key WATER QUALITY RQOs in WQ priority RUs of the CROCODILE RIVER System (X2)

IUA	RU	Sub-Component	Narrative RQO	Numerical RQO
IUA X2-3	MRU Elan A: X21F-01046, X21F-01081, X21G-01037 (ER1).	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
		Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996b).
		pH	Ideal	5th and 95th percentile of 6.5 and 8 (aquatic ecosystems: driver).
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAf, 1996a) or the upper limit of the A category in DWAf (2008).

IUA	RU	Sub-Component	Narrative RQO	Numerical RQO
		Cr(VI)	Ideal	95th percentile of the data must be less than 0.014 mg/L Cr(VI) (aquatic ecosystems: driver).
		Mn	Ideal	95th percentile of the data must be within the TWQR of 0.180 mg/L Mn (aquatic ecosystems: driver).
IUA X2-3	RU C7: X21F-01100.	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
		Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
		pH	Ideal	5th and 95th percentile of 6.5 and 8 (aquatic ecosystems: driver).
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAF, 1996a) or the upper limit of the A category in DWAF (2008).
		Cr-Vi	Ideal	95th percentile of the data must be less than 0.014 mg/L Cr-VI (aquatic ecosystems: driver).
		Mn	Ideal	95th percentile of the data must be within the TWQR of 0.180 mg/L Mn (aquatic ecosystems: driver).
IUA X2-4	MRU Elan B: X21G-01073, X21J-01013.	Electrical Conductivity (salt)	Acceptable	95th percentile of the data must be less than or equal to 55 mS/m (aquatic ecosystems: driver).
		Nutrients	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAF, 1996a) or the upper limit of the A category in DWAF (2008).
		Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
IUA X2-5	MRU Elan B: X21K-01035 (ER 2), X21K-00997.	Electrical Conductivity (salts)	Acceptable	95th percentile of the data must be less than or equal to 55 mS/m (aquatic ecosystems: driver).
		Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAF, 1996a) or the upper limit of the A category in DWAF (2008).
		Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
IUA X2-6 and part of IUA X2-9	MRU Croc C: X22B-00987, X22B-00888, X22C-00946, X22J-00993, X22J-00958, X22K-00981.	Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Electrical Conductivity (salts)	Acceptable	95th percentile of the data must be less than or equal to 55 mS/m (aquatic ecosystems: driver).

IUA	RU	Sub-Component	Narrative RQO	Numerical RQO
		Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
		Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAF, 1996a) or the upper limit of the A category in DWAF (2008).
		Mn	Ideal	95th percentile of the data must be within the TWQR of 0.180 mg/L Mn (aquatic ecosystems: driver).
IUA X2-8	RU C12: X22C-01004	Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAF, 1996a) or the upper limit of the A category in DWAF (2008).
		Mn	Ideal	95th percentile of the data must be within the TWQR of 0.180 mg/L Mn (aquatic ecosystems: driver).
		Turbidity	Acceptable	Not available (aquatic ecosystems: driver)
IUA X2-8	RU C14: X22H-00836	Electrical Conductivity (salts)	Acceptable	95th percentile of the data must be less than or equal to 55 mS/m (aquatic ecosystems: driver).
		Nutrients (phosphate)	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics or the upper limit of the A category in DWAF (2008).
		Sub-Component	Narrative RQO	Numerical RQO
		Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
		Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
		Nutrients (phosphate)	Tolerable	50th percentile of the data must be less than 0.075 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
		Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAF, 1996b).

IUA	RU	Sub-Component	Narrative RQO	Numerical RQO
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAf, 1996a) or the upper limit of the A category in DWAf (2008).
		As	Ideal	95th percentile of the data must be within the TWQR of 0.02 mg/L As (aquatic ecosystems: driver).
		Cn (free)	Ideal	95th percentile of the data must be less than 0.004 mg/L Cn (aquatic ecosystems: driver).
		Electrical Conductivity (salts)	Acceptable	95th percentile of the data must be less than or equal to 85 mS/m (aquatic ecosystems: driver).
		Nutrients (phosphate)	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Faecal coliforms and E.coli	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996b).
		Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
		Electrical Conductivity (salts)	Acceptable	95th percentile of the data must be less than or equal to 55 mS/m (aquatic ecosystems: driver).
		Nutrients (phosphate)	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Faecal coliforms and E.coli	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996b).
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAf, 1996a) or the upper limit of the A category in DWAf (2008).

TWQR = Target Water Quality Range (DWAf, 1996a).

DWAf (1996a): South African Water Quality Guidelines: Volume 7: Aquatic Ecosystems.

DWAf (1996b): South African water quality guidelines. Volume 2: Recreational Use.

Table 17: RIVERS: Summary of key WATER QUALITY RQOs in WQ priority RUs of the SABIE AND SAND RIVER System (X3)

IUA	RU	Sub-Component	Narrative RQO	Numerical RQO
IUA X3-4	RU S6: X31J-00774, X31J-00835.	Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
		Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Faecal coliforms and E.coli	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996b).
		Turbidity	Acceptable	Not available (aquatic ecosystems: driver).

IUA	RU	Sub-Component	Narrative RQO	Numerical RQO
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAf, 1996a) or the upper limit of the A category in DWAf (2008).
IUA X3-4	RU S9: X31K-00713.	Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
		Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996b).
		Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAf, 1996a) or the upper limit of the A category in DWAf (2008).
IUA X3-5	MRU Sabie C: X33A-00731, X33A-00737, X33B-00784, X33B-00804, X33B-00829, X33D-00811, X33D-00861	Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 42 mS/m (aquatic ecosystems: driver).
		Nutrients (phosphate)	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996b).
		Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAf, 1996a) or the upper limit of the A category in DWAf (2008).
		Sub-Component	Narrative RQO	Numerical RQO
		Electrical Conductivity (salts)	Ideal	95th percentile of the data must be less than or equal to 42 mS/m (aquatic ecosystems: driver).
		Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Periphyton chl-a levels	Tolerable	50th percentile of the data must be less than or equal to 84 mg/m ² (aquatic ecosystems: driver).
		Faecal coliforms and <i>E.coli</i>	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996b).
		Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAf, 1996a) or the upper limit of the A category in DWAf (2008).

IUA	RU	Sub-Component	Narrative RQO	Numerical RQO
		Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO ₄ -P (aquatic ecosystems: driver).
		Faecal coliforms and E.coli	Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996b).
		Turbidity	Acceptable	Not available (aquatic ecosystems: driver).
		Toxics	Ideal	95th percentile of the data must be within the TWQR for toxics (DWAf, 1996a) or the upper limit of the A category in DWAf (2008).

Not available: no numerical guideline.

TWQR = Target Water Quality Range (DWAf, 1996a).

DWAf (1996a): South African Water Quality Guidelines: Volume 7: Aquatic Ecosystems.

DWAf (1996b): South African water quality guidelines. Volume 2: Recreational Use.

Table 18 – 20 provides the groundwater RQOs based on the prioritisation and baseline assessment of the eleven Groundwater Units. The relevant RQO parameters used included water level, baseflow and water quality. The setting of water quantity related RQOs (i.e. water level and baseflow) is aimed at maintaining water levels within natural seasonal fluctuations ensuring sufficient yield for all users and to improve or maintain groundwater discharge to support low flow river requirements. The setting of water quality related RQOs is aimed at maintaining the groundwater quality in relation to its background/present level, or ensuring compliance with water quality standards for domestic use, as this is the more stringent requirement for the variety of users in the Groundwater Unit.

Table 18: Summary of RQOs for Groundwater in the Komati River Catchment

IUA	Groundwater Unit	Component	Narrative RQO	Indicator/Measure	Numerical Criteria
X1-2 and X1-3	GU1-3	Quantity	Groundwater flow directions in the resource unit should not be reversed from its natural flow directions towards the drainage systems.	Flow measurement at EWR G1.	19.9 % nMAR ¹
X1-6 and X1-5	GU1-5			Flow measurement at EWR T1.	22.6 % nMAR ¹
X1-8 and X1-9	GU1-6			Flow measurement at EWR K3 and EWR L1.	9.9 and 11.7 % nMAR ¹
X1-6 and X1-5	GU1-5	Aquifer	No negative trend between peak drawdowns during dry seasons. Seasonal fluctuation to stay within natural range.	Water level - Depth to Groundwater Level at active monitoring boreholes using Groundwater Monitoring Guidelines*.	
X1-8 and X1-9	GU1-6				
All	All	Quality	Groundwater quality should be based on background groundwater quality. Sites that exceed the water use requirement ² should not be allowed to deteriorate in water quality.	Background water quality per borehole/spring using Groundwater Monitoring Guidelines* Bi-annual monitoring.	
X1-1	GU1-1		Salinity levels should not increase. Concentrations must be maintained at levels to support domestic and ecological water users.	Salts - Electrical Conductivity. Bi-annual monitoring.	Electrical Conductivity ≤ 40 mS/m (based on quality dataset) ² .
X1-6 and X1-5	GU1-5		Nitrate values in the GU must be maintained to support domestic water	Nutrients – Nitrate (as Nitrogen). Bi-annual monitoring.	Nitrate (as N) < 4 mg/l in recharge area (based on quality dataset) ² .

IUA	Groundwater Unit	Component	Narrative RQO	Indicator/Measure	Numerical Criteria
			users.		
X1-8 and X1-9	GU1-6		Nitrate values in the GU must be maintained to support domestic water users.	Nutrients – Nitrate (as Nitrogen). Bi-annual monitoring.	Nitrate (as N) < 5 mg/l in recharge area (based on quality dataset) ² .

Table 19: Summary of RQOs for Groundwater in the Crocodile River Catchment

IUA	GUs	Component	Narrative RQO	Indicator/Measure	Numerical Criteria
X2-2 and X2-4	GU2-3	Quantity	Groundwater flow directions in the resource unit should not be reversed from its natural flow directions towards the drainage systems.	Flow measurement at EWR C3 and ER1.	30.1 and 4.97 % nMAR ¹ .
X2-7, X2-5, X2-6, X2-8 and X2-9	GU2-4			Flow measurement at EWR C4.	9.07 % nMAR ¹ .
X2-10	GUA2-5			Continuous flow measurement at EWR C7.	6.18 % nMAR ¹ .
X2-2 and X2-4	GU2-3	Aquifer	No negative trend between peak drawdowns during dry seasons. Seasonal fluctuation to stay within natural range.	Water level - Depth to Groundwater Level at active monitoring boreholes using Groundwater Monitoring Guidelines*.	
X2-7, X2-5, X2-6, X2-8 and X2-9	GU2-4				
X2-10	GU2-5				
All	All	Quality	Groundwater quality should be based on background groundwater quality. Sites that exceed the water use requirement [#] should not be allowed to deteriorate in water quality.	Background water quality per borehole/spring using Groundwater Monitoring Guidelines*.	
X2-2 and X2-4	GU2-3		Salinity levels should not increase.	Salts - Electrical Conductivity. Bi-annual monitoring.	Electrical Conductivity ≤ 55mS/m (based on quality dataset) ² .
X2-7, X2-5, X2-6, X2-8 and X2-9	GU2-4		Nitrate values must be maintained to support domestic water users.	Nutrients – Nitrate (as Nitrogen). Bi-annual monitoring.	Nitrate values in the recharge area should not increase to >3mg/l ² .
X2-10	GUA2-5				
X2-10	GUA2-5		Salinity levels should not increase. Concentrations must be maintained at levels to support domestic and ecological water users.	Salts - Electrical Conductivity. Bi-annual monitoring.	Electrical Conductivity ≤ 60 mS/m (based on quality dataset) ² .

Table 20: Summary of RQOs for Groundwater in the Sabie-Sand River Catchment

IUA	GUs	Component	Narrative RQO	Indicator/Measure	Numerical Criteria
X3-1 and X3-2	GU3-1	Quantity	Groundwater flow directions in the resource unit should not be reversed from its natural flow directions towards the drainage systems.	Flow measurement at EWR 1 and EWR 4.	12.88 and 14.35 % nMAR ¹ .
X3-2, X3-4, X3-3 and X3-6	GU3-2			Flow measurement at EWR 5 and EWR 3.	28.32 and 9.71 % nMAR ¹ .
X3-7 and X3-8	GU3-3			Flow measurement at EWR 7 and EWR 6.	11.14 and 13.38 % nMAR ¹ .
X3-1 and X3-2	GU3-1	Aquifer	No negative trend between peak drawdowns during dry seasons. Seasonal fluctuation to stay within natural range.	Water level - Depth to Groundwater Level at active monitoring boreholes using Groundwater Monitoring Guidelines*.	
X3-7 and X3-8	GU3-3				
All	All	Quality	Groundwater quality should be based on	Background water quality per borehole/spring using	

IUA	GUs	Component	Narrative RQO	Indicator/Measure	Numerical Criteria
			background groundwater quality. Sites that exceed the water use requirement [#] should not be allowed to deteriorate in water quality.	Groundwater Monitoring Guidelines*.	
X3-1 and X3-2	GU3-1				Nitrate values in the recharge area should not increase to >2mg/l ² .
X3-2, X3-4, X3-3 and X3-6	GU3-2				
X3-7 and X3-8	GU3-3		Nitrate values must be maintained to support domestic water users.	Nutrients – Nitrate (as Nitrogen). Bi-annual monitoring.	Nitrate (as N)<8mg/l in recharge area (based on quality dataset) ² .
X3-4	GU3-4				Nitrate (as N)<6mg/l in recharge area (based on quality dataset) ² .

* - A Guideline for the Assessment, Planning and Management of Groundwater Resources in South Africa, DWAF (2008).

[#] - South African Water Quality Guidelines, DWAF (1996).

1 - %nMAR is flow required at the nodes expressed as a percentage of the natural Mean Annual Runoff, Low flows.

2 - It is generally recognised that the groundwater chemistry evolves along a flow path, e.g. from a fresh low mineralised bicarbonate water in recharge areas to an older, higher mineralised water (water type dependent on amongst other factors the underlying geology) in discharge areas, where it often undergoes additional concentration increases due to evapotranspiration. Additional factors influencing the groundwater quality over relatively short distances include the occurrence of preferential flow paths (along fractures) or the proximity to pollution sources. The background quality observed at one monitoring site is therefore not necessarily applicable as a background value for another monitoring location.

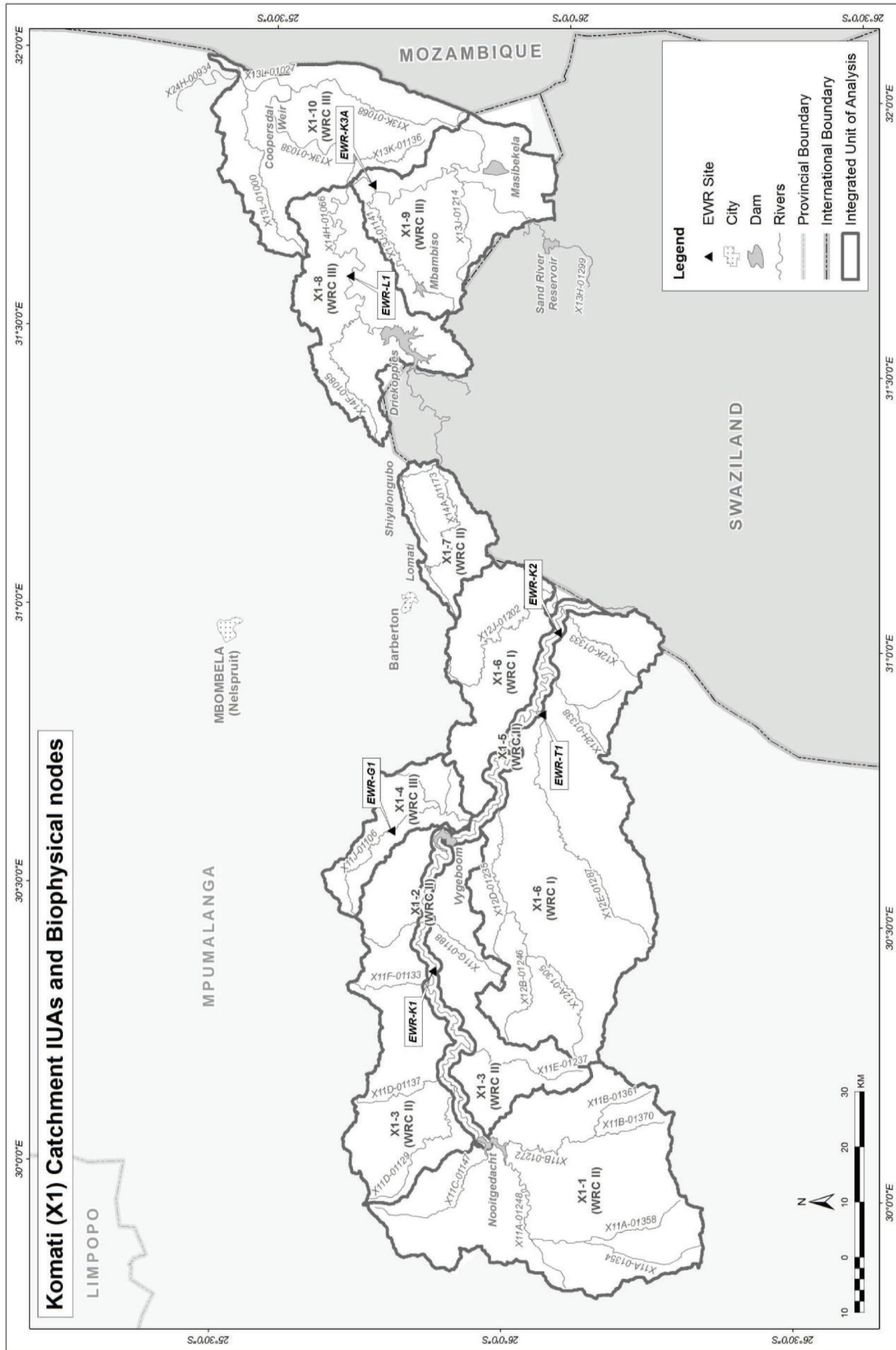


Figure 1.1: Komati (X1) Catchment IUAs and Biophysical Nodes

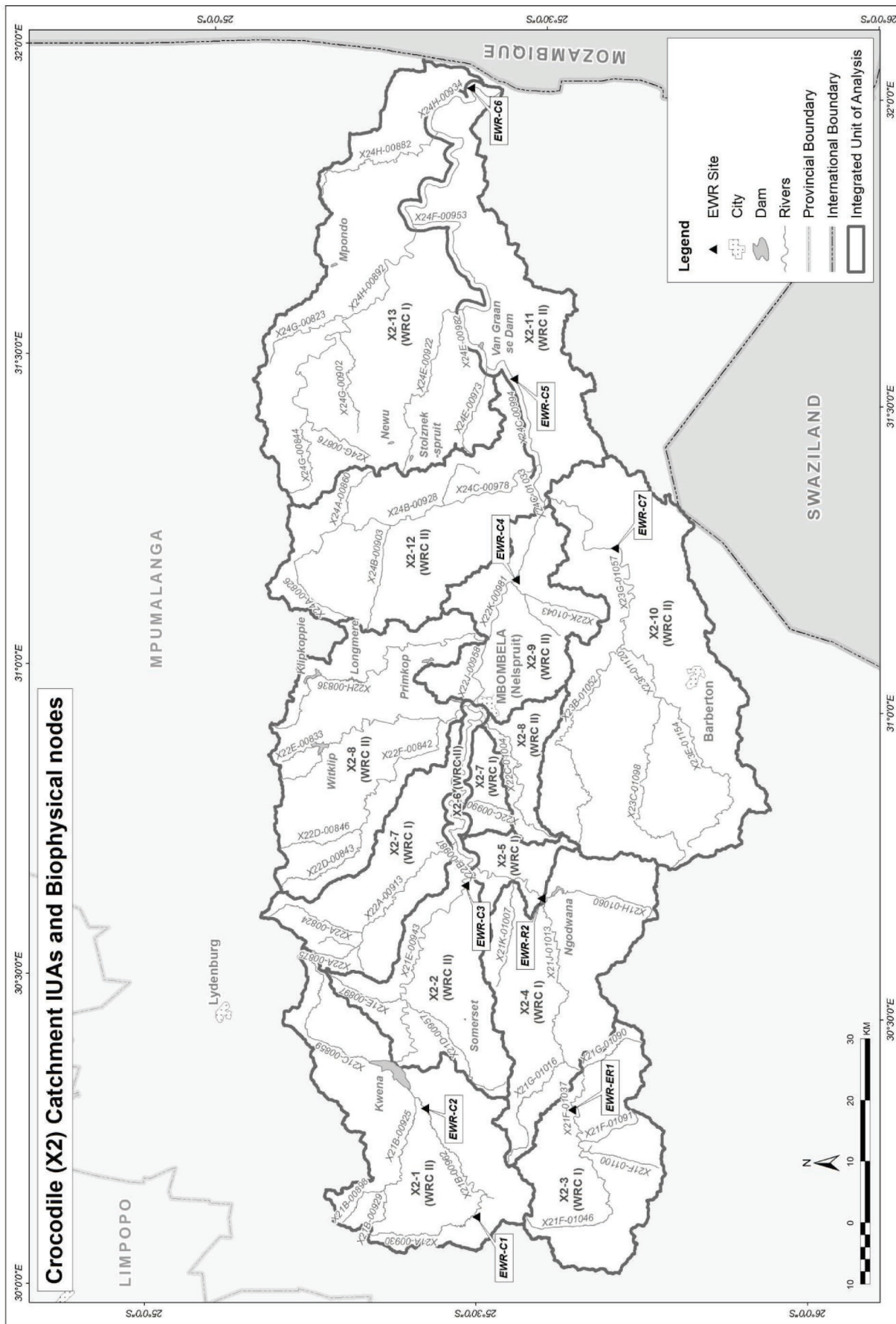


Figure 1.2: Crocodile (X2) Catchment IUAs and Biophysical Nodes

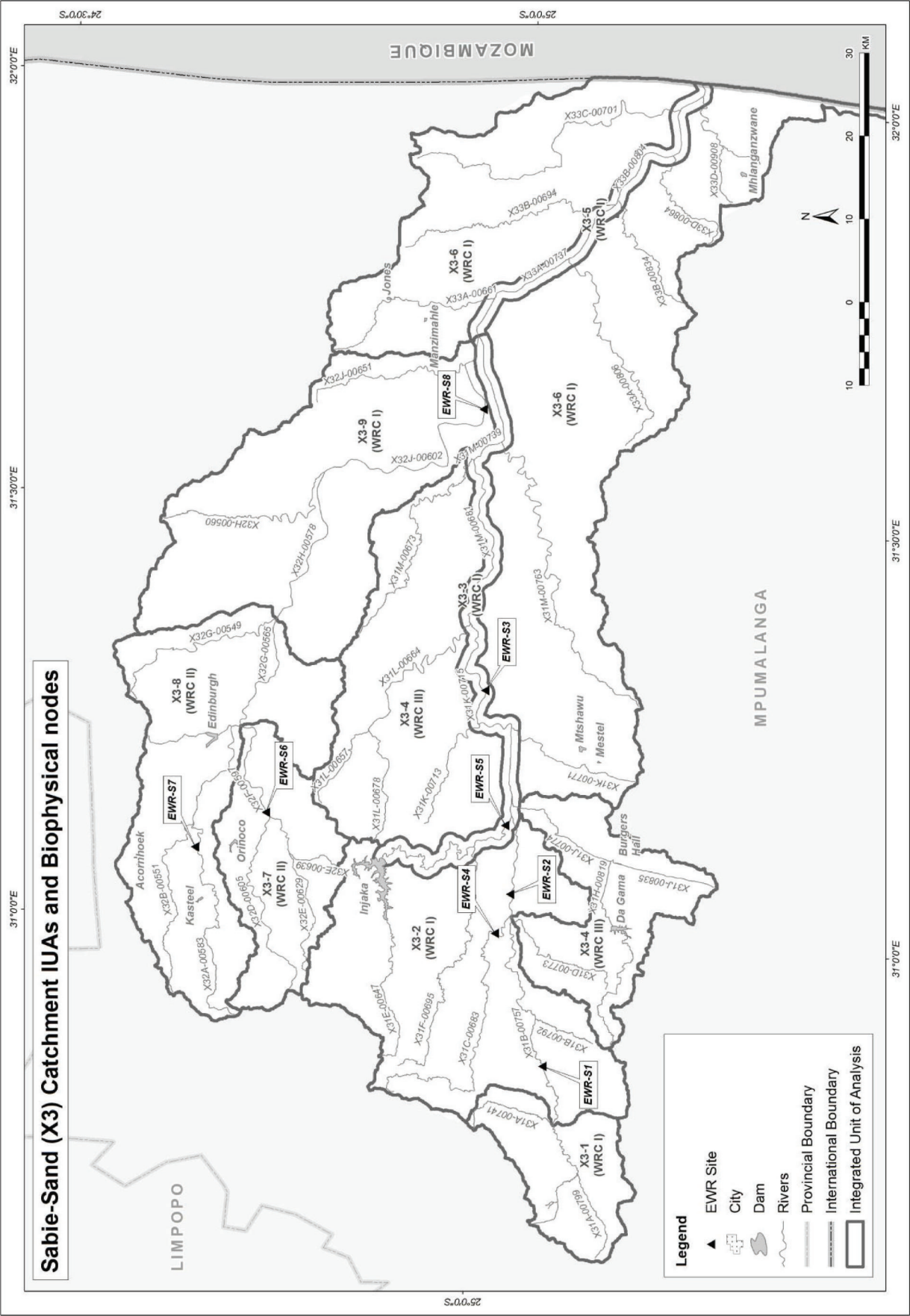


Figure 1.3: Sabie-Sand (X3) Catchment IUAs and Biophysical Nodes

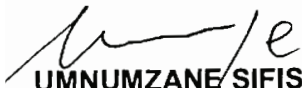


LITIKO LETEMANTI NEKUSUSWA KWETINSILA**UMTSETFO WEMANTI WAVELONKHE, 1998
(UMTSETFO NOMBOLO 36 WANGA-1998)****TIGABA TEMITFOMBO YEMANTI NETINJONGO TELIZINGA LETIGODZI TEMANTI
TASENKOMATI**

Mine, Sifiso Mkhize, ngesikhundla sami njenge Libambela Mcondzisi-Jikelele Welitiko Letemanti Nekususwa Kwetinsila, futsi logunyatwe ngekwemtsetfo ngekulandzela sigaba 13(1) ne sigaba 63(1)(a) seMtsetfo Wetemanti Wavelonkhe, 1998 (Umtsetfo nombolo 36 wanga-1998), ngishicela letigaba temitfombolusito yemanti kanye netinjongo telizinga lemitfombolusito letihlongotiwe tetigodzi temanti taseNkomati.

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LIBAMBELA/MCONDZISI-JIKELELE WELITIKO LETEMANTI NEKUSUSWA KWETINSILA

LUSUKU: 24/12/2016

ISHEJULI**INCHAZELO YEMITFOMBOLUSITO YEMANTI**

Tigaba netinjongno telizinga lemitfombolusito kuncunyelwa yonkhe nobe incenye yawo wonkhe umtfombo wemanti losemcoka ngekhatsi kwetigodzi temanti taseNkomati njengobe kubekiwe ngaphasi:

Indzawo Yekuphatfwa Kwemanti: Inkomazi-Usuthu

Drainage Region: X Primary Drainage Region

Imifula: Komati (X1), Crocodile (X2), Sabie-Sand (X3), kanye netinhlelo temfula we-X4

TIGABA TEMITFOMBOLUSITO YEMANTI NJENGOBE TIDZINGEKILE NGEKULANDZELA SIGABA 13(1)(a) SEMTSETFO WEMANTI WAVELONKHE, 1998

1. Sifinyeto setigaba temitfombo yemanti yemaYunithi Lahlanganisiwe eKuhlatiwa (Sifombe 1.1-1.4) kanye neTigaba Temvelo (ECs) ngeinodi yemvelo sibekwe kuLithebuli 1 kuya kuLithebuli 4.
2. EmaYunithi Lahlanganisiwe eKuhlatiya (IUA) ahlukaniwa ngekulandzela bukhulu bawo bekusetjentiswa lokuvunyelwe nekuvikelwa njengeSigaba 1: lesikhombisa kuvikelwa ngekwemvelo lokusetulu nekusetjentiswa lokuncane; nobe Sigaba II lesikhombisa kuvikelwa lokusemkhatsini nekusetjentiswa lokusemkhatsini; kanye neSigaba III lesikhombisa kuvikelwa lokuncane lokusimeme nekusetjentiswa lokuphakeme.
3. Lithebuli 1 kuya kuLithebuli liniketa i-IUA, Tigaba Temtfombo Wemanti kanye nemumo wetigodzi temanti ngekwehlukana. Umumo wesigodzi semanti ucuketse emagubudla emvelo lamanyenti lamele lapho kufika khona umfula nobe emayunithi emtfombolusito. Sigaba Semvelo lesihlosiwe seyunithi ngayinye kuYunithi Lehlanganisiwe Yekuhlatiwa siyaniketwa.

TINJONGO TELIZINGA LEMTFOMBOLUSITO YEMITFOMBO YEMANTI NJENGOBE TIDZINGEKILE NGEKULANDZELA SIGABA 13(1)(b) SEMTSETFO WEMANTI WAVELONKHE, 1998

1. Tinjongo Telizinga Lemtfombolusito (RQO) tiyachazwa kuyunithi yemtfombolusito lebekwe phambili ngayinye (RU) kuyo yonye iYunithi Lehlanganisiwe Yekuhlatiwa ngekulandzela lizinga lemanti, indzawo yendzabuko nemvelo yendzawo, nelizinga lemanti njengobe kukhonjisiwe kuLithebula 5 – 20 ngekulandzelana.
2. Lapho kuchazwe khona, sigaba semvelo nobe Sigaba Semvelo Lesinconotiwe (REC) kusho simo semvelo lesiniketwe yiNdvuna kumtfombo wemanti lesikhombisa simo semvelo salomtfombo wemanti ngekwehlukana kwetincenye tendzawo yemvelo kusuka esimeni sentfutuko lesihlelwe ngaphambilini.
3. Tinjongo telizinga lemtfombolusito titawucala kusebenta kusukela ngelusuku lwekusayindwa loluncunye ngekulandzela Sigaba 13(1) seMtsetfo Wemanti Wavelonkhe, 1998, ngaphandle uma ngabe iNdvuna iphawulwe ngalendlela.

TIGABA TEMTFOMBO WEMANTI LETIHLONGOTIWE TETIGODZI TEMANTI TASENKOMATI**Lithebula 1: Sifinyeto seTigaba Temtfombo Wemanti kanye neTigaba Temvelo eLuhlelweni Lwemifula (X1) lwaseKomati**

EmaYunithi Lahlanganisiwe Ekuhlatiywa	Sigaba semaYunithi Lahlanganisiw e Ekuhlatiywa	Inodi yemvelo	Libito Lemfula	Sigaba Semvelo Lesihlosiwe
X1-1: Emfundlana wesigodzi se-Nooitgedacht Dam	II	X11A-01300		B
		X11A-01354		C
		X11A-01358	IVaalwaterspruit	C
		X11A-01295	IVaalwaterspruit	C
		X11A-01248	IVaalwaterspruit	C
		X11B-01370	IBoesmanspruit	B
		X11B-01361		B/C
		X11B-01272	IBoesmanspruit	B/C
X1-2: Inkomazi phakatsi kweLidamu i-Nooitgedacht ne-Vygeboom	II	EWRK1	Inkomazi	C
X1-3: Yonkhe imifudlana phakatsi kweLidamu iNooitgedacht neVygeboom kungafaki umfula lomkhulu Inkomazi	II	X11C-01147	IWitkloofspruit	C
		X11D-01129	IKlein-Komati	C
		X11D-01137	IWaarkraalloop	C
		X11E-01237	ISwartspruit	B
		X11F-01133	IBankspruit	B
		X11G-01188	INdubazi	B
		X11G-01143	IGemakstroom	C
X1-4: Gladdespruit catchment	III	EWRG1	IMngubhudle	D
		X11K-01165	IPoponyane	C
		X11K-01199		D
X1-5: Umfudlana lowehlako weNkomazi weLidamu iVygeboom loya eSwatini	II	EWRK2	Inkomazi	C
X1-6: Yonkhe imidlana leya entasi yeLidamu iVygeboom ku X1-6 kungafaki iGladdespruit	I	EWRT1	ITeespruit	C
		X12A-01305	IBuffelspruit	B
		X12B-01246	IHlatjiwe	C
		X12C-01242	IPhophenyane	B
		X12C-01271	IBuffelspruit	B
		X12D-01235	ISseekoeispruit	C
		X12H-01338	ISandspruit	B
		X12H-01340		B
		X12H-01318	ISandspruit	C
		X12J-01202	UMtsoli	B
		X12K-01333	UMlondozi	B/C
		X12K-01332	UMhlangampepa	B

EmaYunithi Lahlanganisiwe Ekuhlaliywa	Sigaba semaYunithi Lahlanganisiwe Ekuhlaliywa	Inodi yemvelo	Libito Lemfula	Sigaba Semvelo Lesihlosiwe
X1-7: Enhla nemfudlana wesigodzi uMlumati waseSwatini	II	X14A-01173	Umlumati	B/C
		X14B-01166	Ugutugulo	C
X1-8: Umfula umlumati lotsela eDamini laseDriekopies	III	EWRL1	Umlumati	C
		X14G-01128	Umlumati	D/E
X1-9: Umfula Inkomazi losuka eSwatini loya emahlanganweni eMfula uMlumati	III	X13J-01205	IMbiteni	D
		X13J-01141	UMzinti	D
		EWK3A	Inkomazi	D
X1-10: Umfula Inkomazi lotsela eMfuleni uMlumati	III	X13K-01114	Inkomazi	D
		X13K-01136	IMambane	D
		X13K-01068	INkwakwa	C/D
		X13K-01038	Inkomazi	E
		X13L-01000	INgweti	D
		X13L-01027	Inkomazi	E
		X13L-00995	Inkomazi	D

Lithebula 2: Sifinyeto seTigaba Temtfombo Wemanti kanye neTigaba Temvelo eLuhlelweni Lwemifula (X2) lwaseMngwenya

EmaYunithi Lahlanganisiwe Ekuhlaliywa	Sigaba semaYunithi Lahlanganisiwe Ekuhlaliywa	Inodi yemvelo	Libito Lemfula	Sigaba Semvelo Lesihlosiwe
X2-1: Umfula uMgwenya lotsela eDamini iKwena	II	X21B-00898	ILunsklip	C/D
		X21B-00929	IGemsbokspruit	C/D
		X21B-00925	ILunsklip	C
		EWRC1	UMgwenya	A/B
		EWRC2	UMgwenya	B
		X21C-00859	I-Alexanderspruit	C
X2-2: Umfula uMgwenya lotsela eDamini iKwena uye eMfuleni i-Elands	II	EWRC3	UMgwenya	B/C
		X21D-00957	IBuffelskloofspruit	B/C
		X21E-00897	IBuffelskloofspruit	B
X2-3: Umfula i-Elands lotsela eWeltevredespruit (ungafakwa)	I	X21F-01100	ILeeuspruit	C
		X21F-01092	ILeeuspruit	C/D
		X21F-01091	IRietvleispruit	C
		EWRE1	I-Elands	B
X2-4: Umfula i-Elands lotsela ku X2-3 kuya emahlanganweni eNgodwana, kufaka ekhatsi iWeltevredenspruit, uMfula longehla kweMfula iNgodwana weLidamu iNgodwana	I	X21G-01090	IWeltevredespruit	C
		X21G-01016	ISwarkoppiespruit	C
		X21H-01060	INgodwana	B
		X21K-01007	ILupelule	B

EmaYunithi Lahlanganisiwe Ekuhlatiwa	Sigaba semaYunithi Lahlanganisiwe Ekuhlatiwa	Inodi yemvelo	Libito Lemfula	Sigaba Semvelo Lesihlosiwe
neMfula iLupelele				
X2-5: Umfula i-Elands lotsela eMfuleni iNgodwana	I	EWRE2	I-Elands	B
X2-6: Umfula Umgwenya emahlanganweni eMfula i-Nels	II	X22B-00987	UMgwenya	C
		X22B-00888	UMgwenya	C
		X22C-00946	UMgwenya	C
		X22J-00993	UMgwenya	C
X2-7: Imifula iHoutbos neVisspruit	I	X22A-00824	IBlystaanspruit	B
		X22A-00887	IBeestekraalspruit	B/C
		X22A-00875	IHoutbosloop	B
		X22A-00919	IHoutbosloop	B/C
		X22A-00920		B
		X22A-00917	IHoutbosloop	C
		X22A-00913	IHoutbosloop	B
		X22C-00990	IVisspruit	B/C
X2-8: Imifula iNels, iWit, neGladdespruit	II	X22D-00843	INels	C
		X22D-00846		C
		X22F-00842	INels	C
		X22E-00849	ISand	C
		X22E-00833	IKruisfonteinspruit	C
		X22F-00886	ISand	C
		X22F-00977	INels	C/D
		X22C-01004	IGladdespruit	B/C
		X22H-00836	IWit	D
X2-9: Umfula Umgwenya kuye emahlanganweni eKaap kufaka ekhatsi umngenela iBlinkwater	II	X22K-01042	IMbuzulwane	B
		X22K-01043	IBlinkwater	B
		X22K-01029	IBlinkwater	C
		EWRC4	UMgwenya	C
X2-10: Sigodzi iKaap	II	X23B-01052	INoordkaap	C
		X23C-01098	ISuidkaap	B/C
		EWRC7	IKaap	C
		X23E-01154	IQueens	B/C
		X23F-01120	ISuidkaap	C
X2-11: Umfula Umgwenya kusuka emahlanganweni eKaap kuye eMfuleni Inkomazi	II	EWRC5	UMgwenya	C
		EWRC6	UMgwenya	C
X2-12: Umfula iNsikazi	II	X24A-00826	INsikazi	C
		X24A-00860	Sithungwane	A

EmaYunithi Lahlanganisiwe Ekuhlaliywa	Sigaba semaYunithi Lahlanganisiwe Ekuhlaliywa	Inodi yemvelo	Libito Lemfula	Sigaba Semvelo Lesihlosiwe
		X24A-00881	INsikazi	B
		X24B-00903	Gutshwa	D
		X24B-00928	INsikazi	A/B
		X24C-00969	Mnyeleni	A
		X24C-00978	INsikazi	B
X2-13: Tigodzi tasenyakatfo yeMfula Umgwenya loseKNP	I	X24E-00973	IMatjulu	B
		X24E-00922	IMlambeni	A/B
		X24G-00902	IMitomeni	A
		X24G-00876	IKomapiti	A
		X24G-00844	IMbyamiti	A
		X24G-00823	Muhlambamadubo	A
		X24G-00820	IMbyamiti	A
		X24G-00904	IMbyamiti	A
		X24H-00882	IVurhami	A
		X24H-00892	IMbyamiti	A

Lithebula 3: Sifinyeto seTigaba Temtfombo Wemanti kanye neTigaba Temvelo eLuhlelweni Lwemifula (X3) lwaseSabie-Sand

EmaYunithi Lahlanganisiwe Ekuhlaliywa	Sigaba semaYunithi Lahlanganisiwe Ekuhlaliywa	Inodi yemvelo	Libito Lemfula	Sigaba Semvelo Lesihlosiwe
X3-1: Umfula iSabie longenhla kweKlein Sabie kufaka ekhatsi inhlango yemifula	I	X31A-00741	IKlein Sabie	B/C
		X31A-00783		C
		X31A-00786		B
		X31A-00794		B
		X31A-00796		B
		X31A-00803		B/C
X3-2: Umfula iSabie lotsela ku-X3-1 kuya emahlanganweni eMarite kufaka ekhatsi iGoudstroom, iMacMac, iMotitsi nemfudlana longehla kweMarite weLidamu iNyaka.	I	EWR S1	ISabie	B
		X31B-00792	IGoudstroom	B/C
		EWR S4	IMac-Mac	B
		EWR S2	ISabie	B
		X31E-00647a	IMarite (i-US yelidamu)	B
		X31F-00695	IMotitsi	B
X3-3: Umfula iMarite neSabie letsela eDamini iNyaka kuye emahlanganweni eSand.	I	EWR S5	IMarite	B/C
		EWR S3	ISabie	A/B
X3-4: Imifula iSabaan, iNoord-Sand, iBejani, iSaringwa, iMusutlu.	III	X31H-00819	IWhite Waters	C
		X31J-00774	INoord-Sand	D
		X31D-00773	ISabani	C/D

EmaYunithi Lahlanganisiwe Ekuhlatiywa	Sigaba semaYunithi Lahlanganisiwe Ekuhlatiywa	Inodi yemvelo	Libito Lemfula	Sigaba Semvelo Lesihlosiwe
		X31J-00835	INoord-Sand	D
		X31K-00713	IBejani	D
		X31L-00657	IMatsavana	C
		X31M-00673	IMusutlu	B/C
		X31L-00664	ISaringwa	C
		X31L-00678	ISaringwa	B/C
X3-5: Umfula iSapie lotsela emahlanganweni eSand kuye emnceleni weRSA.	I	X33A-00731	ISapie	A/B
		X33A-00737	ISapie	A/B
		X33B-00784	ISapie	A/B
		X33B-00804	ISapie	A/B
		X33B-00829	ISapie	A/B
		X33D-00811	ISapie	A/B
		X33D-00861	ISapie	A/B
X3-6: Emangenelo laseningizimu nasenyakatfo eSabi lotsela eKNP wemahlangano iSand kufaka ekhatsi iPhabeni.	I	X31K-00771	IPhabeni	B
		X31M-00763	INwaswitshaka	A
		X33A-00661	INwatindlopfu	A
		X33A-00806	INwatimhiri	A
		X33B-00694	ISalitje	A
		X33B-00834	ILubye lubye	A
		X33C-00701	IMnondozi	A
		X33D-00864	IMosehla	A
		X33D-00894	INhlowa	A
		X33D-00908	IShimangwana	A
		X33D-00911	INhlowa	A
X3-7: Sigodzi seMutlumuvi.	II	X32E-00629	INwarhele	C
		X32E-00639	INdlobesuthu	D/E
		EW R S6	IMutlumuvi	C
		X32F-00628	INwarhele	C/D
X3-8: Umfula iSand kuya emahlanganweni eKhokhovela	II	EW R S7	ITlulandziteka	C
		X32B-00551	IMotlamogatsana	C
		X32C-00558	INwandlamuhari	C
		X32C-00564	IMphyanyana	C
		X32C-00606	INwandlamuhari	C
		X32G-00549	IKhokhovela	C
X3-9: Umfula iSand lotsela emahlanganweni eKhokhovela.	I	X32H-00560	IPhungwe	A
		EW R S8	ISand	B
		X32J-00651	IMutlumuvi	A

Lithebula 4: Sifinyeto seTigaba Temtfombo Wemanti kanye neTigaba Temvelo eLuhlelweni Lwemifula X4

EmaYunithi Lahlanganisiwe Ekuhlaliywa	Sigaba semaYunithi Lahlanganisiwe Ekuhlaliywa	Inodi yemvelo	Libito Lemfula	Sigaba Semvelo Lesihlosiwe
IUA X4: Imifula iNwanedzi neMwaswitsontso	I	X40A-00437	IShinkelengane	A
		X40A-00454	IMmondzo	A
		X40A-00479	INwanedzi	A
		X40A-00492	IRihlazeneni	A
		X40A-00433	IMtomeni	A
		X40A-00420	IGudzani	A
		X40A-00426	IMavumbye	A
		X40A-00475	IMavumbye	A/B
		X40A-00459	INwanedzi	A
		X40A-00486	INwanedzi	A/B
		X40A-00469	INwanedzi	B
		X40B-00534	INungwini	A
		X40B-00537	IGwini	A
		X40B-00532	IMrunzuluku	A
		X40B-00497	ISweni	A
		X40B-00531	IMrunzuluku	A
		X40B-00530	IMrunzuluku	A
		X40B-00511	ISweni	A
		X40C-00592	IRipape	A
		X40C-00513	INwaswitsontso	B
		X40D-00663	IShilolweni	A
		X40D-00594	IMetsimetsi	A
		X40D-00598	INwaswitsontso	A/B
		X40D-00660	INwaswitsontso	A

TINJONGO TELIZINGA LEMITFOMBOLUSITO

Tinjongo Telizinga Lemitfombolusito teYunithi Yemtfombolusito ngamunye (RU) tefulwa emaThebuleni ngaphasi. Tonkhe Tinjongo Telizinga Lemitfombolusito tisebenta kusakela ngelusuku lwekusayindwa, ngaphandle uma kushiwo ngalenywe indlela.

Lithebula 5-7 tiniketa iinkhomba yeTinjongo Telizinga Lemitfombolusito tehayidroloji yeMifula lekhonjiswe ngekugeta etindzaweni Tesidzingo Semanti Emvelo (EWR). Letibalobalo letifinyetiwe timele indlela yekugeta ledzingekile emfuleni lapho khona kwehlukana kwetsembele kuphethini yesikhatsi semnyaka neyesikhashana yetimo tekugeta kwemvelo. Loku kusho kutsi kugeta kwenyanga kumele tidzingo tekugeta lokuphasi kwato tonkhe tinyanga.

Lithebula 5: IMIFULA: Sifinyeto seTinjongo Telizinga Lemitfombolusito tehayidroloji letisemcoka teLuhlelo LWEMFULA INKOMAZI (X1)

RU	Inodi yemvelo	Umfula	Sigaba Semve lo Lesihl osiwe	nMAR ¹ (MCM)	Kugeleta lokuphasi (%nMAR) ²	Kugeleta sekukonkh e (%nMAR)	Tinyan ga	RQO ³	
								(m ³ /s)	
								90%	60%
IUA X1-2									
MRU	X11G-01142	Inkomazi	C	158.6	16.1	27.5	Okt	0.25	0.49
Inkomazi B	EWR K1						Nov	0.34	0.60
							Dis	0.45	0.72
							Jan	0.54	0.86
							Feb	0.62	0.89
							Mas	0.60	1.06
							Apr	0.61	0.98
							Meyi	0.49	0.85
							Jun	0.37	0.68
							Jul	0.32	0.50
							Aga	0.26	0.40
							Sep	0.23	0.38
IUA X1-4									
MRU	X11J-01106	Mngubhudle	D	29.5	19.9	26.9	Okt	0.002	0.004
Inkomazi G	EWR G1						Nov	0.003	0.004
							Dis	0.003	0.004
							Jan	0.003	0.005
							Feb	0.004	0.006
							Mas	0.003	0.005
							Apr	0.004	0.006
							Meyi	0.003	0.005
							Jun	0.003	0.005
							Jul	0.003	0.004
							Aga	0.002	0.003
							Sep	0.076	0.085
IUA X1-5									
MRU	X12H-01258	Inkomazi	C	545.6	9.3	18.3	Okt	0.60	0.82
Inkomazi C	EWR K2						Nov	0.72	0.99
							Dis	0.85	1.24
							Jan	1.03	1.48
							Feb	1.16	1.65
							Mas	1.24	1.73
							Apr	1.24	1.75
							Meyi	1.17	1.56
							Jun	0.96	1.39
							Jul	0.76	1.10
							Aga	0.64	0.87
							Sep	0.56	0.78

RU	Inodi yemvelo	Umfula	Sigaba Semve lo Lesihl osiwe	nMAR ¹ (MCM)	Kugeleta lokuphasi (%nMAR) ²	Kugeleta sekukonkh e (%nMAR)	Tinyan ga	RQO ³	
								(m ³ /s)	
								90%	60%
IUA X1-5									
MRU Inkomazi T	X12E-01287	ITeespruit	C	56.4	22.6	35.3	Okt	0.21	0.27
	EWR T1						Nov	0.23	0.29
							Dis	0.25	0.31
							Jan	0.27	0.34
							Feb	0.29	0.35
							Mas	0.31	0.36
							Apr	0.32	0.36
							Meyi	0.31	0.36
							Jun	0.30	0.35
							Jul	0.27	0.33
							Aga	0.23	0.30
							Sep	0.21	0.27
IUA X1-8									
MRU Inkomazi M	X14H-01066	Umlumati	C	294.3	11.7	17.3	Okt	0.50	0.66
	EWR L1						Nov	0.45	0.68
							Dis	0.61	0.84
							Jan	0.84	1.05
							Feb	0.99	1.17
							Mas	1.15	1.29
							Apr	1.05	1.27
							Meyi	1.03	1.24
							Jun	0.92	1.12
							Jul	0.72	0.97
							Aga	0.56	0.75
							Sep	0.42	0.64
IUA X1-9									
MRU Inkomazi D	X13J-01130	Inkomazi	D	1021.7	9.9	17.2	Okt	0.67	1.55
	EWR K3A						Nov	0.78	1.82
							Dis	0.98	2.16
							Jan	0.35	2.54
							Feb	1.55	2.80
							Mas	1.80	2.94
							Apr	1.65	2.96
							Meyi	1.68	2.79
							Jun	1.32	2.61
							Jul	0.96	2.24
							Aga	0.77	1.80
							Sep	0.61	1.54

1 nMAR yi-Mean Annual Runoff yemnyaka ngemakhiyubhikhi mitha lasigidzi ngemnyaka.

2 %nMAR kugeleta lokudzingekile kumanodi lachazwe njengemaphesenti e-Mean Annual Runoff yemvelo, Kugeleta Lokuphasi neKugeleta Sekukonkhe.

3 Emapoyinti emaphesenti ngekuchubeka kwekwabela kwekulandzelana kwekugeleta lokuphasi kumanodi, lokuchazwe njengemaphesenti etinyanga (90% na 60%) kutsi kugeleta kumele kulingane nobe kundule emanani laphasi lakhonjisiwe. Khumbula kutsi Tinjongo Telizinga Lemitfombolusito tekugeleta letijulile tiniketwe kumculu webucwepheshe.

Lithebula 6: IMIFULA: Sifinyeto seTinjongo Telizinga Lemitfombolusito lehayidroloji leseemcoka yeLuhlelo lweMfula Umgwenya (X2)

RU	Inodi yemvelo	Umfula	Sigaba Semvel o Lesihlo siwe	nMAR ¹ (MCM)	Kugeleta lokuphasi (%nMAR) ²	Kugeleta sekukonkhe (%nMAR)	Tinyang a	RQO ³	
								(m ³ /s)	
								90%	60%
IUA X2-1									
MRU	X21A-00930	UMgwen va	A/B	15.6	24.4	30.3	Okt	0.03	0.07

RU	Inodi yemvelo	Umfula	Sigaba Semvelo Lesihlo siwe	nMAR ¹ (MCM)	Kugeleta lokuphasi (%nMAR) ²	Kugeleta sekukonkhe (%nMAR)	Tinyanga	RQO ³	
								(m ³ /s)	
								90%	60%
Croc A	EWR C1						Nov	0.05	0.10
							Dis	0.07	0.12
							Jan	0.09	0.16
							Feb	0.12	0.21
							Mas	0.10	0.19
							Apr	0.10	0.19
							Meyi	0.09	0.15
							Jun	0.07	0.12
							Jul	0.05	0.10
							Aga	0.04	0.08
	Sep	0.03	0.06						
MRU	X21B-00962	UMgwenya	B	76.1	30.93	35.63	Okt	0.25	0.41
Croc A	EWR C2						Nov	0.34	0.60
							Dis	0.39	0.73
							Jan	0.53	1.02
							Feb	0.68	1.32
							Mas	0.60	1.15
							Apr	0.60	1.15
							Meyi	0.49	0.93
							Jun	0.42	0.77
							Jul	0.35	0.62
							Aga	0.27	0.46
	Sep	0.24	0.38						
IUA X2-2									
MRU Croc B	X21E-00943 (EWR C3)	UMgwenya	B/C	194	40.22	48.8	Okt	1.24	2.46
							Nov	1.20	2.47
							Dis	1.27	2.36
							Jan	1.36	2.48
							Feb	1.67	2.97
							Mas	1.48	2.65
							Apr	1.54	2.78
							Meyi	1.43	2.59
							Jun	1.53	2.75
							Jul	1.51	2.71
Aga	1.53	2.74							
	Sep	1.37	2.65						
IUA X2-9									
MRU Croc D	X21K-01018 EWR C4	UMgwenya	C	824.8	25.96	31.74	Okt	2.10	4.37
							Nov	2.69	5.46
							Dis	3.34	6.59
							Jan	4.32	8.34
							Feb	6.02	11.46
							Mas	5.60	10.63
							Apr	5.34	10.20
							Meyi	4.27	8.25
							Jun	3.61	7.09
							Jul	2.87	5.75
Aga	2.30	4.74							
	Sep	2.06	4.32						
IUA X2-10									
MRU Kaap A	X23G-01057 EWR C7	IKaap	C	179.5	16.38	21.84	Okt	0.19	0.45
							Nov	0.32	0.67
							Dis	0.47	0.89
							Jan	0.61	1.12

RU	Inodi yemvelo	Umfula	Sigaba Semvelo Lesihlo siwe	nMAR ¹ (MCM)	Kugeleta lokuphasi (%nMAR) ²	Kugeleta sekukonkhe (%nMAR)	Tinyang a	RQO ³	
								(m ³ /s)	
								90%	60%
							Feb	0.86	1.53
							Mas	0.84	1.49
							Apr	0.82	1.42
							Meyi	0.68	1.24
							Jun	0.61	1.13
							Jul	0.47	0.89
							Aga	0.29	0.62
							Sep	0.17	0.44
IUA X2-11									
MRU	X24H-00934	UMgwen ya	C	1165.6	n/a	12.52573782	Okt	1.15	1.70
Croc E	EWR C6 ⁴						Nov	1.03	3.77
							Dis	2.37	5.26
							Jan	3.48	7.45
							Feb	6.13	11.37
							Mas	4.44	10.63
							Apr	1.42	8.79
							Meyi	1.27	1.69
							Jun	1.33	1.54
							Jul	1.26	1.53
							Aga	1.27	1.56
							Sep	1.26	1.44
MRU	X24D-00994	UMgwen ya	C	1117.4	n/a	22.19437981	Okt	4.33	5.76
Croc E	EWR C5 ⁴						Nov	4.39	6.52
							Dis	4.79	7.87
							Jan	5.32	9.29
							Feb	6.59	12.13
							Mas	6.03	11.16
							Apr	5.87	10.59
							Meyi	5.28	9.17
							Jun	4.90	7.82
							Jul	4.34	6.46
							Aga	4.41	5.88
							Sep	4.31	5.57

1 nMAR yi-Mean Annual Runoff yemnyaka ngemakhiyubhikhi mitha lasigidzi ngemnyaka.

2 %nMAR kugeleta lokudzingekile kumanodi lachazwe njengemaphesenti e-Mean Annual Runoff yemvelo, Kugeleta Lokuphasi neKugeleta Sekukonkhe.

3 Emapoyinti emaphesenti ngekuchubeka kwekwabela kwekulandzelana kwekugeleta lokuphasi kumanodi, lokuchazwe njengemaphesenti etinyanga (90% na 60%) kutsi kugeleta kumele kulingane nobe kundlule emanani laphasi lakhonjisiwe. Khumbula kutsi Tinjongo Telizinga Lemitfombolusito tekugeleta letijulile tiniketwe kumculu webucwepheshe.

4 Tidzingo tekugeleta kwenyanga te-EWR 5 na 6 tumele kugeleta sekukonkhe lokuchazwe emtsetfweni wekusebenta wanyalo lapho konkh Simo Semvelo Sanyalo lesibuketiwe sekugeleta lokuphasi nekukhishwa kwebanti ebasebentini kuchaza tidzingo letiphasi tetindzawo te-EWR ngekwehlukana.

Lithebula 7: IMIFULA: Sifinyeto seTinjongo Telizinga Lemitfombolusito lehayidroloji lesemcoka yeLuhlelo LWEMFULA ISABIE NESAND (X3)

RU	Inodi yemvelo	Umfula	Sigaba Semvelo Lesihlosiwe	nMAR ¹ (MCM)	Kugeleta lokuphasi (%nMAR) ²	Kugeleta sekukonkhe (%nMAR)	Tinyanga	RQO ^{*3}	
								(m ³ /s)	
								90%	70%
IUA X3-2									
MRU	X31B-00757	ISabie	B	132	34.77	40.31	Okt	0.512	0.864
ISabie	EWR S1						Nov	0.579	0.995
A							Dis	0.645	1.133
							Jan	0.752	1.337

RU	Inodi yemvelo	Umfula	Sigaba Semvelo Lesihlosiwe	nMAR ¹ (MCM)	Kugeleta lokuphasi (%nMAR) ²	Kugeleta sekukonkhe (%nMAR)	Tinyanga	RQO ^{*3}	
								(m ³ /s)	
								90%	70%
							Feb	0.974	1.771
							Mas	0.920	1.695
							Apr	0.931	1.720
							Meyi	0.816	1.496
							Jun	0.772	1.404
							Jul	0.662	1.190
							Aga	0.578	1.011
							Sep	0.541	0.919
MRU X31D-00755 ISabie EWR S2 A		ISabie	B	261.7	23.72	28.2	Okt	0.377	0.693
							Nov	0.498	0.945
							Dis	0.716	1.150
							Jan	1.105	1.521
							Feb	1.343	1.890
							Mas	1.381	2.049
							Apr	1.504	2.093
							Meyi	1.352	1.846
							Jun	1.166	1.796
							Jul	0.872	1.456
							Aga	0.620	1.073
							Sep	0.477	0.892
							MRU X31C-00683 Mac A EWR S4		MacMac
Nov	0.304	0.518							
Dis	0.372	0.627							
Jan	0.471	0.772							
Feb	0.655	1.063							
Mas	0.638	1.036							
Apr	0.636	1.036							
Meyi	0.533	0.877							
Jun	0.487	0.810							
Jul	0.393	0.660							
Aga	0.316	0.539							
Sep	0.270	0.472							
IUA X3-3									
MRU X31K-00715 Sabie B EWR S3		ISabie	A/B	493.69	30.86	37.94	Okt	1.572	2.572
							Nov	1.843	3.124
							Dis	2.192	3.890
							Jan	2.679	4.933
							Feb	3.691	7.001
							Mas	3.524	6.732
							Apr	3.456	6.532
							Meyi	2.889	5.370
							Jun	2.633	4.799
							Jul	2.204	3.904
							Aga	1.856	3.173

RU	Inodi yemvelo	Umfula	Sigaba Semvelo Lesihlosiwe	nMAR ¹ (MCM)	Kugeleta lokuphasi (%nMAR) ²	Kugeleta sekukonkhe (%nMAR)	Tinyanga	RQO ^{*3}	
								(m ³ /s)	
								90%	70%
							Sep	1.676	2.762
MRU Mar A	X31G-00728 EWR S5 ⁵	IMarite	B/C	156.4	21.64	28.57	Okt	0.352	0.509
							Nov	0.424	0.652
							Dis	0.531	0.877
							Jan	0.676	1.175
							Feb	0.958	1.741
							Mas	0.919	1.684
							Apr	0.860	1.545
							Meyi	0.657	1.143
							Jun	0.578	0.970
							Jul	0.478	0.769
							Aga	0.409	0.624
							Sep	0.374	0.547
IUA X3-7									
MRU Mut A	X32F-00597 EWR S6	IMutlumuvi	C	45	26.01	28.46	Okt	0.076	0.148
							Nov	0.110	0.193
							Dis	0.165	0.279
							Jan	0.235	0.397
							Feb	0.360	0.575
							Mas	0.362	0.561
							Apr	0.339	0.526
							Meyi	0.261	0.418
							Jun	0.231	0.373
							Jul	0.184	0.316
							Aga	0.154	0.267
							Sep	0.110	0.197
IUA X3-8									
MRU Sand A	X32A-00583 EWR S7	ITlulandziteka	C	28.896	20.44	32.67	Okt	0.026	0.071
							Nov	0.022	0.066
							Dis	0.078	0.129
							Jan	0.137	0.219
							Feb	0.190	0.289
							Mas	0.208	0.309
							Apr	0.178	0.288
							Meyi	0.134	0.223
							Jun	0.105	0.197
							Jul	0.082	0.164
							Aga	0.047	0.105
							Sep	0.026	0.081
IUA X3-9									
MRU Sand B	X32J-00602 EWR S8	ISand	B	133.6	18.48	25.46	Okt	0.076	0.240
							Nov	0.138	0.329
							Dis	0.189	0.482

RU	Inodi yemvelo	Umfula	Sigaba Semvelo Lesihlosiwe	nMAR ¹ (MCM)	Kugeleta lokuphasi (%nMAR) ²	Kugeleta sekukonkhe (%nMAR)	Tinyanga	RQO ³	
								(m ³ /s)	
								90%	70%
							Jan	0.343	0.791
							Feb	0.587	1.495
							Mas	0.567	1.402
							Apr	0.449	1.057
							Meyi	0.304	0.639
							Jun	0.243	0.541
							Jul	0.226	0.492
							Aga	0.153	0.377
							Sep	0.104	0.283

1 nMAR yi-Mean Annual Runoff yemnyaka ngemakhiyubhikhi mitha lasigidzi ngemnyaka.

2 %nMAR kugeleta lokudzingekile kumanodi lachazwe njengemaphesenti e-Mean Annual Runoff yemvelo, Kugeleta Lokuphasi neKugeleta Sekukonkhe.

3 Emapoyinti emaphesenti ngekuchubeka kwekwabela kwekulandzelana kwekugeleta lokuphasi kumanodi, lokuchazwe njengemaphesenti etinyanga (90% na 70%) kutsi kugeleta kumele kulingane nobe kundlule emanani laphasi lakhonjisiwe. Khumbula kutsi Tinjongo Telizinga Lemitfombolusito tekugeleta letijulile tiniketwe kumculu webucwepheshe.

4 Khumbula kutsi i-EWR C5 kwanyalo iitfolo kugeleta lokunyenti kundlula ngemvelo ngaletinye tikhatsi. Nobo ngukuphi lokunye kukhula kutawehlisa luhlelo futsi neNjongo yeLizinga leMtfombolusito angeke ifinyelelwe.

Tinjongo Telizinga Lemitfombolusito tendzabuko kuniketwa njengeTigaba Temvelo. KunetiNjongo teLizinga leMtfombolusito letifanako ngekulandziswa nangetinombolo letihlobene neTigaba Temvelo futsi Lithebula 8 lichaza leSigaba seMvelo ngasinye.

Lithebula 8: Tinjongo teLizinga leMtfombolusito letifanako ngekulandziswa nangetinombolo letihlobene neTigaba Temvelo.

SIGABA SEMVELO	INJONGO YELIZINGA LEMITFOMBOLUSITO LEFANAKO	INJONGO YELIZINGA LEMITFOMBOLUSITO LELANDZISWAKO LEHLALA NOBE ELUSENTSENI LWEMFULA	TINHLANTI, TILWANYAKATANE KANYE NETINJONGO TELIZINGA LEMITFOMBOLUSITO YETIMILA TASELUSENTSENI LWEMFULA	TINJONGO TELIZINGA LEMITFOMBOLUSITO NGEKWETINAMBA
A	Letingakagucu lwa, edvute nemvelo.	Letifana kakhulu netimo temvelo	Licembu letibonakaliso njengobe kuchaziwe	≥ A (≥ 92%)
A/B				≥ A/B (≥ 88%)
B	Yimvelo kakhulu nekunjintjwa lokuncane.	Yimvelo kakhulu nekunjintjwa lokuncane. Kugeleta kwemanti kuntjintjwe kancane kuphela futsi kungcoliseka kuncishiswe. Ingucuko lencane etikwemvelo kungenteka yentekile. Nanobe kunjalo, kusebenta kweluhlelo lwemvelo akukantjintjwa.	Licembu letibonakaliso njengobe kuchaziwe	≥ B (≥ 82%)
B/C				≥ B/C (≥ 78%)
C	Kuntjintjwe ngalokufanele.	Kuntjintjwe ngalokufanele. Kulahleka nengucuko etikwemvelo kwentekile, kodvwa kusebenta kweluhlelo lwemvelo lokusisekelo kusengakantjintjwa kakhulu.	Licembu letibonakaliso njengobe kuchaziwe	≥ C (≥ 62%)
C/D				≥ C/D (≥ 58%)
D	Kuntjintjwe kakhulu.	Kuntjintjwe kakhulu. Kulahleka kwemvelo nekusebenta kweluhlelo	Licembu letibonakaliso njengobe kuchaziwe	≥ D (≥ 42%)

SIGABA SEMVELO	INJONGO YELIZINGA LEMITFOMBOLUSITO LEFANAKO	INJONGO YELIZINGA LEMITFOMBOLUSITO LELANDZISWAKO LEHLALA EMFULENI NOBE ELUSENTSENI LWEMFULA	TINHLANTI, TILWANYAKATANE KANYE NETINJONGO TELIZINGA LEMITFOMBOLUSITO YETIMILA TASELUSENTSENI LWEMFULA	TINJONGO TELIZINGA LEMITFOMBOLUSITO NGEKWETINAMBA
		Iwemvelo kwentekile.		
D/E				≥ D/E (≥ 38%)
E	Kuntjintjwe kakhulu kabi.	Kuntjintjwe kakhulu kabi. Kulahleka kwemvelo nekusebenta kweluhlelo lwemvelo kukhulu kakhulu.	Licembu letibonakaliso njengobe kuchaziwe	20-39%
F	Kuntjintjwe ngalokukwece kakhulu.	Kuntjintjwe ngalokukwece kakhulu. Kuntjintja kufike esigabeni lesingatsandzeki futsi neluhlelo luntjintjwe ngalokuphelele ngekulahleka lokucishe kuphelele kwemvelo. Kusebenta lokusisekelo kweluhlelo lwemvelo kubulewe futsi tingucuko angeke tibuyiselwe emuva.	Licembu letibonakaliso njengobe kuchaziwe	0-19%

Lithebula 9 kuya kuLithebula 11 liniketa Tinjongo Telizinga Lemitfombolusito yemvelo nge-IUA ngayinye yemaYunithi Emitfombolusito LESETULU.

Lithebula 9: Tinjongo Telizinga Lemitfombolusito temvelo yeMIFULA yejomofoloji, timila taselusentseni lwemfula, tilwanyakatane kanye netinhlangi kumaYunithi Emitfombolusito labekwe phambili eLuhlelo LWEMFULA INKOMAZI (X1)

I-IUA	IYUNITHI YEMTFOMBOLUSITO (Inodi yemvelo) (Umfula)	Ijomofoloji	Timfishi	Tilwanyakatane	Timilo taselusentseni lwemfula
IUA X1-2	MRU KOMATI B (EWR K1) (Umfula Inkomazi)	C	C	B/C	C
IUA X1-4	MRU KOMATI G (EWR G1) (Umfula iGladdespruit)	D	D	D	D
IUA X1-5	MRU KOMATI C (EWR K2) (Umfula Inkomazi)	C	C	C	C
IUA X1-5	MRU KOMATI T (EWR T1) (Umfula iTeewaterspruit)	C	C	C	C
IUA X1-8	MRU KOMATI M (EWR L1) (Umfula Umlumati)	D	C	C	B/C
IUA X1-9	MRU KOMATI D (EWR K3) (umfula Inkomazi)	D/E	C/D	D	D
IUA X1-2	MRU KOMATI B (EWR K1) (Umfula Inkomazi)	C	C	B/C	C

Lithebula 10: Tinjongo Telizinga Lemitfombolusito temvelo yeMIFULA yejomofoloji, timila taselusentseni lwemfula, tilwanyakatane kanye netinhlanti kumaYunithi Emitfombolusito labekwe phambili eLuhlelo LWEMFULA UMGWENYA (X2)

I-IUA	IYUNITHI YEMTFOMBOLUSITO (Inodi yemvelo) (Umfula)	Kuphelela Kwemvelo Yasemfuleni	Kuphelela Kwemvelo Yasemfuleni	Ijomofoloji	Timfishi	Tilwanyakatane	Timilo taselusentseni lwemfula
IUA X2-1	MRU CROC A (EWR C1) (Umfula Umgwenya)	B	B	B	A	B	A
IUA X2-1	MRU CROC A (EWR C2) (Umfula Umgwenya)	B	B	B	B	B	A/B
IUA X2-2	MRU CROC A (EWR C3) (Umfula Umgwenya)	C	C	C	B	C	C
IUA X2-9	MRU CROC A (EWR C4) (Umfula Umgwenya)	C	C	B/C	B	C	C
IUA X2-11	MRU CROC A (EWR C5) (Umfula Umgwenya)	C	C	C/D	C	C	C
IUA X2-11	MRU CROC A (EWR C6) (Umfula Umgwenya)	C/D	C/D	C	C	C	C
IUA X2-10	MRU KAAP A (EWR C7) (Umfula iKaap)	C	C	B	C	B	C/D

Lithebula 11: Tinjongo Telizinga Lemitfombolusito temvelo yeMIFULA yejomofoloji, timila taselusentseni lwemfula, tilwanyakatane kanye netinhlanti kumaYunithi Emitfombolusito labekwe phambili eLuhlelo LWEMFULA ISAND (X3)

I-IUA	IYUNITHI YEMTFOMBOLUSITO (Inodi yemvelo) (Umfula)	Kuphelela Kwemvelo Yasemfuleni	Kuphelela Kwemvelo Yasemfuleni	Ijomofoloji	Timfishi	Tilwanyakatane	Timilo taselusentseni lwemfula
IUA X3-2	MRU SABIE A (EWR S1) (Umfula iSabie)	B/C	B/C	B	B	B	B
IUA X3-2	MRU SABIE A (EWR S2) (Umfula iSabie)	C	C	B	B	B	B
IUA X3-3	MRU SABIE A (EWR S3) (Umfula iSabie)	B	B	B	B	B	A/B
IUA X3-2	MRU MAC A (EWR S4) (Umfula iMacMac)	B	A/B	A	B/C	A/B	A/B
IUA	MRU MAR A (EWR)	C	B/C	C	B/C	B/C	B/C

I-IUA	IYUNITHI YEMTFOMBOLUSITO (Inodi yemvelo) (Umfula)	Kuphelela Kwemvelo Yasemfuleni	Kuphelela Kwemvelo Yasemfuleni	Ijomofoloji	Timfishi	Tilwanyakatane	Timilo taselusentseni lwemfula
X3-3	S5) (Umfula iMarite)						
IUA X3-7	MRU MUT A (EWR S6) (Umfula iMutlumuvi)	C	C	C	C	B/C	C
IUA X3-8	MRU SAND A (EWR S7) (Umfula iThulandziteka)	C/D	C	C	C	C	C
IUA X3-9	MRU SAND B (EWR S8) (Umfula iSand)	C	B/C	C	B	B	B

Lithebula 12-14 liniketa lizinga i-RQO yelizinga lemanti le-IUA ngayinye yemaYuniti eMtfombolusito lobekwe emphilu lomekwe tindzawo te-EWR. Khumbula kutsi lizinga lemanti lifaka inhloso yemvelo (TEC) kanye netinhloso temsebenzi njengema-RQO lalandziswa.

Lithebula 12: Ema-RQO eMIFULA elizinga lemanti (lemvelo nelemsebenzi) kumaYuniti eMtfombolusito labekwe emphilu eLuhlelo LWEMFULA INKOMAZI (X1)

I-IUA	RU	Sigaba Semvelo Lesihlosiwe	Incanye lencane	I-RQO lalandziswa	I-RQO ngekwetnamba
IUA X1-2	MRU KOMATI B (EWR K1)	B	Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.02 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
			Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 50 mS/m (umholi wetinhlelo temvelo tasemantini).
			Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).
IUA X1-4	MRU KOMATI G (EWR G1) (Umfula iGladdespruit)	C	Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.02 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
			Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (1996a).

I-IUA	RU	Sigaba Semvelo Lesihlosiwe	Incenye Iencane	I-RQO Ielandziswa	I-RQO ngekwezinamba
IUA X1-5	MRU KOMATI C (EWR K2) (Umfula Inkomazi)	B/C		Inhloso lephakeme	Njengetigaba: Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.020 (umholi wetinhlelo temvelo tasemantini).
				Inhloso lephakeme	Tigaba (letingenayo) te-Cr: Sibalo sema-95 sedatha kumele sibe ngaphasi kwa 0.0042 (umholi wetinhlelo temvelo tasemantini).
			Kudvungeka	Lwemukelekile	Kute linani (tinhlalo temvelo yasemantini: letholako).
			Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.02 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
IUA X1-5	MRU KOMATI C (EWR K2) (Umfula Inkomazi)	B/C	Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 55 mS/m (umholi wetinhlelo temvelo tasemantini).
			Tifo lethilobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
			Kudvungeka	Lwemukelekile	Kute linani (tinhlalo temvelo yasemantini: letholako).
			Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
IUA X1-5	MRU KOMATI T (EWR T1) (Umfula iTeewaterspruit)	B/C	Tifo lethilobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
			Kudvungeka	Lwemukelekile	Kute linani (Lokuhola tinhlalo temvelo yasemantini).
			Takhamtimba (Ifosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.175 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
			Tifo lethilobene nekungcola kanye ne-E.coli	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 1 mg/L TIN (Umholi wetinhlelo temvelo tasemantini).
IUA X1-8	MRU KOMATI M (EWR L1) (Umfula Umlumati)	B/C	Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 40 mS/m (umholi wetinhlelo temvelo tasemantini).

I-IUA	RU	Sigaba Semvelo Lesihlosiwe	Incenye Iencane	I-RQO Ielandziswa	I-RQO ngekwetintamba
IUA X1-9	MRU KOMATI D (EWR K3) (umfula Inkomazi)	D	Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
			Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letholako).
			Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).
			Takhamimba (Ifosifethi neNayithrojini Yalokungazange kuphile lephelele)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
			Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 1 mg/L (Umholi wetinhlelo temvelo tasemantini).
			Tifo letihlobene nekungcola kanye ne-E.coli	Kufanele	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 85 mS/m (Umholi wetinhlelo temvelo tasemantini).
			Tintfo letingaphili letinamatsela etihlahleni (Periphyton)	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
			Tintfo letiyingoti	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 21 mg/m2 (Umholi wetinhlelo temvelo tasemantini).
			Inhloso lephakeme	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).

Kute linani: kute inkhombandlela yetinombolo.

TWQR = Libanga Lelizinga Lemanti Leihlosiwe (DWAF, 1996a).

DWAF (1996a): Tinkhombandlela Telizinga Lemanti aseNingizimu Afrika. Ivolumu 7: Tinhlelo temvelo yasemantini.

DWAF (1996b): Tinkhombandlela telizinga lemanti aseNingizimu Afrika. Ivolumu 2: Kusefentiselwa Kukhibika.

Lithebula 13: Ema-RQO eMIFULA elizinga lemanti (lemvelo nelemsebetisi) kumaYunithi eMfombolusito labekwe emphilo eLuhlelo LWEMFULA UMGWENYA (X2)

I-IUA	RU	Sigaba Semvelo Lesihlosiwe	Incenye lencane	I-RQO Ielandziswa	I-RQO ngekwetnamba
IUA X2-1	MRU CROC A (EWR C1) (Umfula Umgwenya)	A	Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.15 mg/L PO4-P (umholi wetinhlalo temvelo tasemantini).
			Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlalo temvelo tasemantini).
			Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-120 nga 100 ml (DWAF, 1996b).
IUA X2-1	MRU CROC A (EWR C2) (Umfula Umgwenya)	C	Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.025 mg/L PO4-P (umholi wetinhlalo temvelo tasemantini).
			Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlalo temvelo tasemantini).
			Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
IUA X2-2	MRU CROC A (EWR C3) (Umfula Umgwenya)	C	Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.15 mg/L PO4-P (umholi wetinhlalo temvelo tasemantini).
			Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlalo temvelo tasemantini).
			Tinfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setinfo letiyingoti (1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).

I-IUA	RU	Sigaba Semvelo Lesihlosiwe	Incenye lencane	I-RQO Ielandziswa	I-RQO ngekwetinamba
IUA X2-9	MRU CROC A (EWR C4) (Umfula Umgwenya)	C	Takhamtimba (Ifosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
			Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 70 mS/m (umholi wetinhlelo temvelo tasemantini).
			Tifo lethlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
			Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).
IUA X2-11	MRU CROC A (EWR C5) (Umfula Umgwenya)	C	Takhamtimba (Ifosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.175 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
			Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 70 mS/m (umholi wetinhlelo temvelo tasemantini).
			Tifo lethlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
			Lizingakushisa	Lwemukelekile	Kuntjintja lokukahle kwemazinga ekushisa ngekhatsi emantini kumele kungenteki njani, k.k kungehluki ngetulu kwa 2°C (lokuhola tinhlelo temvelo yasemantini).
IUA X2-11	MRU CROC A (EWR C6) (Umfula)	C	Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letholako).
			Tintfo letiyingoti	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweCEV setintfo letiyingoti (DWAF, 1996a) nobe ngetulu kwemkhawulo wesigaba B kuDWAF (2008).
			Takhamtimba (Ifosifethi)	Kufanele	Ifosifethi: Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).

I-IUA	RU	Sigaba Semvelo Lesihlosiwe	Incenye lencane	I-RQO Ielandziswa	I-RQO ngekwetnamba
	Umgwenya)		Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 70 mS/m (umholi wetinhlelo temvelo tasemantini).
			Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAf, 1996b).
			Lizingakushisa	Lwemukelekile	Kuntjintja lokukahle kwemazinga ekushisa ngekhatsi emantini kumele kungenteki njani, k.k kungehluki ngetulu kwa 2°C (lokuhola tinhlelo temvelo yasemantini).
			Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
			Tintfo letiyingoti	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweCEV setintfo letiyingoti (DWAf, 1996a) nobe sigaba B kuDWAf (2008).
			Takhamtimba (Ifosifethi neNayithrojini Yalokungazange kuphile lephelele)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
			Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 4 mg/L TIN (umholi wetinhlelo temvelo tasemantini).
					Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 200 mS/m (umholi wetinhlelo temvelo tasemantini).
					Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAf (2008).
					Njengegaba: Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.020 (umholi wetinhlelo temvelo tasemantini).
					Tigaba (letingenayo) te-Cn: Sibalo sema-95 sedatha kumele sibe ngaphasi kwa 0.0042 (umholi wetinhlelo temvelo tasemantini).

Kute linani: kute inkhombandlela yetinombolo. TWQR = Libanga Lelizinga Lemanti Lelithosiwe (DWAf, 1996a).
 CEV = Chronic Effects Value (Bungako Bemiselela Leyingoti) (DWAf, 1996a).
 DWAf (1996b): Tinkhombandlela telizinga lemanti aseNingizimu Afrika. Ivolumu 2: Kusefentiselwa Kukhulika.

Lithebula 14: Ema-RQO eMIFULA elizinga lemanti (lemvelo nelemsebetisi) kumaYuniti eMfombolusito labekwe emphilo eLuhlelo LWEFULA ISABIE NESAND (X3)

I-IUA	RU	Sigaba Semvelo Lesihlosiwe	Incanye lencane	I-RQO lelandziswa	I-RQO ngekwetinamba
IUA X3-2	MRU SABIE A (EWR S1) (Umfula iSabe)	A/B	Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.15 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
			Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlelo temvelo tasemantini).
			Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAFA (2008).
			Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAFA, 1996b).
IUA X3-2	MRU SABIE A (EWR S2) (Umfula iSabe)	B	Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.15 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
			Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlelo temvelo tasemantini).
			Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAFA (2008).
			Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAFA, 1996b).
IUA X3-3	MRU SABIE A (EWR S3) (Umfula iSabe)	B	Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.15 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).

I-IUA	RU	Sigaba Semvelo Lesihlosiwe	Incenye Iencane	I-RQO Ielandziswa k o	I-RQO ngekwetintamba
			Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlalo temvelo tasemantini).
			Tifo lethlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
			Kudvungeka	Lwemukelekile	Kute linani (tinhlalo temvelo yasemantini: letholako).
			Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).
IUA X3-2	MRU MAC A (EWR S4) (Umfula uMgwenya)	A/B	Kudvungeka	Lwemukelekile	Kute linani (tinhlalo temvelo yasemantini: letholako).
IUA X3-3	MRU MAR A (EWR S5) (Umfula iMarite)	B	Takhamtimba (lfosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.15 mg/L PO4-P (umholi wetinhlalo temvelo tasemantini).
			Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlalo temvelo tasemantini).
			Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).
			Tifo lethlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
IUA X3-7	MRU MUT A (EWR S6) (Umfula iMutlumuvi)	B	Takhamtimba (lfosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO4-P (umholi wetinhlalo temvelo tasemantini).
			Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 55 mS/m (umholi wetinhlalo temvelo tasemantini).

I-IUA	RU	Sigaba Semvelo Lesihlosiwe	Incenye lencane	I-RQO Ielandziswa o	I-RQO ngekwetinamba
			Tifo lethilobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
			Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letholako).
			Tintfo letiyingoti	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweCEV setintfo letiyingoti (DWAF, 1996a) nobe ngetulu kwemkhawulo wesigaba B kuDWAF (2008).
IUA X3-8	MRU SAND A (EWR S7) (Umfula iThulandziteka)	C	Takhamtimba (ifosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
			Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 42 mS/m (umholi wetinhlelo temvelo tasemantini).
			Tifo lethilobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
			Kudvungeka	Lwemukelekile	Kute linani (lokuhola tinhlelo temvelo yasemantini).
			Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).
IUA X3-9	MRU SAND B (EWR S8) (Umfula iSand)	B	Takhamtimba (ifosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
			Tifo lethilobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).

Kute linani: kute inkhombandlela yetinombolo.

TWQR = Libanga Lezinga Lemanti Lelihlosiwe (DWAF, 1996a).

CEV = Chronic Effects Value (Bungako Bemitsetela Leyingoti) (DWAF, 1996a).

DWAF (1996a): Tinkhombandlela Telizinga Lemanti aseNingizimu Afrika: Ivolumu 7: Tindhlelo temvelo yasemantini.

DWAF (1996b): Tinkhombandlela telizinga lemanti aseNingizimu Afrika: Ivolumu 2: Kusetjentiselwa Kukhibika.

Emathubla 15 – 17 aniketa ema-RQO elizinga lemanti lema-RU labekwe embili (ngaphandle kwetindzawo te-EWR) etinhlelweni temifula ngekwehlukana.

Lithebula 15: IMIFULA: Sifinyeto seTinjongo Telizinga Lemitfombolusito TELIZINGA LEMANTI kuma-RU labekwe embili eWQ yeLuhlelo LWEMFULA INKOMAZI (X1)

I-IUA	RU	Incenye lencane	I-RQO lelandziswa	I-RQO ngekwetnamba
IUA X1-1	RU K1: X11A-01358, X11A-01248, X11A-01295	Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.025 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
		Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAF, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).
		Isalifethi (Sulphate)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi kwa 30 mg/L (industrial cat3: driver).
		pH	Lwemukelekile	Sibalo se-5 sa 5.9-6.5; sibalo sema-95 sa 8.0-8.8 (umholi wetinhlelo temvelo yasemantini).
IUA X1-1	RU K2: X11B-01370, X11B-01361, X11B-01272.	Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.025 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
		Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAF, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).
		Isalifethi (Sulphate)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi kwa 80 mg/L (industrial cat3: driver).
		pH	Lwemukelekile	Sibalo se-5 sa 5.9-6.5; sibalo sema-95 sa 8.0-8.8 (umholi wetinhlelo temvelo yasemantini).
IUA X1-3	RU K3: X11C-01147, X11D-01129, X11D-01137.	Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlelo temvelo tasemantini).
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAF, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).

I-UA	RU	Incenye lencane	I-RQO lelandziswa	I-RQO ngekwetinamba
		Isalifethi (Sulphate)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi kwa 30 mg/L (industrial cat3: driver).
		pH	Lwemukelekile	Sibalo se-5 sa 5.9-6.5; sibalo sema-95 sa 8.0-8.8 (umholi wetinhlelo temvelo yasemantini).
IUA X1-3	RU K4: X11E-01237.	Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti nobe ngetulu kwemkhawulo wesigaba A kuDWAf (2008).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
		Kuhanjiswa Kwagezi (sawoti)	Kufanele	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 85 mS/m (Umholi wetinhlelo temvelo tasemantini).
		Takhamtimba (Ifosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAf, 1996b).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
		Takhamtimba (Ifosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
		Kuhanjiswa Kwagezi (sawoti)	Kufanele	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 85 mS/m (Umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAf, 1996b).
		Tintfo letiyingoti	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweCEV setintfo letiyingoti (DWAf, 1996a) nobe ngetulu kwemkhawulo wesigaba B kuDWAf (2008).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
		Lizingakushisa	Lwemukelekile	Kuntjintja lokukahle kwemazinga ekushisa ngekhatsi emantini kumele kungenteki njani, k.k kungehluki ngetulu kwa 2°C (lokuhola tinhlelo temvelo yasemantini).
IUA X1-10	RU K13: X13L-01000.	Kuhanjiswa Kwagezi (sawoti)	Kufanele	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 85 mS/m (Umholi wetinhlelo temvelo tasemantini).
		Takhamtimba (Ifosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAf, 1996b).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
IUA X1-10	MRU Komati E: X13K-01114, X13K-01038,	Takhamtimba (Ifosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).

I-IUA	RU	Incenye lencane	I-RQO lelandziswako	I-RQO ngekwetinamba
	X13L-01027, X13L-00995.	Kuhanjiswa Kwagezi (sawoti)	Kufanele	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 85 mS/m (Umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
		Tintfo letiyingoti	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweCEV setintfo letiyingoti (DWAF, 1996a) nobe ngetulu kwemkhawulo wesigaba B kuDWAFA (2008).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
		Lizingakushisa	Lwemukelekile	Kuntjintja lokukahle kwemazinga ekushisa ngekhatsi emantini kumele kungenteki njani, k.k kungehluki ngetulu kwa 2°C (lokuhola tinhlelo temvelo yasemantini).

Kute linani: kute inkhombandlela yetinombolo.

TWQR = Libanga Lelizinga Lemanti Lelihlosiwe (DWAFA, 1996a).

CEV = Chronic Effects Value (Bungako Bemiselela Leyingoti) (DWAFA, 1996a).

DWAFA (1996a): Tinkhombandlela Telizinga Lemanti aseNingizimu Afrika: Ivolumu 7: Tinhlelo temvelo yasemantini.

DWAFA (1996b): Tinkhombandlela telizinga lemanti aseNingizimu Afrika. Ivolumu 2: Kusethentiselwa Kukhibika.

Lithebula 16: IMIFULA: Sifinyeto seTinjongo Telizinga Lemitfombolusito TELIZINGA LEMANTI kuma-RU labekwe embili eWQ yeLuhlelo LWEMFULA UMGWENYA (X2)

I-IUA	RU	Incenye lencane	I-RQO lelandziswako	I-RQO ngekwetinamba
IUA X2-3	MRU Elan A: X21F-01046, X21F-01081, X21G-01037 (ER1).	Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.025 mg/L PO ₄ -P (umholi wetinhlelo temvelo tasemantini).
		Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAFA, 1996b).
		pH	Inhloso lephakeme	Sibalo sesi-5 nesema-95 sa 6.5 nesi 8 (umholi wetinhlelo temvelo tasemantini).
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAFA, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAFA (2008).
		Cr(VI)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi kwa 0.014 mg/L Cr(VI) (umholi wetinhlelo temvelo tasemantini).
		Mn	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR ya 0.180 mg/L Mn (umholi wetinhlelo temvelo yasemantini).
IUA X2-3	RU C7: X21F-01100.	Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.025 mg/L PO ₄ -P (umholi wetinhlelo temvelo tasemantini).
		Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlelo temvelo tasemantini).

I-IUA	RU	Incanye lencane	I-RQO lelandziswako	I-RQO ngekwetinamba
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
		pH	Inhloso lephakeme	Sibalo sesi-5 nesema-95 sa 6.5 nesi 8 (umholi wetinhlelo temvelo tasemantini).
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAF, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).
		Cr-Vi	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi kwa 0.014 mg/L Cr-VI (umholi wetinhlelo temvelo tasemantini).
		Mn	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR ya 0.180 mg/L Mn (umholi wetinhlelo temvelo yasemantini).
IUA X2-4	MRU Elan B: X21G-01073, X21J-01013.	Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 55 mS/m (umholi wetinhlelo temvelo tasemantini).
		Takhamtimba	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.025 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAF, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
IUA X2-5	MRU Elan B: X21K-01035 (ER 2), X21K-00997.	Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 55 mS/m (umholi wetinhlelo temvelo tasemantini).
		Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.025 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAF, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
IUA X2-6 and part of IUA X2-9	MRU Croc C: X22B-00987, X22B-00888, X22C-00946, X22J-00993, X22J-00958, X22K-00981.	Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.025 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
		Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 55 mS/m (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).

I-IUA	RU	Incenye lencane	I-RQO lelandziswa	I-RQO ngekwetimba
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAf, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAf (2008).
		Mn	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR ya 0.180 mg/L Mn (umholi wetinhlelo temvelo yasemantini).
IUA X2-8	RU C12: X22C-01004	Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAf, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAf (2008).
		Mn	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR ya 0.180 mg/L Mn (umholi wetinhlelo temvelo yasemantini).
		Kudvungeka	Lwemukelekile	Kute linani (umholi wetinhlelo temvelo yasemantini).
IUA X2-8	RU C14: X22H-00836	Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 55 mS/m (umholi wetinhlelo temvelo tasemantini).
		Takhamtimba (Ifosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO ₄ -P (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAf, 1996b).
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti nobe ngetulu kwemkhawulo wesigaba A kuDWAf (2008).
I-IUA	RU	Incenye lencane	I-RQO lelandziswa	I-RQO ngekwetimba
IUA X2-8	RU C16: X23B-01052	Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlelo temvelo tasemantini).
		Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.025 mg/L PO ₄ -P (umholi wetinhlelo temvelo tasemantini).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
IUA X2-8	RU C17: X23C-01098, X23E-01154, X23F-01120.	Takhamtimba (Ifosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.175 mg/L PO ₄ -P (umholi wetinhlelo temvelo tasemantini).
		Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAf, 1996b).

I-IUA	RU	Incanye lencane	I-RQO lelandziswa	I-RQO ngekwetintamba
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAf, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAf (2008).
		As	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR ya 0.02 mg/L Mn (umholi wetinhlelo temvelo yasemantini).
		Cn (kute)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi kwa 0.004 mg/L Cn (umholi wetinhlelo temvelo tasemantini).
IUA X2-11	MRU Croc D: X24C-01033.	Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 85 mS/m (Umholi wetinhlelo temvelo tasemantini).
		Takhamtimba (Ifosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO ₄ -P (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAf, 1996b).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
IUA X2-12 & X2-13	RU C19: X24B-00903.	Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 55 mS/m (umholi wetinhlelo temvelo tasemantini).
		Takhamtimba (Ifosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO ₄ -P (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAf, 1996b).
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAf, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAf (2008).

TWQR = Libanga Lelizinga Lemanti Lelihlosiwe (DWAf, 1996a).

DWAf (1996a): Tinkhombandela Telizinga Lemanti aseNingizimu Afrika: Ivolumu 7: Tinhlelo temvelo yasemantini.

DWAf (1996b): Tinkhombandela telizinga lemanti aseNingizimu Afrika. Ivolumu 2: Kusetjentiselwa Kukhibika.

Lithebula 17: IMIFULA: Sifinyeto seTinjongo Telizinga Lemitfombolusito TELIZINGA LEMANTI kuma-RU labekwe embili eWQ yeLuhlelo LWEMFULA ISABIE NESAND (X3)

I-IUA	RU	Incanye lencane	I-RQO lelandziswa	I-RQO ngekwetintamba
IUA X3-4	RU S6: X31J-00774, X31J-00835.	Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlelo temvelo tasemantini).

I-IUA	RU	Incenye lencane	I-RQO lelandziswako	I-RQO ngekwetinja
		Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.025 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAf, 1996b).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAf, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAf (2008).
IUA X3-4	RU S9: X31K-00713.	Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 30 mS/m (umholi wetinhlelo temvelo tasemantini).
		Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.025 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAf, 1996b).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAf, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAf (2008).
IUA X3-5	MRU Sabie C: X33A-00731, X33A-00737, X33B-00784, X33B-00804, X33B-00829, X33D-00811, X33D-00861	Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 42 mS/m (umholi wetinhlelo temvelo tasemantini).
		Takhamtimba (Ifosifethi)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAf, 1996b).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAf, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAf (2008).
I-IUA	RU	Incenye lencane	I-RQO lelandziswako	I-RQO ngekwetinja
IUA X3-7	RU S13: X32J-00639.	Kuhanjiswa Kwagezi (sawoti)	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 42 mS/m (umholi wetinhlelo temvelo tasemantini).

I-IUA	RU	Incenye lencane	I-RQO lelandziswa	I-RQO ngekwetintamba
		Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.125 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
		Emazinga etintfo letingaphili letinamatsela etihlahleni (Periphyton chl-a)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi nobe silingane ku 84 mg/m ² (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAf, 1996b).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAf, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAf (2008).
IUA X3-8	RU S14: X32B-00551.	Takhamtimba (Ifosifethi)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.025 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
		Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAf, 1996b).
		Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
		Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (DWAf, 1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAf (2008).

Kute linani: kute inkhombandlela yetinombolo.

TWQR = Libanga Lelizinga Lemanti Lelihlosiwe (DWAf, 1996a).

DWAf (1996a): Tinkhombandlela Telizinga Lemanti aseNingizimu Afrika: Ivolumu 7: Tinhlelo temvelo yasemantini.

DWAf (1996b): Tinkhombandlela telizinga lemanti aseNingizimu Afrika. Ivolumu 2: Kusetjentiselwa Kukhibika.

Lithebula 18 – 20 liniketa ema-RQO emanti aphasi ngekuya ngekubekwa embili nangekuhlola lokusisekelo kwemaYunithi Emanti aphasi lalishumi nakunye. Emagabelo eRQO lefanele lasetjentisiwe afake sigaba semanti, kugeleta kwaphasi nelizinga lemanti. Kubekwa kwemaRQO lahlobene nebunyenti bemanti (k.k. sigaba semanti nekugeleta kwaphasi) kuhlosiswe ekugcineni tigama temanti ngekhatsi kwekwehla nekwenyuka kwetikhatsi temnyaka temvelo kucinisekisa kuzuza lokwanele kwabo bonkhe basebentisi futsi nekwentancono nobe kucina kuphuma kwemanti aphasi kwesekela tidzingo temfula logeleta kancane. Kubekwa kwemaRQO lahlobene neliznga lemanti kuhlosiswe ekugcineni lizinga lemanti aphasi macondzana nelizinga lelisisekelo/lelikhona, nobe kucinisekisa kutfobela emazinga ebunjalo bemanti lasetjentiswa emakhaya, njengobe loku kusidzingo lesidzingeka kakhulu sebasebentisi labehlukahlukene kuYunithi Yemanti aphasi.

Lithebula 18: Sifinyeto sema-RQO eManti aphasi eSigodzini seMfula Inkomazi

I-IUA	Iyunithi Yemanti aphasi	Incenye	I-RQO Ielandziswako	Inkhomba/Silinganiso	Indlela Yetinombolo
X1-2 na X1-3	GU1-3	Buningi	Tindlela tekugeleta kwemanti aphasi kuyunithi yemtfombolusito kumele kungabuyiselwa emuva kuletindlela tekugeleta kwemvelo kwayo ngalesitindzaweni tekudvonswa kwemanti.	Kulinganiswa kwekugeleta ku EWR G1.	19.9 % nMAR ¹
X1-6 na X1-5	GU1-5			Kulinganiswa kwekugeleta ku EWR T1.	22.6 % nMAR ¹
X1-8 na X1-9	GU1-6			Kulinganiswa kwekugeleta ku EWR K1 na EWR L1..	9.9 na 11.7 % nMAR1
X1-6 na X1-5	GU1-5	I-akhwifa	Kute umkhuba lomubi phakatsi kwekudvonswa kwaphasi kwesicongo ngetikhatsi tesomiso. Kuntjintjantjintja kwetikhatsi temnyaka kutawuhlala kungelibanga lemvelo.	Sigaba semanti - Kushona eSigabeni Semanti aphasi emigodzini yemanti lesebentako ngekusebentisa Tinkhombandlela Tekucaphela Emanti aphasi*.	
X1-8 na X1-9	GU1-6				
Bonkeh	Bonkeh	Bunjalo	Lizinga lemanti aphasi kumele lisuselwe ezingeni lemanti aphasi lasisekelo. Tindzawo letindlula sidzingo sekusetjentiswa kwemanti# kumele tingavunyelwa kumoshakala ngelizinga lemanti.	Lizinga lemanti aphasi ngemgodzi/ngesicoje ngekusebentisa Tinkhombandlela Tekucaphela Emanti aphasi* Kucaphela kabili ngemnyaka.	
X1-1	GU1-1		Emazinga asawoti kumele angakhuli. Kucocana kumele kugcinwe emazingeni kute kwesekelwe basebentisi basemakhaya nebemvelo bemanti.	Sawoti - Kuhamba Kwagezi Kucaphela kabili ngemnyaka.	Kuhamba Kwagezi ≤ 40 mS/m (ngekuya nge-dataset yelizinga) 2.
X1-6 na X1-5	GU1-5		Emazinga enayithrethi ku-GU kumele agcinwe kute kwesekelwe basebentisi bemanti basemakhaya.	Takhamtimba – Inayithrethi (njengeNayithrojini). Kucaphela kabili ngemnyaka.	Inayithrethi (as N)< 4 mg/l endzaweni yekuvuselela (ngekuya nge-dataset yelizinga) 2.
X1-8 na X1-9	GU1-6		Emazinga enayithrethi ku-GU kumele agcinwe kute kwesekelwe basebentisi bemanti basemakhaya.	Takhamtimba – Inayithrethi (njengeNayithrojini). Kucaphela kabili ngemnyaka.	Inayithrethi (as N)< 5 mg/l endzaweni yekuvuselela (ngekuya nge-dataset yelizinga) 2.

Lithebula 19: Sifinyeto sema-RQO eManti aphasi eSigodzini seMfula uMgwenya

I-IUA	GUs	Incenye	I-RQO Ielandziswako	Inkhomba/Silinganiso	Indlela Yetinombolo
X2-2 na X2-4	GU2-3	Buningi	Tindlela tekugeleta kwemanti aphasi kuyunithi yemtfombolusito kumele kungabuyiselwa emuva kuletindlela tekugeleta kwemvelo kwayo ngalesitindzaweni tekudvonswa kwemanti.	Kulinganiswa kwekugeleta ku EWR C3 na ER1.	30.1 na 4.97 % nMAR ¹ .
X2-7, X2-5, X2-6, X2-8 na X2-9	GU2-4			Kulinganiswa kwekugeleta ku EWR C4.	9.07 % nMAR ¹ .
X2-10	GUA2-5			Kulinganiswa kwekugeleta lokuchubekako ku EWR C7.	6.18 % nMAR ¹ .
X2-2 na X2-4	GU2-3	I-akhwifa	Kute umkhuba lomubi phakatsi kwekudvonswa kwaphasi kwesicongo ngetikhatsi tesomiso.	Sigaba semanti - Kushona eSigabeni Semanti aphasi emigodzini yemanti lesebentako	
X2-7, X2-5, X2-6, X2-8 na X2-9	GU2-4				

X2-10	GU2-5		Kuntjintjantjintja kwetikhatsi temnyaka kutawuhlala kungelibanga lemvelo.	ngekusebentisa Tinkhombandlela Tekucaphela Emanti aphasi*.	
Bonkeh	Bonkeh		Lizinga lemanti aphasi kumele lisuselwe ezingeni lemanti aphasi lasisekelo. Tindzawo letindlula sidzingo sekusetjentiswa kwemanti# kumele tingavunyelwa kumoshakala ngelizinga lemanti.	Lizinga lemanti aphasi ngemgodzi/ngesicoje ngekusebentisa Tinkhombandlela Tekucaphela Emanti aphasi*.	
X2-2 na X2-4	GU2-3	Bunjalo	Emazinga asawoti kumele angakhuli.	Sawoti - Kuhamba Kwagezi Kucaphela kabili ngemnyaka.	Kuhamba Kwagezi ≤ 55 mS/m (ngekuya nge-dataset yelizinga) 2.
X2-7, X2-5, X2-6, X2-8 na X2-9	GU2-4		Emazinga enayithrethi kumele agcinwe kute kwesekelwe basebentisi bemanti basemakhaya.	Takhamtimba – Inayithrethi (njengeNayithrojini). Kucaphela kabili ngemnyaka.	Emazinga enayithrethi endzaweni yekuvuselela kumele angakhuli aye ku $>3\text{mg/l2}$.
X2-10	GUA2-5		Emazinga asawoti kumele angakhuli. Kucocana kumele kugcinwe emazingeni kute kwesekelwe basebentisi basemakhaya nebemvelo bemanti.	Sawoti - Kuhamba Kwagezi Kucaphela kabili ngemnyaka.	Kuhamba Kwagezi ≤ 60 mS/m (ngekuya nge-dataset yelizinga) 2.
X2-10	GUA2-5				

Lithebula 20: Sifinyeto sema-RQO eManti aphasi eSigodzini seMfula iSapie neSand

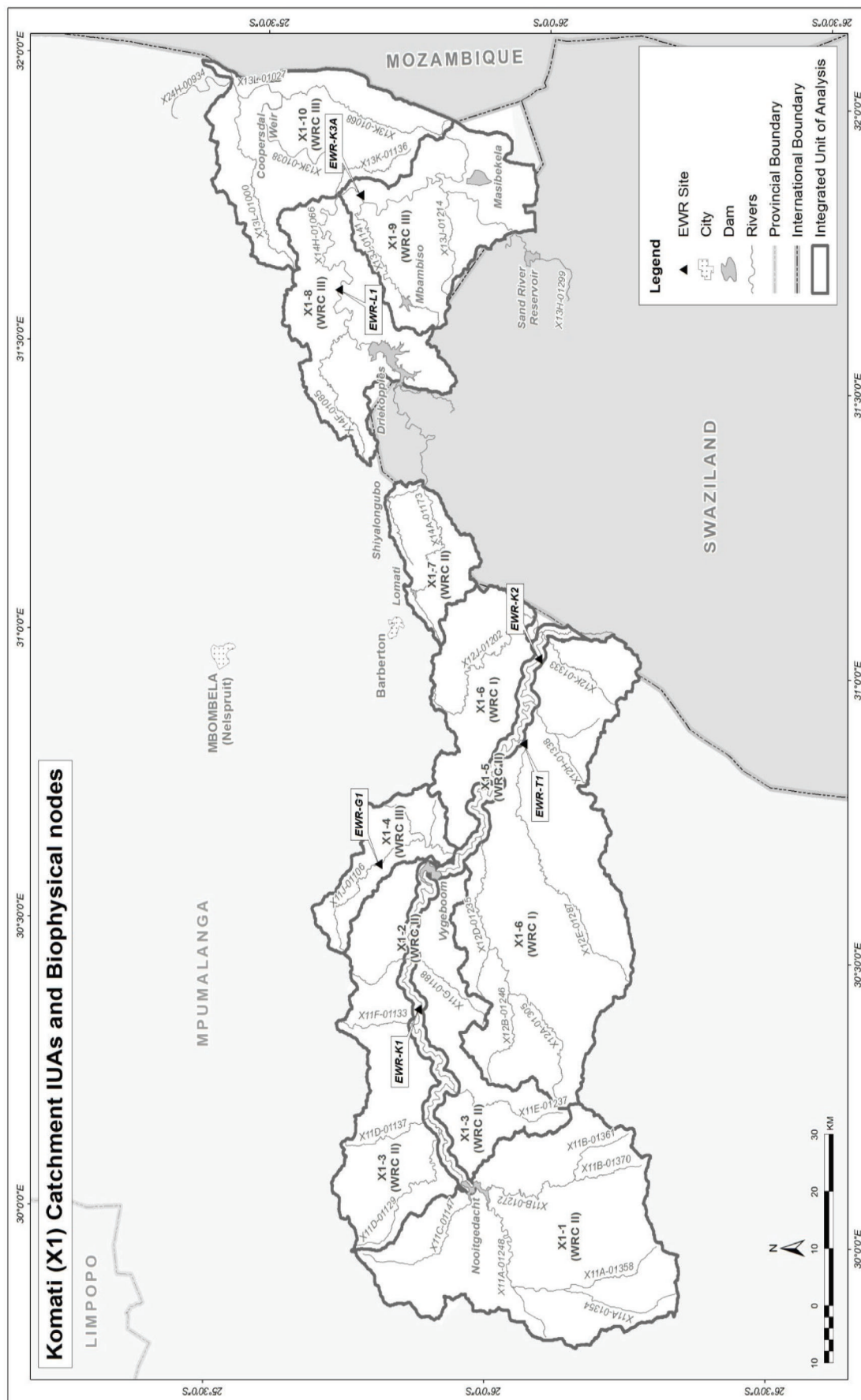
I-IUA	GUs	Incenye	I-RQO lelandziswa	Inkhomba/Silinganiso	Indlela Yetinombolo
X3-1 na X3-2	GU3-1	Buningi	Tindlela tekugeleta kwemanti aphasi kuyunithi yemtfombolusito kumele kungabuyiselwa emuva kuletindlela tekugeleta kwemvelo kwayo ngalesitindzaweni tekudvonswa kwemanti.	Kulinganiswa kwekugeleta ku EWR 1 na EWR 4.	12.88 na 14.35 % nMAR1.
X3-2, X3-4, X3-3 na X3-6	GU3-2			Kulinganiswa kwekugeleta ku EWR 5 na EWR 3.	28.32 na 9.71 % nMAR1.
X3-7 na X3-8	GU3-3			Kulinganiswa kwekugeleta ku EWR 7 na EWR 6.	11.14 na 13.38 % nMAR1.
X3-1 na X3-2	GU3-1	I-akhwifa	Kute umkhuba lomubi phakatsi kwekudvonswa kwaphasi kwesicongo ngetikhatsi tesomiso. Kuntjintjantjintja kwetikhatsi temnyaka kutawuhlala kungelibanga lemvelo.	Sigaba semanti - Kushona eSigabeni Semanti aphasi emigodzini yemanti lesebentako ngekusebentisa Tinkhombandlela Tekucaphela Emanti aphasi*.	
X3-7 na X3-8	GU3-3				
Bonkeh	Bonkeh	Bunjalo	Lizinga lemanti aphasi kumele lisuselwe ezingeni lemanti aphasi lasisekelo. Tindzawo letindlula sidzingo sekusetjentiswa kwemanti# kumele tingavunyelwa kumoshakala ngelizinga lemanti.	Lizinga lemanti aphasi ngemgodzi/ngesicoje ngekusebentisa Tinkhombandlela Tekucaphela Emanti aphasi*.	
X3-1 na X3-2	GU3-1		Emazinga enayithrethi kumele agcinwe kute kwesekelwe basebentisi bemanti basemakhaya.	Takhamtimba – Inayithrethi (njengeNayithrojini). Kucaphela kabili ngemnyaka.	Emazinga enayithrethi endzaweni yekuvuselela kumele angakhuli aye ku $>2\text{mg/l2}$.
X3-2, X3-4, X3-3 na X3-6	GU3-2				Inayithrethi (as N) <8 mg/l endzaweni yekuvuselela (ngekuya nge-dataset
X3-7 na X3-8	GU3-3				

I-IUA	GUs	Incenye	I-RQO lelandziswako	Inkhomba/Silinganiso	Indlela Yetinombolo
					yelizinga) 2.
X3-4	GU3-4				Inayithrethi (as N)<6mg/l endzaweni yekuvuselela (ngekuya nge-dataset yelizinga) 2.

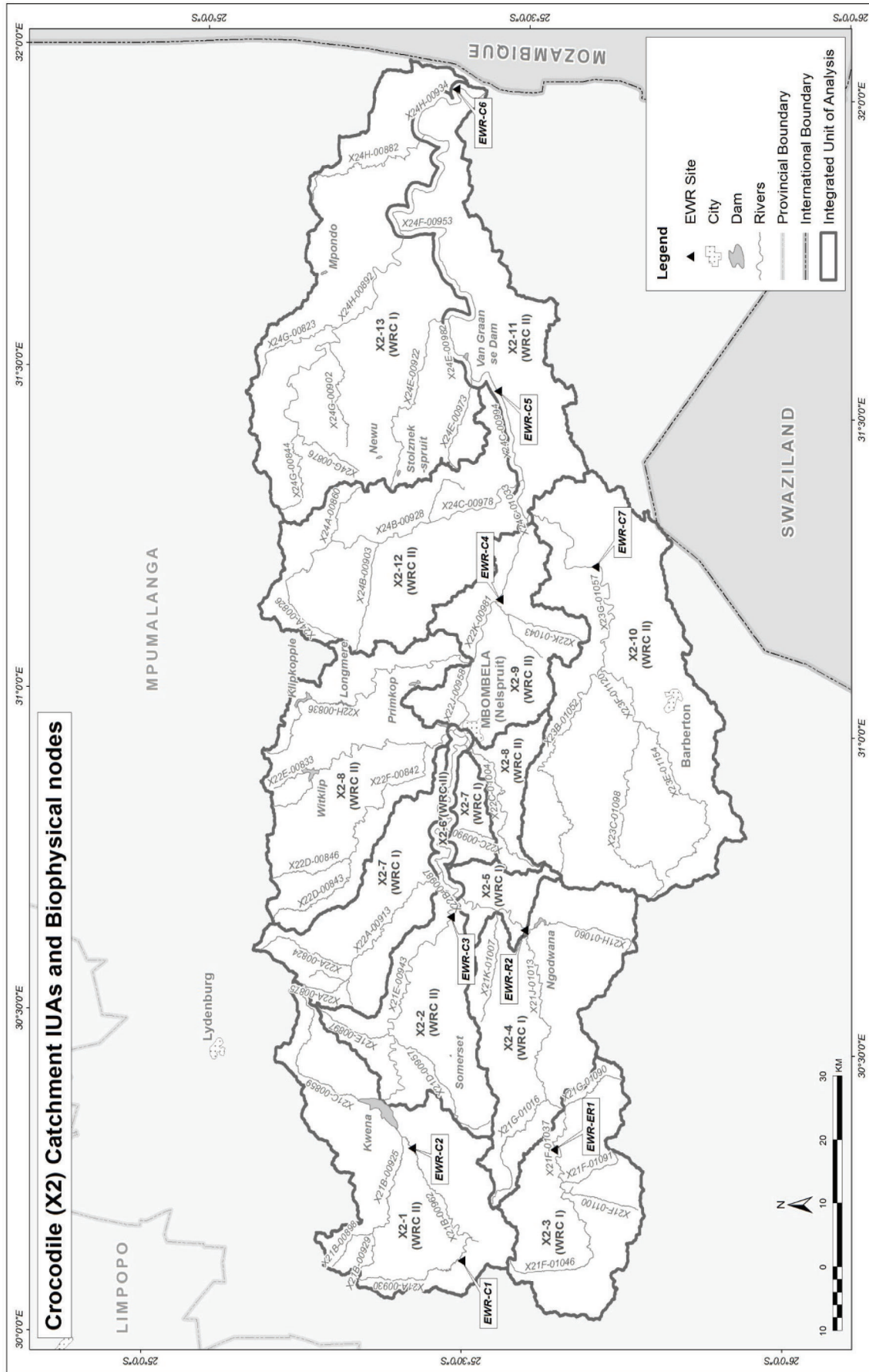
* - Inkhombandlela yeKuhlola, Kuhlola neKuphatsa iMitfombolusito yeManti aPhasi eNingizimu Afrika, DWAF (2008).
DWAF (1996b): Tinkhombandlela telizinga lemanti aseNingizimu Afrika, DWAF (1996).

1 - %nMAR kugeleta lokudzingekile kumanodi lachazwe njengemaphesenti e-Mean Annual Runoff yemvelo, Kugeleta Lokuphasi.

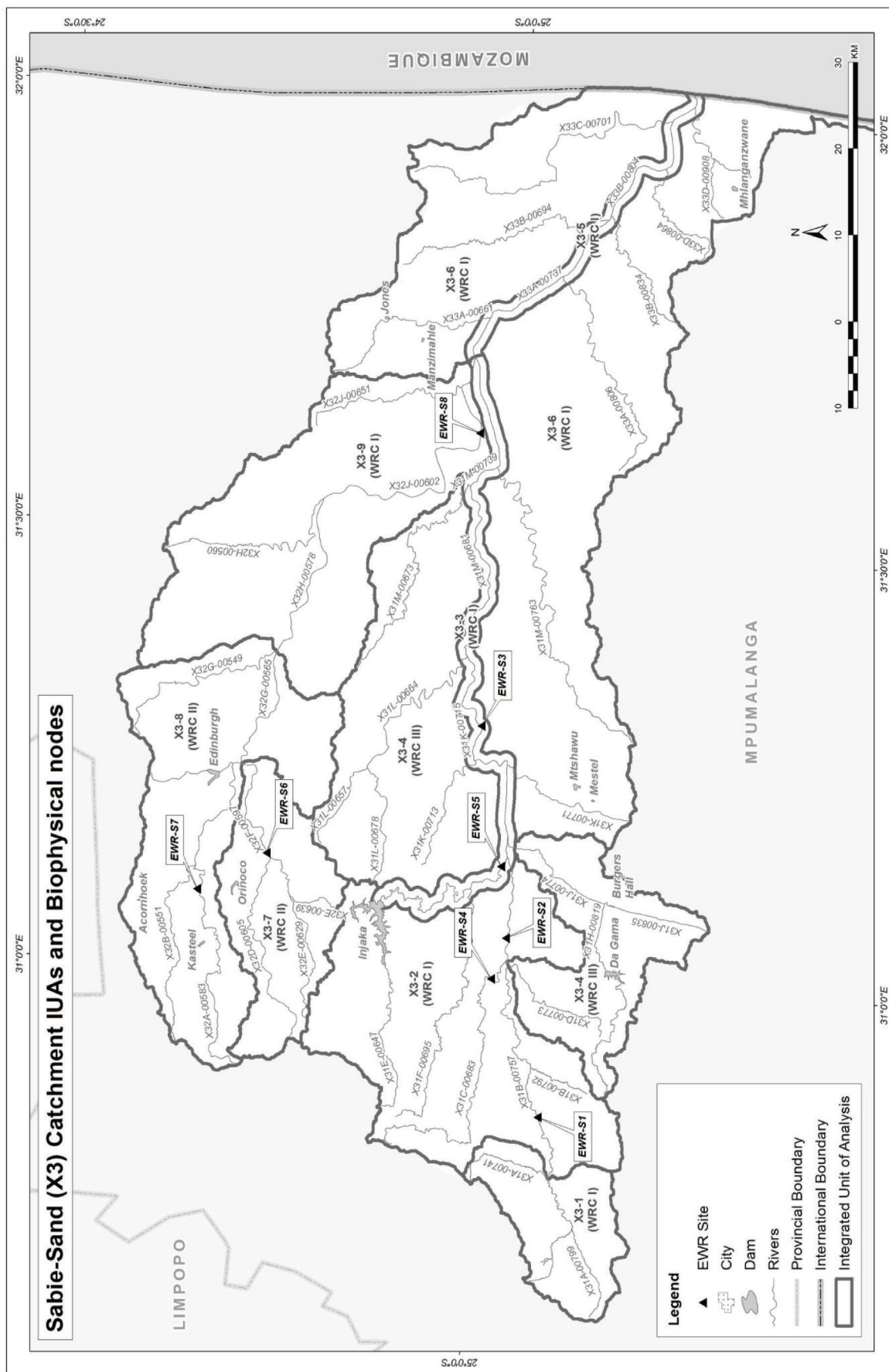
2 - Kwemukeleke jikelele kwekutsi ikhemistri yemanti esiyalu isukela endleleni legeletako, sib. kusuka emantini ebhikhabhonethi lanemaminerali laphasi lafuleshi kuye etindzaweni temanti lanemaminerali lasetulu, akudzala (luhlobo lwemanti lolwetsembele kujiyoloji lengaphasi) etindzaweni tekukhipha, lapho khona angeteka kucocana lokwengetiwe ngenca yekuswakama kwemanti. Letinye timbangela letengetekile letifaka emandla elizingeni lemanti esiyalu ngemabanga lamancane lamancane kufaka ekhatsi tindlela tekugeleta letikhetfwako (ngetigaba) nobe ngekusondzelana nemitfombo yemanti. Lizinga lelisisekelo lelibonwe kulenye yetindzawo leticaphelwako alikadzingeki njengelinani lesisekelo salenye indzawo yekucaphelwa.



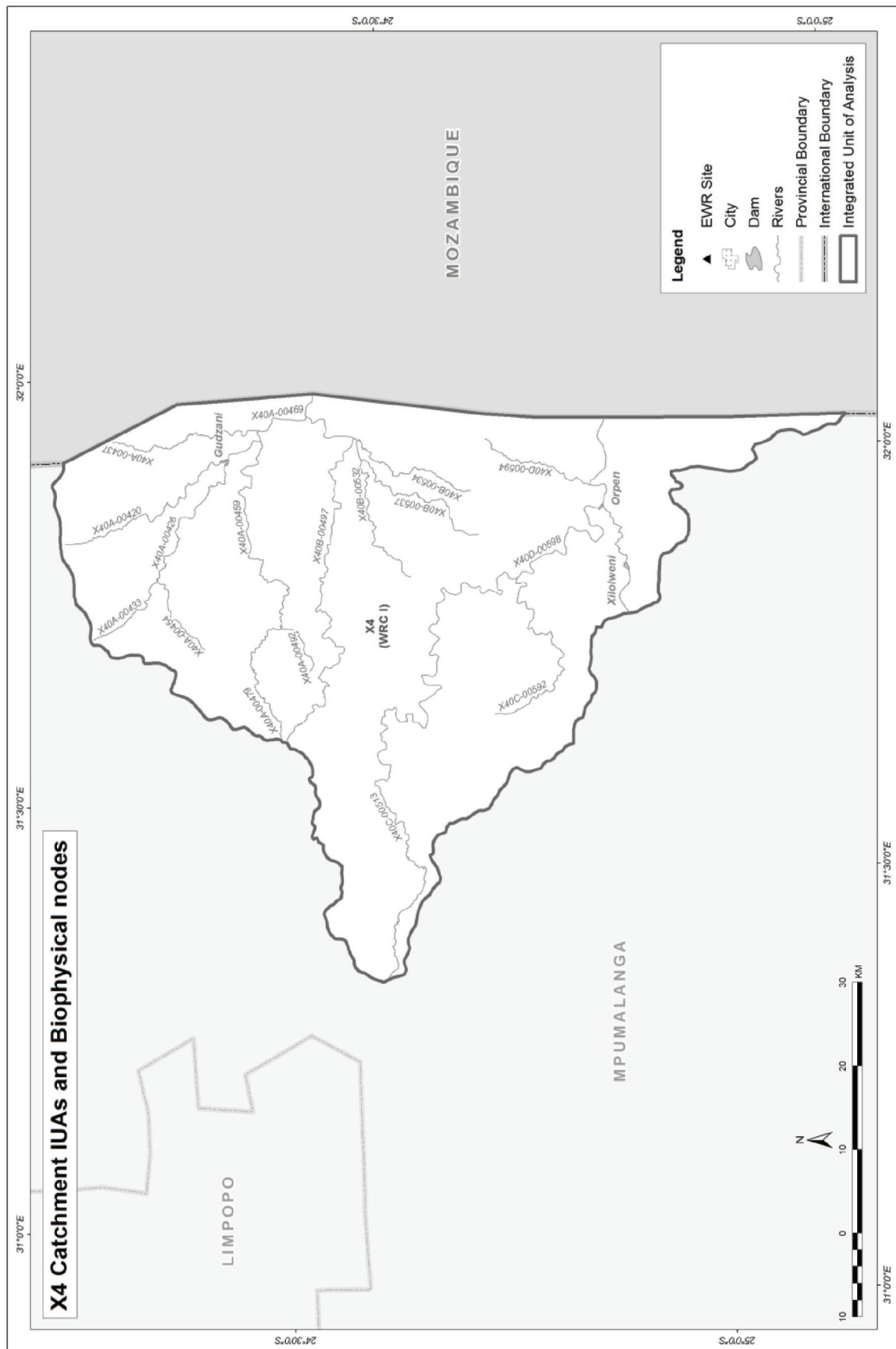
Umdvwebo 1.1: Sigodzi saseNkomazi (X1) kanye nemaNodi eMvelo ema-IUA



Umdwwebo 1.2: Sigodzi saseMgwenya (X2) kanye nemaNodi eMvelo ema-IUA



Umdvwebo 1.3: Sigodzi saseSabie-Sand (X3) kanye nemaNodi eMvelo ema-IUA



Umdvwebo 1.1: Sigodzi X4 kanye nemaNodi eMvelo ema-IUA

DEPARTMENT OF WATER AND SANITATION

NO. 1617

30 DECEMBER 2016

**NATIONAL WATER ACT, 1998
(ACT NO.36 OF 1998)****CLASSES OF WATER RESOURCES AND RESOURCE QUALITY OBJECTIVES FOR THE
LETABA CATCHMENT**

I, Sifiso Mkhize, in my capacity as Acting Director-General of the Department of Water and Sanitation, and duly authorised in terms of sections 13(1) and 63(1)(a) of the National Water Act, 1998 (Act No.36 of 1998), hereby publish the notice for the classes of water resources and the resource quality objectives for the Letaba Catchment.

Director: Water Resource Classification
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Pretoria
0001
E-mail: matlalat@dws.gov.za

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**MR. SIFISO MKHIZE****ACTING DIRECTOR-GENERAL OF THE DEPARTMENT OF WATER AND SANITATION**

DATE: 24/11/2016

SCHEDULE

DESCRIPTION OF WATER RESOURCE

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

Water Management Area: Limpopo North West
Drainage Region: B8 Secondary Drainage Region
River(s): Letaba River System

CLASSES OF WATER RESOURCES AS REQUIRED 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 for the Letaba Catchment is set out in Table 1.
2. Integrated units of Analysis are classified in terms of their extent of permissible utilization and protection as either Class I: indicating high environmental protection and minimal utilization; or Class II indicating moderate protection and moderate utilization; and Class III indicating sustainable minimal protection and high utilization.

RESOURCE QUALITY OBJECTIVES OF WATER RESOURCES AS REQUIRED IN TERMS OF SECTION 13(1)(b) OF THE NATIONAL WATER ACT, 1998

1. Resource Quality Objectives (RQO) are defined for each prioritised resource unit (RU) for every IUA in terms of water quantity, habitat and biota, and water quality, as shown in Table 2 – 6, respectively.
2. Where specified, the ecological category or Recommended Ecological Category (REC) 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.
3. Resource quality objectives 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.

PROPOSED WATER RESOURCE CLASSES FOR THE LETABA CATCHMENT**Table 1: Summary of Water Resource Classes and Ecological Categories**

Integrated Units of Analysis	Class for Integrated Units of Analysis	Biophysical node	River Name	Target Ecological Category
1. Letaba Upstream of Tzaneen Dam	II	B81A-00242	Broederstroom	C
		B81A-00256	Unnamed tributary	D
		B81A-00263	Unnamed tributary	D
		B81A-00270	Broederstroom	C
		B81B-00233	Mahitse	C
		B81B-00234	Mahitse	C
		B81B-00246	Politsi	C
		B81B-00251	Unnamed tributary	D
		B81B-00269	Morudi	B
		B81B-00227	Mahitse	D
		B81B-00240	Politsi	C
		B81B-00247	Groot Letaba	C
		EWR1	Groot Letaba	C
2. Letsitele and Thabina	III	B81D-00277	Thabina	D
		B81D-00280	Bobs	B
		B81D-00296	Mothlaka-Semeetse	B
		EWR2	Letsitele	D
		B81D-00272	Letsitele	C
3. Letaba Downstream of Tzaneen to Proposed Nwamitwa Dam	III	B81C-00245	Groot Letaba	C
		B81E-00213	Nwanedzi	D
		B81E-00244	Groot Letaba	D
4. Letaba from Proposed Nwamitwa Dam to Klein Letaba Confluence	II	EWR3	Groot Letaba	C
		B81F-00212	Groot Letaba	C
		B81F-00215	Groot Letaba	C
		B81F-00218	Groot Letaba	C
		B81F-00231	Groot Letaba	C
		B81J-00209	Groot Letaba	C
		EWR4	Groot Letaba	C
5. Southern Tributaries of Letaba in Integrated Units of Analysis 4 (from proposed Nwamitwa Dam to Klein Letaba Confluence)	I	B81F-00228	Reshwele	B
		B81F-00232	Makwena	B
6. Northern Tributaries to Letaba in Integrated Units of Analysis 4 (from proposed Nwamitwa Dam to Klein Letaba Confluence)	III	B81F-00189	Merekome	C
		B81F-00203	Lerwatlou	C
		B81G-00164	Molototsi	D
		B81H-00162	Metsemola	C
		B81H-00171	Molototsi	D
		B81J-00187	Mbhawula	C
7.	III	B82A-00168	Middle Letaba	C

Integrated Units of Analysis	Class for Integrated Units of Analysis	Biophysical node	River Name	Target Ecological Category
Upper Middle Letaba and Tributaries Upstream of Middle Letaba Dam		B82B-00173	Koedoes	D
		B82C-00175	Brandboontjies	E
		B82D-00163	Lebjelebore	C
		B82D-00154	Middle Letaba	D
		B82D-00166	Mosukodutsi	D
		B82D-00146	Middle Letaba	E
8. Klein Letaba Upstream of Middle Letaba Dam	II	B82E-00149	Khwali	B
		B82E-00150	Klein Letaba	C
		B82F-00141	Soeketse	C
		B82F-00128	Klein Letaba	C
		B82F-00137	Klein Letaba	D
9. Klein Letaba Downstream of Middle Letaba Dam	III	EWR5	Klein Letaba	C/D
		B82J-00165	Klein Letaba	C/D
		B82J-00178	Klein Letaba	C/D
		B82J-00201	Klein Letaba	C/D
		B82J-00207	Klein Letaba	C/D
10. Lower Klein Letaba Tributaries	I	B82H-00127	Nsama	C
		B82H-00139	Magobe	B
		B82H-00157	Nsama	B
		B82J-00153	Nalatsi	A
		B82J-00159	Byashishi	A
		B82J-00197	Ka-Malilibone	B
11. Letaba River (main stem) in the Kruger National Park	II	B83A-00220	Letaba	B
		B83A-00230	Letaba	C
		EWR6	Letaba	C
		B83A-00252	Letaba	C
		B83D-00250	Letaba	C
		EWR7	Letaba	C
		B83E-00265	Letaba	C
12. Letaba Tributaries in the Kruger National Park	I	B83A-00193	Shipikani	A
		B83A-00238	Nharhweni	A
		B83A-00254	Ngwenyeni	A
		B83B-00161	Tsende	A
		B83D-00204	Manyeleti	A
		B83D-00208	Makhadzi	A

Note (1): nMAR is the natural Mean Annual Runoff in million cubic meters per annum.

Note (2): The monthly flow requirements for EWR 3, 4, 5 and 7 represent the total flow defined by the recommended scenario where the Present Ecological State low flows and releases for water users defines the minimum requirements for the respective EWR sites.

Note (3): Ecological Water Requirements not specified as primary problems are related to water quality or rivers inundated by consecutive dams.

Note (4): Ecological Water Requirements not relevant as rivers situated in its totality within the Greater Kruger National Park and should stay natural.

RESOURCE QUALITY OBJECTIVES

Table 2 provides an indication of the hydrological RQOs for Rivers expressed in terms of flow at biophysical nodes and Ecological Water Requirement (EWR) sites. These summarised statistics are representative of the required flow regime in the river where the variability is dependent on the seasonal and temporal pattern of natural flow conditions. The mean monthly flows represent low flow requirements for all the months. Two alternative hydrological RQOs are defined for specific biophysical nodes affected by potential future water resource developments. These developments are Tzaneen Dam raising, construction of Nwamitwa Dam on the Groot Letaba River as well as a water resource development on the Klein Letaba River such as the potential Crystelfontein Dam.

Table 2: Summary of key hydrological RQOs for RIVERS for the Letaba River catchment

Biophysical node	River	Target EC	nMAR ¹ (MCM)	Low flows (%nMAR) ²	Total flows (%nMAR)	Months	RQO	
							(m³/s)	
							90% ⁴	60%
IUA 1: LETABA RIVER UPSTREAM OF TZANEEN DAM								
B81B-00264 EWR1	Groot Letaba	C	99.84	11.8	21	Oct	0.13	0.20
						Nov	0.12	0.20
						Dec	0.13	0.23
						Jan	0.15	0.27
						Feb	0.15	0.33
						Mar	0.17	0.34
						Apr	0.16	0.35
						May	0.17	0.34
						Jun	0.15	0.33
						Jul	0.15	0.30
						Aug	0.15	0.27
Sep	0.13	0.23						
IUA 2: LETSITELE AND THABINA RIVERS								
B81D-00271 EWR2	Letsitele	D	116.55	14.1	21.2	Oct	0.04	0.10
						Nov	0.05	0.15
						Dec	0.08	0.25
						Jan	0.12	0.42
						Feb	0.15	0.45
						Mar	0.17	0.53
						Apr	0.13	0.45
						May	0.15	0.44
						Jun	0.12	0.32
						Jul	0.09	0.21
						Aug	0.07	0.16
Sep	0.06	0.11						
IUA 4: LETABA FROM PROPOSED NWAMITWA DAM TO KLEIN LETABA CONFLUENCE								
RQOs applicable before the implementation of Nwamitwa Dam.								
B81F-00200 EWR 3 ⁽³⁾	Groot Letaba	C	394.93	-	46.1	Oct	0.254	0.806
						Nov	0.259	0.738
						Dec	0.463	0.819
						Jan	0.532	1.087
						Feb	0.619	2.484
						Mar	0.744	1.400
						Apr	0.720	1.261
						May	0.343	0.800
						Jun	0.168	0.742
						Jul	0.139	0.632
						Aug	0.067	0.529
Sep	0.221	0.698						

Biophysical node	River	Target EC	nMAR ¹ (MCM)	Low flows (%nMAR) ²	Total flows (%nMAR)	Months	RQO	
							(m ³ /s)	
							90% ⁴	60%
B81J-00219 EWR 4 ⁽³⁾	Groot Letaba	C	441.29	-	49.4	Oct	0.497	0.597
						Nov	0.082	0.583
						Dec	0.085	0.595
						Jan	0.277	0.828
						Feb	0.448	2.118
						Mar	0.571	1.094
						Apr	0.595	1.083
						May	0.597	0.597
						Jun	0.586	0.598
						Jul	0.530	0.597
						Aug	0.597	0.597
						Sep	0.594	0.598
RQOs applicable when Nwamitwa Dam is implemented with high flow releases in January, February and March.								
B81F-00200 EWR 3 ⁽³⁾	Groot Letaba	C	394.91	-	43.9	Oct	1.092	1.222
						Nov	0.994	1.253
						Dec	1.035	1.302
						Jan	1.248	3.983
						Feb	1.421	5.323
						Mar	1.461	4.474
						Apr	1.318	2.500
						May	1.338	2.195
						Jun	1.339	1.856
						Jul	1.274	1.626
						Aug	1.226	1.431
						Sep	1.160	1.306
B81J-00219 EWR 4 ⁽³⁾	Groot Letaba	C	441.29	-	42.4	Oct	0.523	0.554
						Nov	0.498	0.629
						Dec	0.497	0.773
						Jan	0.616	3.589
						Feb	0.733	5.264
						Mar	0.788	3.781
						Apr	0.679	1.517
						May	0.688	1.354
						Jun	0.669	1.129
						Jul	0.650	0.945
						Aug	0.605	0.778
						Sep	0.552	0.632
IUA 9: KLEIN LETABA FROM THE MIDDLE LETABA DAM								
RQOs applicable before the implementation of a water resource development in the Klein Letaba River.								
B82G-00135 EWR 5 ⁽³⁾	Klein Letaba	C	124.18	-	54	Oct	0.004	0.015
						Nov	0.004	0.027
						Dec	0.004	0.057
						Jan	0.019	0.223
						Feb	0.025	0.167
						Mar	0.019	0.074
						Apr	0.008	0.040
						May	0.011	0.030
						Jun	0.008	0.027
						Jul	0.007	0.026
						Aug	0.011	0.022
						Sep	0.008	0.015
RQOs applicable when a water resource development is implemented in the Klein Letaba River.								
B82G-00135 EWR 5 ⁽³⁾	Klein Letaba	C/D	124.18	-	45	Oct	0.015	0.030
						Nov	0.023	0.039
						Dec	0.026	0.045

Biophysical node	River	Target EC	nMAR ¹ (MCM)	Low flows (%nMAR) ²	Total flows (%nMAR)	Months	RQO	
							(m ³ /s)	
							90% ⁴	60%
						Jan	0.030	0.060
						Feb	0.033	0.074
						Mar	0.034	0.069
						Apr	0.031	0.065
						May	0.030	0.054
						Jun	0.031	0.052
						Jul	0.030	0.049
						Aug	0.030	0.045
						Sep	0.023	0.035
IUA 4: LETABA FROM PROPOSED NWAMITWA DAM TO KLEIN LETABA CONFLUENCE								
RQOs applicable before the implementation of Nwamitwa Dam.								
B83D-00255 EWR 7 ⁽³⁾	Letaba	C	646.29	-	55.8	Oct	0.579	0.579
						Nov	0.579	0.590
						Dec	0.590	0.664
						Jan	0.590	1.799
						Feb	0.590	2.879
						Mar	0.590	1.149
						Apr	0.590	1.155
						May	0.590	0.590
						Jun	0.590	0.590
						Jul	0.590	0.590
						Aug	0.590	0.590
						Sep	0.579	0.579
RQOs applicable when Nwamitwa Dam is implemented with high flow releases in January, February and March.								
B83D-00255 EWR 7 ⁽³⁾	Letaba	C	646.29	-	49.3	Oct	0.523	0.554
						Nov	0.537	0.660
						Dec	0.601	0.897
						Jan	0.688	5.349
						Feb	0.778	5.909
						Mar	0.871	3.935
						Apr	0.696	1.549
						May	0.691	1.396
						Jun	0.670	1.144
						Jul	0.651	0.951
						Aug	0.613	0.779
						Sep	0.548	0.633

Note (1): nMAR is the natural Mean Annual Runoff in million cubic meters per annum.

Note (2): %nMAR is flow required at the nodes expressed as a percentage of the natural Mean Annual Runoff, Low flows and Total flows.

Note (3): The monthly flow requirements for EWR 3, 4, 5 and 7 represent the total flow defined by the indicated scenario where the Present Ecological State low flows and releases for water users defines the minimum requirements for the respective EWR sites.

Note (4): Percentage points on the monthly low flow frequency distribution continuum at the nodes, expressed as the percentage of the months (90% and 60%) that the flow should equal or exceed the indicated minimum values. Note that for EWR 1 and 2, these only represent the base flows and flood requirements are available in technical documents.

Habitat and biota RQOs are provided as Ecological Categories. There are generic narrative and numerical RQOs associated with the Ecological Categories and Table 3 describes these for each Ecological Category.

Table 4 provides the habitat and biota RQOs for each IUA for HIGH priority Resource Units. RQOs and the target Ecological Category prior to the construction of the future dams are provided for each component and/or indicator. Expected changes after the construction of Nwamitwa and/or when a water resource development is implemented in the Klein Letaba River are indicated.

Table 5 provides the water quality RQOs for each IUA for priority Resource Units. RQOs prior to the construction of the future dams are provided for each component and/or indicator. Expected changes after the construction of Nwamitwa and/or when a water resource development is implemented in the Klein Letaba River are indicated where relevant. Note that water quality includes both the target ecological target (TEC) and the user targets as narrative RQOs.

Table 3: Generic numerical and narrative RQOs associated with Ecological Categories

ECOLOGICAL CATEGORY	GENERIC NARRATIVE RQO	INSTREAM AND RIPARIAN HABITAT NARRATIVE RQO	FISH, MACROINVERTEBRATE AND RIPARIAN VEGETATION NARRATIVE RQO	NUMERICAL RQO
A	Unmodified, near natural.	Very similar to natural reference conditions	Assemblage attributes as specified	$\geq A$ ($\geq 92\%$)
A/B				$\geq A/B$ ($\geq 88\%$)
B	Largely natural with few modifications.	Largely natural with few modifications. The flow regime has been only slightly modified and pollution is limited to sediment. A small change in natural habitats may have taken place. However, the ecosystem functions are essentially unchanged.	Assemblage attributes as specified	$\geq B$ ($\geq 82\%$)
B/C				$\geq B/C$ ($\geq 78\%$)
C	Moderately modified.	Moderately modified. Loss and change of natural habitat and biota have occurred, but the basic ecosystem functions are still predominantly unchanged.	Assemblage attributes as specified	$\geq C$ ($\geq 62\%$)
C/D				$\geq C/D$ ($\geq 58\%$)
D	Largely modified.	Largely modified. A large loss of natural habitat, biota and basic ecosystem functions has occurred.	Assemblage attributes as specified	$\geq D$ ($\geq 42\%$)
D/E				$\geq D/E$ ($\geq 38\%$)
E	Seriously modified.	Seriously modified. The loss of natural habitat, biota and basic ecosystem functions is extensive.	Assemblage attributes as specified	20-39%
F	Critically / Extremely modified.	Critically / Extremely modified. Modifications have reached a critical level and the system has been modified completely with an almost complete loss of natural habitat and biota. In the worst instances the basic ecosystem functions have been destroyed and the changes are irreversible.	Assemblage attributes as specified	0-19%

Table 4: Habitat and biota RQOs for RIVERS for geomorphology, riparian vegetation, macro-invertebrate and fish in priority Resource Units (RU) in the Letaba Catchment

IUA	RESOURCE UNIT (River, Desktop biophysical node)	Geo-morphology	Fish	Macro-invertebrate	Riparian vegetation
IUA 1	RU EWR 1 (Letaba River, B81B-00264, B81B-00247)	C/D	C	C	C
IUA 2	RU EWR 2 (Letsitele River, B81D-00271)	D	C/D	C	D
IUA 3 & 4	RU EWR 3 (Letaba River, B81F-00200; B81C-00245; B81E-00244; B81F-00212; B81F-00215; B81F-00218; B81F-00231)	D	C	C	C/D→C ^{*1}
IUA 3 & 4	RU EWR 4 (Letaba River, B81J-00219; B81J-00209)	C/D → D	C	C→C/D	C
IUA 9	RU EWR 5 (Klein Letaba River, B82G-00135; B82J-00165; B82J-00178; B82J-00201; B82J-00207)	C/D → D	C	C/D→D	C→C/D
IUA 11	RU EWR 7 (Letaba River, B83D-00255; B83A-00220; B83A-00230; B83A-00235; B83A-00252; B83D-00250; B83E-00265)	C→C/D	C→C/D	C→C/D	C

^{*1} Where two Ecological Categories are provided, the second category refers to expected change after the implementation of Nwamitwa Dam and when a water resource development is implemented in the Klein Letaba River.

Table 5: RQOs for RIVERS for water quality (ecological and user) in priority Resource Units (RU) in the Letaba Catchment

IUA	RU	Sub-Component	Target EC ^{*1}	Narrative RQO	Numerical RQO
IUA 1	RU EWR 1 (Letaba River, B81B-00264, B81B-00247)	Nutrients (phosphate)	B	Acceptable	50th percentile of the data must be less than 0.015 mg/L PO ₄ -P (Aquatic ecosystems: driver)
		Toxics		Ideal	95th percentile of the data must be within the Target Water Quality Range (TWQR) or A categories for toxics.
IUA 2	RU EWR 2 (Letsitele River, B81D-00271)	Nutrients (phosphate)	C	Tolerable	50th percentile of the data must be less than 0.025 mg/L PO ₄ (Agriculture - irrigation: driver).
		Electrical Conductivity (salts)		Ideal	95th percentile of the data must be less than or equal to 30 mS/m (Aquatic ecosystems: driver).
		Toxics		Ideal	95th percentile of the data must be within the TWQR or A categories for toxics.
		Faecal coliforms and <i>E.coli</i>		Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996a ^{*2}).
IUA 3 & 4	RU EWR 3 (Letaba River, B81F-00200; B81C-00245; B81E-00244; B81F-00212; B81F-00215; B81F-00218; B81F-00231)	Nutrients (phosphate)	B/C	Acceptable	Immediately applicable: 50th percentile of the data must be less than 0.025 mg/L PO ₄ -P. Post Nwamitwa Dam: 50th percentile of the data must be less than 0.015 mg/L PO ₄ -P (Aquatic ecosystems: driver).
		Electrical Conductivity (salts)		Acceptable	Immediately applicable: 95th percentile of the data must be less than or equal to 55 mS/m.
				Ideal	Post Nwamitwa Dam: 95th percentile of the data must be less than or equal to 30 mS/m (Industry Cat 3: driver).
		pH		Ideal	5th and 95th percentiles of pH data must be between 6.5 and 8.0 (Aquatic ecosystems: driver).
		Toxics		Ideal	95th percentile of the data must be within

IUA	RU	Sub-Component	Target EC ^{*1}	Narrative RQO	Numerical RQO
					the TWQR or A categories for toxics.
IUA 3 & 4	RU EWR 4 (Letaba River, B81J-00219; B81J-00209)	Nutrients (phosphate)	B/C	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO ₄ -P (Aquatic ecosystems: driver).
		Electrical Conductivity (salts)		Ideal	95th percentile of the data must be less than or equal to 30 mS/m (Industry Cat 3: driver).
		pH		Acceptable	5th and 95th percentiles of pH data must be between 6.5 and 8.4 (Industry Cat 3: driver).
		Toxics		Ideal	95th percentile of the data must be within the TWQR or A categories for toxics.
		Turbidity		Acceptable	Not available (Aquatic ecosystems: driver)
IUA 9	RU EWR 5: B82G-00135, up to Giyani	Nutrients (phosphate)	B/C→C	Acceptable	Immediately applicable: 50th percentile of the data must be less than 0.025 mg/L PO ₄ -P.
				Tolerable	Post Nwamitwa Dam: 50th percentile of the data must be less than 0.075 mg/L PO ₄ -P (Aquatic ecosystems: driver).
		Faecal coliforms and <i>E. coli</i>		Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996a).
		Turbidity		Acceptable	Not available (Aquatic ecosystems: driver)
		Toxics		Ideal	95th percentile of the data must be within the TWQR or A categories for toxics.
IUA 9	RU EWR 5 (Klein Letaba River, B82G-00135 downstream from Giyani; B82J-00165; B82J-00178; B82J-00201; B82J-00207)	Nutrients (phosphate)	C	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO ₄ -P (Aquatic ecosystems: driver).
		Electrical Conductivity (salts)		Acceptable	95th percentile of the data must be less than or equal to 55 mS/m (Aquatic ecosystems: driver).
		Faecal coliforms and <i>E. coli</i>		Recreation (full contact)	Meet the TWQR of 0-130 counts per 100 ml (DWAf, 1996a).
		Turbidity		Acceptable	Not available (Aquatic ecosystems: driver)
		Toxics		Ideal	95th percentile of the data must be within the TWQR or A categories for toxics.
IUA 11	RU EWR 7 (Letaba River, B83D-00255; B83A-00220; B83A-00230; B83A-00235; B83A-00252; B83D-00250; B83E-00265)	Nutrients (phosphate)	B	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO ₄ -P (Aquatic ecosystems: driver).
		Electrical Conductivity (salts)		Acceptable	95th percentile of the data must be less than or equal to 55 mS/m (Aquatic ecosystems: driver).
		Toxics		Ideal	95th percentile of the data must be within the TWQR or A categories for toxics.
		Turbidity		Ideal	Not available (Aquatic ecosystems: driver)

*¹ Where two Ecological Categories are provided, the second category refers to expected change after the implementation of Nwamitwa Dam and when a water resource development is implemented in the Klein Letaba River.

²DWAf, 1996a: Department of Water Affairs and Forestry, South Africa. 1996a. South African Water Quality Guidelines. Volume 2, Recreational Use.

Table 6 provides an indication of the narrative and numerical RQOs for groundwater expressed in terms of guidelines and limitations of groundwater abstractions. The groundwater assessment is undertaken on a quaternary catchment scale which has been grouped within the relevant IUAs.

Table 6: Summary of RQOs for GROUNDWATER in the Letaba Catchment

IUA 1: B81A; B81B	
Groundwater narrative RQO	
Abstraction	Significant ground water abstraction within 500m of a perennial channel should be restricted. All users to comply with existing allocation schedules and individual license conditions within the confirmed available yield.
Baseflow	Compliance to the low flow requirements for inflows to Tzaneen Dam.
Water Level	Water level in the aquifer must be higher than the water level in the surface water.
Water Quality	Shall not deteriorate from natural background.
Groundwater numerical RQO	
The total registered water use should remain below 7.52 Mm ³ .	
IUA 2: B81D	
Groundwater narrative RQO	
Abstraction	Significant ground water abstraction within 500m of a perennial channel should be restricted. All users to comply with existing allocation schedules and individual licence conditions within the confirmed available yield.
Baseflow	Compliance to the low flow requirements at EWR 2. Impacts of baseflow reduction should be monitored at B1H010.
Water Level	Water level in the aquifer must be higher than the water level in the surface water.
Water Quality	Shall not deteriorate from natural background.
Groundwater numerical RQO	
The total registered water use should remain below 7.77 Mm ³ .	
IUA 3: B81C	
Groundwater narrative RQO	
Abstraction	No further groundwater abstraction to take place. All users to comply with existing allocation schedules and individual license conditions within the confirmed available yield.
Baseflow	Compliance to the low flow requirements at EWR 3. Impacts of baseflow reduction should be monitored at B1H017.
Water Level	Water level in the aquifer must be higher than the water level in the surface water.
Water Quality	Shall not deteriorate from natural background.
IUA 3: B81E	
Groundwater narrative RQO	
Abstraction	No further groundwater abstraction to take place. All users to comply with existing allocation schedules and individual license conditions within the confirmed available yield.
Baseflow	Compliance to the low flow requirements at EWR 3. Impacts of baseflow reduction should be monitored at B1H017.
Water Level	No negative trend in water levels during annual during dry seasons. Water level monitoring network required near high abstraction zones.
Water Quality	Shall not deteriorate from natural background.
IUA 4 - 6: B81F	
Groundwater narrative RQO	
Abstraction	All users to comply with existing allocation schedules and individual license conditions within the confirmed available yield.
Water Level	No negative trend in water levels during annual during dry seasons. Water level

	monitoring network required near high abstraction zones.
Water Quality	Shall not deteriorate from present conditions. Monitoring of nitrates needs to be expanded.
Groundwater numerical RQO	
The total registered water use should remain below 14.40 Mm ³ .	
IUA 4 - 6: B81J	
Groundwater narrative RQO	
Abstraction	All users to comply with existing allocation schedules and individual license conditions within the confirmed available yield.
Water Level	No negative trend in water levels during annual during dry seasons. Water level monitoring network required near high abstraction zones.
Water Quality	Shall not deteriorate from present conditions.
Groundwater numerical RQO	
The total registered water use should remain below 6.46 Mm ³ /a.	
IUA 6: B81G	
Groundwater narrative RQO	
Abstraction	All users to comply with existing allocation schedules and individual licence conditions within the confirmed available yield.
Water Level	No negative trend in water levels during annual during dry seasons. Water level monitoring network required near high abstraction zones.
Water Quality	Shall not deteriorate from present conditions. Monitoring of nitrates needs to be expanded.
Groundwater numerical RQO	
The total registered water use should remain below 6.78 Mm ³ .	
IUA 4 - 6: B81H	
Groundwater narrative RQO	
Abstraction	All users to comply with existing allocation schedules and individual license conditions within the confirmed available yield.
Water Level	No negative trend in water levels during annual during dry seasons.
Water Quality	Shall not deteriorate from present conditions. Monitoring of nitrates needs to be expanded.
Groundwater numerical RQO	
The total registered water use should remain below 7.97 Mm ³ /a.	
IUA 7: B82A; B82D	
Groundwater narrative RQO	
Abstraction	Significant ground water abstraction within 500 m of a perennial channel should be restricted. All users to comply with existing allocation schedules and individual licence conditions within the confirmed available yield.
Baseflow	October inflows into the Middle Letaba Dam should be monitored.
Water Level	Water level in the aquifer must be higher than the water level in the surface water. No negative trend in water levels during annual during dry seasons.
Water Quality	Shall not deteriorate from present conditions.
Groundwater numerical RQO	
The total registered water use should remain below 17.47 Mm ³ .	
IUA 7: B82B; B82C	
Groundwater narrative RQO	

Abstraction	All users to comply with existing allocation schedules and individual license conditions within the confirmed available yield. No further groundwater abstraction should be permitted as it will reduce the inflows into the Middle Letaba Dam.
Water Level	Water level in the aquifer must be higher than the water level in the surface water. No negative trend in water levels during annual during dry seasons.
Water Quality	Shall not deteriorate from present conditions.
IUA 8: B82E; B82F	
Groundwater narrative RQO	
Abstraction	All users to comply with existing allocation schedules and individual licence conditions within the confirmed available yield.
Water Level	No negative trend in water levels during annual during dry seasons.
Water Quality	Shall not deteriorate from present conditions. Monitoring of nitrates needs to be expanded.
Groundwater numerical RQO	
The total registered water use should remain below 18.46 Mm ³ .	
IUA 9: B82G	
Groundwater narrative RQO	
Abstraction	All users to comply with existing allocation schedules and individual licence conditions within the confirmed available yield.
Water Level	No negative trend in water levels during annual during dry seasons.
Water Quality	Shall not deteriorate from present conditions. Monitoring of nitrates needs to be expanded.
Groundwater numerical RQO	
The total registered water use should remain below 11.02 Mm ³ .	
IUA 9 - 10: B82H; B82J	
Groundwater narrative RQO	
Abstraction	All users to comply with existing allocation schedules and individual licence conditions within the confirmed available yield.
Water Level	No negative trend in water levels during annual during dry seasons.
Water Quality	Shall not deteriorate from present conditions. Monitoring of nitrates needs to be expanded.
Groundwater numerical RQO	
The total registered water use should remain below 14.89 Mm ³ .	
IUA 12*: B83A; B83B; B83C; B83D; B83E	
Groundwater narrative RQO	
Abstraction	All users to comply with existing allocation schedules and individual licence conditions within the confirmed available yield.
Water Level	No negative trend in water levels during annual during dry seasons.
Water Quality	Shall not deteriorate from present conditions.
Groundwater numerical RQO	
The total registered water use should remain below 29.44 Mm ³ .	

* It is acknowledged that IUA 12 falls in the KNP.

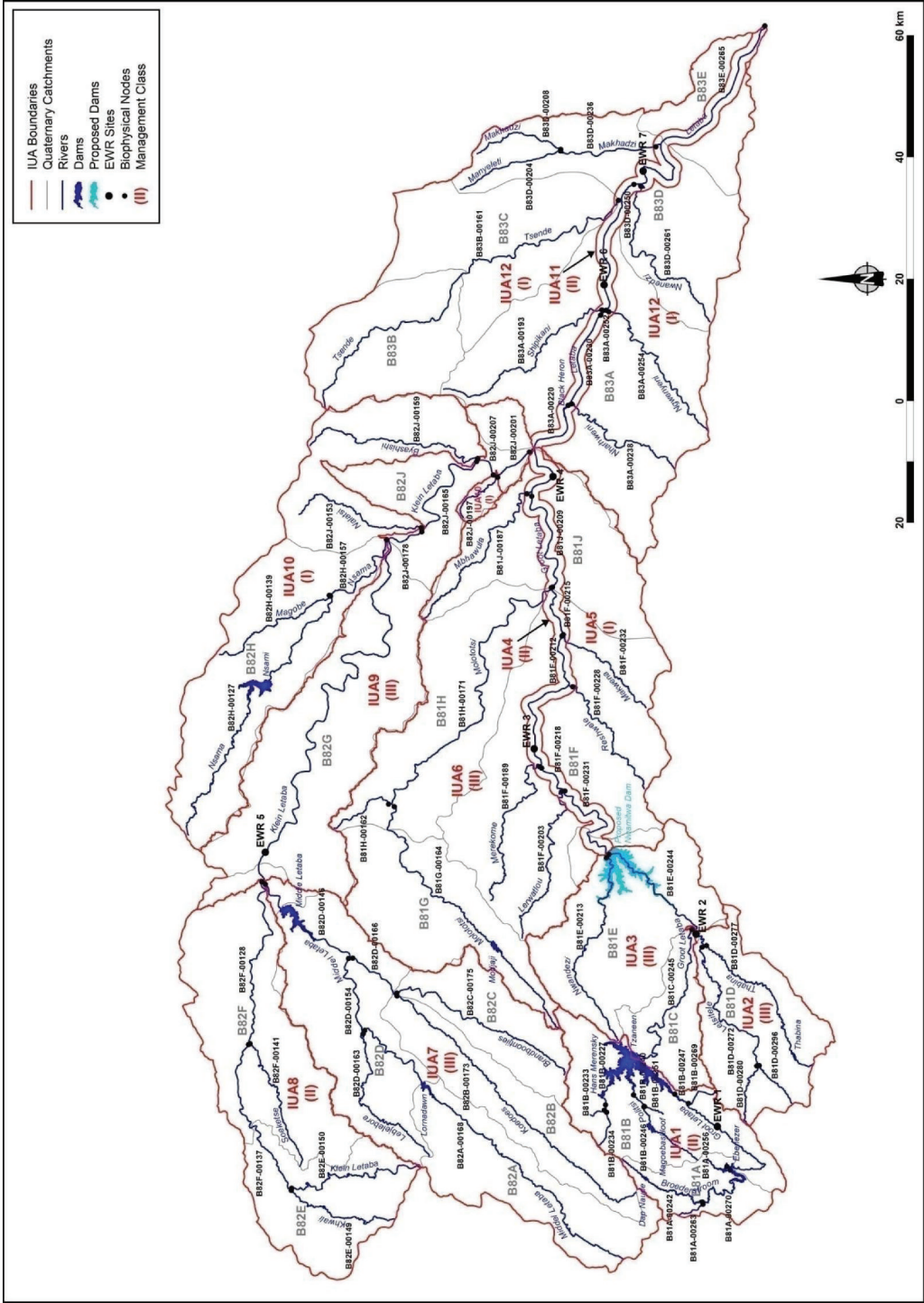


Figure 1: Integrated Units of Analysis of the Letaba Catchment

KGORO YA MEETSE LE KELELATŠHILA**MOLAO WA BOSETŠHABA WA MEETSE WA 1998
(MOLAO WA 36 WA 1998)****MEPHATO YA METHOPO YA MEETSE LE BOLENG BJA METHOPO YA KGOBOKETŠO YA
MEETSE YA BOGARENG BJA NOKA YA LETABA**

Nna, Sifiso Mkhize, ka maemo a ka bjalo ka Molaodi Pharephare wa motšwaoswere wa Kgoro ya Meetse le Kelelatšhila, gomme ke dumeletšwe ka maemo a a swanelago go ya ka dikgaolo 13(1) le 63(1)(a) tša Molao wa Bosetšhaba wa Meetse wa 1998 (Molao wa 36 wa 1998), ke phatlalatša mephato ya methopo ya meetse le boleng bja methopo ya kgoboketšo ya meetse ya bogareng bja noka ya Letaba.

Molaodi: Tlhopho ya Methopo ya Meetse
E lebišitšwe go: Ms Lebogang Matlala
Kgoro ya Meetse le Kelelatšhila
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0001

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MORENA SIFISO MKHIZE
MOLAODI PHAREPHARE WA MOTŠWAOSWERE WA KGORO YA MEETSE LE
KELELATŠHILA
LETŠATŠIKGWEDI: 24/11/2016

ŠETULE**TLHALOŠO YA MOTHOPHO WA MEETSE:**

Maikemišetšo a mephato ye e šišintšwego le boleng bja methopo di laeditšwe bakeng sa ka moka goba karolo ya mothopo o mongwe le o mongwe wa meetse ka gare ga ye kgoboketšo ya meetse ya bogareng bja noka ya Letaba bjalo ka ge go beilwe ka fase

Lefelo la Taolo ya Meetse: Limpopo Leboa Bodikela

Selete sa Kaloboela: Selete sa bobedi sa Kaloboela sa B8

(Di)Noka: Tshepedišo ya Noka ya Letaba

MEPHATO YA METHOPO YA MEETSE BJALO KA GE GO HLOKWA KE KAROLO YA 13(1)(a) YA MOLAO WA BOSETŠHABA WA MEETSE WA 1998

1. Kakaretšo ya mephato ya methopo ya meetse a Dikarolo tše di kopantšwego tša tshekatsheko (Seswantšho sa 1) le magoro a tikologo bakeng sa kgoboketšo ya meetse ya bogareng bja noka ya Letaba bjalo ka ge e laeditšwe ka go Lenaneo la 1.
2. Diyuniti tše di kopantšwego tša Tlhophollo di arogantšwe go ya ka monabo wa tirišo ye e dumeletšwego le tšhireletšo ya Mphato wa I: o laetšago tšhireletšo ya godimo ya tikologo le tšhomišo ye nnyane; Mphato wa II o laetšago tšhireletšo ya magareng ya tikologo le tšhomišo ya magareng; lekanetšego goba tšhireletšo le tšhomišo ya lekanetšego; le Mphato wa III o laetšago tšhireletšo ye nnyane kudu ya tikologo le tšhomišo ya godimo.

MAIKEMIŠETŠO A BOLENG BJA METHOPO YA MEETSE BJALO KA GE GO HLOKWA KE KAROLO YA 13(1)(b) YA MOLAO WA BOSETŠHABA WA MEETSE WA 1998

1. Maikemišetšo a Boleng bja Methopo (RQO) a hlalošwa go yuniti ye nngwe le ye nngwe ya mothopo yeo e tlogo pele (RU) go IUA ye nngwe le ye nngwe go ya ka boleng bja meetse, bodulo le diphedi, gammogo le boleng bja meetse bjalo ka ge go laeditšwe Lenaneotlhophong la 2-6, ka tatelano.
2. Fao go laeditšwego, legoro la tikologo goba Legoro la Tikologo le le Šišintšwego (REC) le ra maemo a tikologo ao a laeditšwego ke Tona ya methopo ya meetse yeo e laetšago maemo a tikologo a methopo ya meetse go ya ka phapogo ya dikarolo tša yona tša thutamaphelo a tikologo go maemo a pele ga tlhabollo.
3. Maikemišetšo a boleng bja methopo a tla diragala go tloga ka letšatšikgwedi leo le saenwego bjalo ka ge go hlokwa ke Karolo ya 13(1)(a) ya Molao wa Bosetšhaba wa Meetse wa 1998, ntle le ge go laeditšwe ke Tona.

**MEPHATO YA METHOPO YA MEETSE LE KGOBOKETŠO YA MEETSE YA BOGARENG
BJA NOKA YA LETABA**

Lenaneotlhopho la 1: Kakaretšo ya Mephato ya Methopo ya Meetse le Magoro a Tikologo

Diyuniti tše di Kopantšwego tša Tshekatsheko	Mphato wa Diyuniti tše di Kopantšwego tša Tshekatsheko	Lefelo la go potiela	Leina la Noka	Legoro la Tebanyo ya phedišano ya diphedi
1. Moela wa Noka ya Letaba go tšwa Letamong la Tzaneen	II	B81A-00242	Broederstroom	C
		B81A-00256	Nokakeledi ya hlokaina	D
		B81A-00263	Nokakeledi ya hlokaina	D
		B81A-00270	Broederstroom	C
		B81B-00233	Mahitse	C
		B81B-00234	Mahitse	C
		B81B-00246	Politsi	C
		B81B-00251	Nokakeledi ya hlokaina	D
		B81B-00269	Morudi	B
		B81B-00227	Mahitse	D
		B81B-00240	Politsi	C
		B81B-00247	Noka ye kgolo ya Letaba	C
		EWR1	Noka ye kgolo ya Letaba	C
2. Letsitele le Thabina	III	B81D-00277	Thabina	D
		B81D-00280	Bobs	B
		B81D-00296	Mothlaka-Semeetse	B
		EWR2	Letsitele	D
		B81D-00272	Letsitele	C
3. Moela wa Letaba wa Fasenyana wa Tzaneen go ya go Letamo le le šišintšwego la Nwamitwa	III	B81C-00245	Noka ye kgolo ya Letaba	C
		B81E-00213	Nwanedzi	D
		B81E-00244	Noka ye kgolo ya Letaba	D
4. Letaba go tšwa go Letamo le le Šišintšwego la Nwamitwa go ya Magahlanong a Letamo le lennyane la Letaba	II	EWR3	Noka ye kgolo ya Letaba	C
		B81F-00212	Noka ye kgolo ya Letaba	C
		B81F-00215	Noka ye kgolo ya Letaba	C
		B81F-00218	Noka ye kgolo ya Letaba	C
		B81F-00231	Noka ye kgolo ya Letaba	C
		B81J-00209	Noka ye kgolo ya Letaba	C
		EWR4	Noka ye kgolo ya Letaba	C

Diyuniti tše di Kopantšwego tša Tshekatsheko	Mphato wa Diyuniti tše di Kopantšwego tša Tshekatsheko	Lefelo la go potela	Leina la Noka	Legoro la Tebanyo ya phedišano ya diphedi
5. Dinokakeledi tša Borwa bja Moka ya Letaba ka go Tlhophollo ya Diyuniti tše di Kopantšwego ya 4 (go tšwa go Letamo le le Šišintšwego la Nwamitwa go ya Magahlanong a Letamo le le nnyane la Letaba)		B81F-00228	Reshwele	B
		B81F-00232	Makwena	B
6. Dinokakeledi tša Borwa bja Moka ya Letaba ka go Tlhophollo ya Diyuniti tše di Kopantšwego ya 4 (go tšwa go Letamo le le Šišintšwego la Nwamitwa go ya Magahlanong a Letamo le le nnyane la Letaba)	III	B81F-00189	Merekome	C
		B81F-00203	Lerwatlou	C
		B81G-00164	Molototsi	D
		B81H-00162	Metsemola	C
		B81H-00171	Molototsi	D
		B81J-00187	Mbhawula	C
7. Moela wa Magareng wa Godingwana le Moaa wa Bogareng bja Letamo la Letaba	III	B82A-00168	Bogareng bja Letamo la Letaba	C
		B82B-00173	Koedoes	D
		B82C-00175	Brandboontjies	E
		B82D-00163	Lebjelebore	C
		B82D-00154	Bogareng bja Letamo la Letaba	D
		B82D-00166	Mosukodutsi	D
		B82D-00146	Bogareng bja Letamo la Letaba	E
8. Moela o Monnyane wa Godingwana wa Bogareng bja Letamo la Letaba	II	B82E-00149	Khwali	B
		B82E-00150	Nokana ye nnyane ya Letaba	C
		B82F-00141	Soeketse	C
		B82F-00128	Nokana ye nnyane ya Letaba	C
		B82F-00137	Nokana ye nnyane ya Letaba	D
9. Moela o Monnyane wa Fasenyana wa Bogareng bja Letamo la Letaba	III	EWR5	Nokana ye nnyane ya Letaba	C/D
		B82J-00165	Nokana ye nnyane ya Letaba	C/D
		B82J-00178	Nokana ye nnyane ya Letaba	C/D
		B82J-00201	Nokana ye nnyane ya Letaba	C/D
		B82J-00207	Nokana ye nnyane ya Letaba	C/D
10. Meelanoka ya Nokana ye nnyane ya Letaba	Nna	B82H-00127	Nsama	C
		B82H-00139	Magobe	B
		B82H-00157	Nsama	B

Diyuniti tše di Kopantšwego tša Tshekatsheko	Mphato wa Diyuniti tše di Kopantšwego tša Tshekatsheko	Lefelo la go potuela	Leina la Noka	Legoro la Tebanyo ya phedišano ya diphedi
		B82J-00153	Nalatsi	A
		B82J-00159	Byashishi	A
		B82J-00197	Ka-Malilibone	B
11. Noka ya Letaba (noka ye kgolo) ka Lešokeng la Diphoofole la Kruger	II	B83A-00220	Letaba	B
		B83A-00230	Letaba	C
		EWR6	Letaba	C
		B83A-00252	Letaba	C
		B83D-00250	Letaba	C
		EWR7	Letaba	C
		B83E-00265	Letaba	C
12. Meelanoka wa Noka ya Letaba ka Lešokeng la Diphoofole la Kruger	Nna	B83A-00193	Shipikani	A
		B83A-00238	Nharhweni	A
		B83A-00254	Ngwenyeni	A
		B83B-00161	Tsende	A
		B83D-00204	Manyeleti	A
		B83D-00208	Makhadzi	A

Ela hloko (1): nMAR ke palomoka ya boleng bja meetse ao a tšwago a tlogo ka dikhupikimetara tše milione ka ngwaga.

Ela hloko (2): Dinyakwa tša kelelo ya kgwedi ka kgwedi ya EWR 3, 4, 5 le 7 di laetša palomoka ya kelelo ye e hlalošitšwego ke tiragalokakanywa ye e digetšwego fao Maemo a Bjale a Tikologo a dikelelo tša fase le ditokollo tša bašomiši ba meetse a hlalošago dinyakwa tša fasefase tša mafelo a a go fapana a EWR.

Ela hloko (3): Dinyakwa tša Meetse a Tikologo tše di sa laetšwego bjalo ka mathata a magolo di amana le go boleng bja meetse goba dinoka tše di tletšego ka matamo a go latelelana.

Ela hloko (4): Dinyakwa tša Meetse a Tikologo ga di maleba ka ge dinoka di le ka ntientle ga Toropokgolo ya Lešoka la Diphoofole la Kruger gomme e swanetše go dula ka tlhago.

MAIKEMIŠETŠO A BOLENG BJA METHOPO

Lenaneo la 2 le fana ka taetšo ya meetse ya di-RQOs bakeng sa meetsefase ao a elelago mafelong a go potuela le mafelong a Dinyakwa tša Meetse a Tikologo. Dipalopalo tše di akareditšwego ke kemedi ya dikelelo tša seela sa ga seka nokeng fao go fetogafetoga go laolwago ke monabo wa sehla le wa lebakanyana wa maemo a kelelo a tlhago. Palogare ya dikelelo tša kgwedi ka kgwedi e laetša dinyakwa tša kelelo ya fase ya dikgwedi ka moka. Di-RQOs tše dingwe tše pedi di hlalošitšwe bakeng sa mafelo a itšego a go potuela ao a angwago ke ditlhabollo tša methopo ya meetse tše di ka bago gona ka moso. Ditlhabollo tše di tlhatlošo ya Letamo la Tzaneen, go agwa ga Letamo la Nwamitwa ka Nokeng ye Kgolo ya Letaba gammogo le tlhabollo ya methopo ya meetse ka nokaneng ye nnyane ya Letaba bjalo ka Letamo la Crystelfontein leo le nago le bokgoni.

**Lenaneotlhopho la 2: Kakaretšo ya di-RQOs tše bohlokwa bakeng sa
MEETSEFASE ka go Kgoboketšo ya meetse ya bogareng bja noka ya Letaba**

Lefelo la go potliela	Noka	Tebanyo EC	nMAR ¹ (MCM)	Dikelelotlase (%nMAR) ²	Palomoka ya dikelelo (%nMAR)	Dikgwedi	RQO	
							(m³/s)	
							90% ⁴	60%
MOELA WA GODINGWANA WA NOKA YA LETABA WA LETAMO LA TZANEEN								
B81B-00264 EWR1	Groot Letaba	C	99.84	11.8	21	Okt	0.13	0.20
						Nof	0.12	0.20
						Des	0.13	0.23
						Jan	0.15	0.27
						Feb	0.15	0.33
						Mat	0.17	0.34
						Apr	0.16	0.35
						Mei	0.17	0.34
						Jun	0.15	0.33
						Jul	0.15	0.30
						Agos	0.15	0.27
						Set	0.13	0.23
IUA 2: NOKA YA LETSITELE LE THABINA								
B81D-00271 EWR2	Letsitele	D	116.55	14.1	21.2	Okt	0.04	0.10
						Nof	0.05	0.15
						Des	0.08	0.25
						Jan	0.12	0.42
						Feb	0.15	0.45
						Mat	0.17	0.53
						Apr	0.13	0.45
						Mei	0.15	0.44
						Jun	0.12	0.32
						Jul	0.09	0.21
						Agos	0.07	0.16
						Set	0.06	0.11
IUA 4: LETABA GO TŠWA GO LETAMO LE LE ŠIŠINTŠWEGO LA NWAMITWA GO YA MAGAHLANONG A LETAMO LE LENNYANE LA LETABA								
Di-RQOs tšeo di dirišwago pele ga phethagatšo ya Letamo la Nwamitwa.								
B81F-00200 EWR 3 ⁽³⁾	Groot Letaba	C	394.93	-	46.1	Okt	0.254	0.806
						Nof	0.259	0.738
						Des	0.463	0.819
						Jan	0.532	1.087
						Feb	0.619	2.484
						Mat	0.744	1.400
						Apr	0.720	1.261
						Mei	0.343	0.800
						Jun	0.168	0.742
						Jul	0.139	0.632
						Agos	0.067	0.529
						Set	0.221	0.698
B81J-00219 EWR 4 ⁽³⁾	Groot Letaba	C	441.29	-	49.4	Okt	0.497	0.597
						Nof	0.082	0.583
						Des	0.085	0.595
						Jan	0.277	0.828
						Feb	0.448	2.118
						Mat	0.571	1.094
						Apr	0.595	1.083
						Mei	0.597	0.597
						Jun	0.586	0.598
						Jul	0.530	0.597
						Agos	0.597	0.597
						Set	0.594	0.598
di-RQOs di a nyakega ge go phethagatšwa Letamo la Nwamitwa ka tokollo ya kelelo ya godimo ka								

Lefelo la go potjela	Noka	Tebanyo EC	nMAR ¹ (MCM)	Dikelelotlase (%nMAR) ²	Palomoka ya dikelelo (%nMAR)	Dikgwedi	RQO	
							(m³/s)	
							90% ⁴	60%
Janaware, Feberware le Matšhe.								
B81F-00200 EWR 3 ⁽³⁾	Groot Letaba	C	394.91	-	43.9	Okt	1.092	1.222
						Nof	0.994	1.253
						Des	1.035	1.302
						Jan	1.248	3.983
						Feb	1.421	5.323
						Mat	1.461	4.474
						Apr	1.318	2.500
						Mei	1.338	2.195
						Jun	1.339	1.856
						Jul	1.274	1.626
						Agos	1.226	1.431
						Set	1.160	1.306
B81J-00219 EWR 4 ⁽³⁾	Groot Letaba	C	441.29	-	42.4	Okt	0.523	0.554
						Nof	0.498	0.629
						Des	0.497	0.773
						Jan	0.616	3.589
						Feb	0.733	5.264
						Mat	0.788	3.781
						Apr	0.679	1.517
						Mei	0.688	1.354
						Jun	0.669	1.129
						Jul	0.650	0.945
						Agos	0.605	0.778
						Set	0.552	0.632
IUA 9:MOELA O MONNYANE WA FASENYANA GO TŠWA BOGARENG BJA LETAMO LA LETABA								
Di-RQOs tšeo di dirišwago pele ga phethagatšo ya tšhabollo ya methopo ya meetse ka go Nokana ye Nnyane Letaba.								
B82G-00135 EWR 5 ⁽³⁾	Nokana ye nnyane ya Letaba	C	124.18	-	54	Okt		
							0.004	0.015
						Nof	0.004	0.027
						Des	0.004	0.057
						Jan	0.019	0.223
						Feb	0.025	0.167
						Mat	0.019	0.074
						Apr	0.008	0.040
						Mei	0.011	0.030
						Jun	0.008	0.027
						Jul	0.007	0.026
						Agos	0.011	0.022
Set	0.008	0.015						
Di-RQOs tšeo di dirišwago ge tšhabollo ya methopo ya meetse e phethagatšwa ka go Nokana ye Nnyane Letaba.								
B82G-00135 EWR 5 ⁽³⁾	Nokana ye nnyane ya Letaba	C/D	124.18	-	45	Okt		
							0.015	0.030
						Nof	0.023	0.039
						Des	0.026	0.045
						Jan	0.030	0.060
						Feb	0.033	0.074
						Mat	0.034	0.069
						Apr	0.031	0.065
Mei	0.030	0.054						

Lefelo la go potuela	Noka	Tebanyo EC	nMAR ¹ (MCM)	Dikelelotlase (%nMAR) ²	Palomoka ya dikelelo (%nMAR)	Dikgwedi	RQO	
							(m³/s)	
							90% ⁴	60%
						Jun	0.031	0.052
						Jul	0.030	0.049
						Agos	0.030	0.045
						Set	0.023	0.035
IUA 4: LETABA GO TŠWA GO LETAMO LE LE ŠISINTŠWEGO LA NWAMITWA GO YA MAGAHLANONG A LETAMO LE LENNYANE LA LETABA								
Di-RQOs tšeo di dirišwago pele ga phethagatšo ya Letamo la Nwamitwa.								
B83D-00255 EWR 7 ⁽³⁾	Letaba	C	646.29	-	55.8	Okt	0.579	0.579
						Nof	0.579	0.590
						Des	0.590	0.664
						Jan	0.590	1.799
						Feb	0.590	2.879
						Mat	0.590	1.149
						Apr	0.590	1.155
						Mei	0.590	0.590
						Jun	0.590	0.590
						Jul	0.590	0.590
						Agos	0.590	0.590
						Set	0.579	0.579
di-RQOs di a nyakega ge go phethagatšwa Letamo la Nwamitwa ka tokollo ya kelelo ya godimo ka Janaware, Feberware le Matšhe.								
B83D-00255 EWR 7 ⁽³⁾	Letaba	C	646.29	-	49.3	Okt	0.523	0.554
						Nof	0.537	0.660
						Des	0.601	0.897
						Jan	0.688	5.349
						Feb	0.778	5.909
						Mat	0.871	3.935
						Apr	0.696	1.549
						Mei	0.691	1.396
						Jun	0.670	1.144
						Jul	0.651	0.951
						Agos	0.613	0.779
						Set	0.548	0.633

Ela hloko (1): nMAR ke palomoka ya boleng bja meetse ao a tšwago a tlogo ka dikhupikimetara tše milione ka ngwaga.

Ela hloko (2): % ya nMAR ke kelelo ye e nyakegago mafelong ao a hlagišitšwego bjalo ka phesente ya Palomoka ya Ngwaga ka ya Tselaboelelo ya tlhago, Kelelo ya Fase le Palomoka ya dikelelo

Ela hloko (3): Dinyakwa tša kelelo ya kgwedi ka kgwedi tša EWR 3, 4, 5 le 7 di hlagiša palomoka ya kelelo yeo e hlalošitšwego ka tiragalokakanywa fao Maemo a Bjale a Tikologo a dikelelo tša fase le ditokollo tša bašomiši ba meetse a hlalošago dinyakwa tša fasefase tša mafelo a a go fapana.

Ela hloko (4): Dintlha phesente tša kabo ya bokgafetšokgafetšo bja kelelo ya fase ya kgwedi ka kgwedi tša ka bogare ka, go bewa bjalo ka phesente ya dikgweding tše 90% le 60 (%) gore go swanetše go lekana goba go feta e laeditšwego ka fase.% ya nMAR ke kelelo ye e nyakegago mafelong ao a hlagišitšwego bjalo ka phesente ya Palomoka ya Ngwaga ka ya Tselaboelelo ya tlhago, Kelelo ya Fase le Palomoka ya dikelelo. Hlokomela gore go EWR 1 le 2, tšona di emela fela dikelelo tša motheo gomme dinyakwa tša meetsefula di hwetšagala ka ditokumenteng tša thekniki.

Di-RQOs tša bodulo le thutadiphedi di filwe bjalo ka Magoro a Tikologo. Go na le dikanegelo tša magoro le tatelano ya di-RQOs tšeo di amanago le Magoro a Tikologo gomme Lenaneotlhopho la 3 le di hlaloša go Legoro le lengwe le le lengwe la Tikologo.

Lenaneotlhopho la 4 le fa di-RQOs tša bodulo le thutadiphedi go IUA ye nngwe le ye nngwe ya Diyuniti tša Methopo ya maemo a GODIMO. Di-RQOs le tebanyo ya Legoro la Tikologo pele ga kago ya matamo a ka moso di fiwa bakeng sa karolo/taetšo ye nngwe le ye nngwe. Diphetogo tše di holofelwago ka morago ga kago ya Nwamitwa le/goba ge tlhabollo ya methopo ya meetse e phethagatšwa ka go Nokana ye Nnyane Letaba.

Lenaneotlhopho la 5 le fa di-RQOs go IUA ye nngwe le ye nngwe ya Diyuniti tša Methopo tša go tla pele. Di-RQOs pele ga kago ya matamo a ka moso di fiwa bakeng sa karolo/taetšo ye nngwe le ye nngwe. Diphetogo tše di holofelwago ka morago ga kago ya Nwamitwa le/goba ge

tlhabollo ya methopo ya meetse e phethagatšwa ka go Nokana ye Nnyane Letaba di a laetšwa fao go lego bohlokwa. Hlokomela gore boleng bja meetse bo akaretša tebanyo ya tikologo (TEC) le tebanyo ya mošomiši ka bobedi bjalo ka di-RQOs tša kanegelo.

Lenaneo 3: Dikanegelo tša magoro le tatelano ya di-RQOs tšeo di amanago le Magoro a Tikologo

LEGORO LA TIKOLOGO	KANEVELO YA RQO YA MAGORO	KANEVELO YA RQO YA MEETSE A GO ELA LE DIPHEDI TŠA LEBOPONG	KANEVELO YA RQO YA DIHLAPI, DIHLOKAMEKOTLO TŠE KGOLO LE DIMELA TŠEO DI MELAGOLEBOPONG	TATELANO YA RQO
A	Tša go se fetolwe, kgauswi le tlhago	Go swana kudu le maemo a taetšo a tlhago	Kgoboketšo e hloiswa bjalo ka ge e laeditšwe	$\geq A (\geq 92\%)$
A/B				$\geq A/B (\geq 88\%)$
B	Tša tlhago kudu ka diphetošo tše mmalwa.	Tša tlhago kudu ka diphetošo tše mmalwa. Boeelanoka bo na fetošwe fela gannyane gomme tšhilafatšo e kgaolelitšwe go mašaledi. Phetogo ye nnyane ya madulo a tlhago e ka ba e diragetše. Le ge go lebjalo, mešomo ya phedišanodiphedi ka kakaretšo ga e fetošwe	Kgoboketšo e hloiswa bjalo ka ge e laeditšwe	$\geq B (\geq 82\%)$
B/C				$\geq B/C (\geq 78\%)$
C	Fetolwa gosenyane.	Fetolwa gosenyane. Tahlegelo le phetošo ya bodulo bja tlhago le thutadiphedi e diragetše, eupša mešomo ya motheo ya phedišanodiphedi ga e fetoge legatee.	Kgoboketšo e hloiswa bjalo ka ge e laeditšwe	$\geq C (\geq 62\%)$
C/D				$\geq C/D (\geq 58\%)$
D	Fetolwa kudu.	Fetolwa kudu. Tahlegelo ye kgolo le phetošo ya bodulo bja tlhago, thutadiphedi le mešomo ya phedišanodiphedi e diragetše.	Kgoboketšo e hloiswa bjalo ka ge e laeditšwe	$\geq D (\geq 42\%)$
D/E				$\geq D/E (\geq 38\%)$
E	Fetolwa kudukudu.	Fetolwa kudukudu. Tahlegelo ye kgolo le phetošo ya bodulo bja tlhago, thutadiphedi le mešomo ya motheo ya phedišanodiphedi e diragetše.	Kgoboketšo e hloiswa bjalo ka ge e laeditšwe	20-39%
F	Fetolwa kudukudu ka maatla.	Fetolwa kudukudu ka maatla. Diphetošo di fihleletše maemo a godimodimo gomme tshepedišo e fetotšwe gohlelele ka tahlegelo ye e feleletšego ya bodulo bja tlhago le thutadiphedi. Mabaka a mabe kudu ao thutadiphedi e šomilego ka gona e sentšwe gomme diphetošo ga di fetolege.	Kgoboketšo e hloiswa bjalo ka ge e laeditšwe	0-19%

Lenaneotlhopho la 4: Bodulo le diphedi tša di-RQOs tša DINOKA tša tšeomofolotši, dimela tša lebopong, ditlhokamekokotlo tše kgolo le dihlapu ka go ditlapele tša Diyuniti tša Methopo (RU) ka Kgoboketšong ya meetse ya bogareng bja Noka ya Letaba

IUA	YUNITI YA METHOPO (Noka, Deskthopo ya lefelo la go potela)	Tšeomofolotši	Dihlapi	Ditlhokamok okotlo tše kgolo	Dimela tša Lebopong
IUA 1	RU EWR 1 (Noka ya Letaba, B81B-00264, B81B-00247)	C/D	C	C	C
IUA 2	RU EWR 2 (Moka ya Letsitele, B81D-00271)	D	C/D	C	D
IUA 3 & 4	RU EWR 3 (Noka ya Letaba, B81F-00200; B81C-00245; B81E-00244; B81F-00212; B81F-00215; B81F-00218; B81F-00231)	D	C	C	C/D→C ^{*1}
IUA 3 & 4	RU EWR 4 (Noka ya Letaba, B81J-00219; B81J-00209)	C/D → D	C	C→C/D	C
IUA 9	RU EWR 5 (Noka ye nnyane ya Letaba, B82G-00135; B82J-00165; B82J-00178; B82J-00201; B82J-00207)	C/D → D	C	C/D→D	C→C/D
IUA 11	RU EWR 7 (Noka ya Letaba, B83D-00255; B83A-00220; B83A-00230; B83A-00235; B83A-00252; B83D-00250; B83E-00265)	C→C/D	C→C/D	C→C/D	C

*1Moo Magoro a mabedi a Tikologo a filwego, legoro la bobedi le laetša phetogo ye e holofelwago ka morago ga phethagatšo ya Letamo la Nwamitwa le ge tlhabollo ya mothopo wa meetse e phethagatšwa ka Nokeng ye nnyane ya Letaba.

Lenaneotlhopho la 5: Di-RQOs tša DINOKA tša boleng bja meetse (tša tikologo le tša mošomiši) ka go ditlapele tša Diyuniti tša Methopo (RU) ka Kgoboketšong ya meetse ya bogareng bja Noka ya Letaba

IUA	RU	Karolo ya ka fasana	Tebanyo EC*1	Kanegelo ya RQO	Tatelano ya RQO
IUA 1	RU EWR 1 (Noka ya Letaba, B81B-00264, B81B-00247)	Diphepo (fosfeite)	B	Amogelega	phesenthaele ya bo 50 ya datha e swanetše go ba ka tlase ga 0.025 mg/L PO4-P (phedišano ya diphedi tša ka meetseng: mootledi).
		Dilo tša mpholo		Kgonthe	phesenthaele ya bo 95 ya datha e swanetše go ba ka gare ga Mohuta wa Bolenga bja Tebanyo ya Meetse (TWQR) goba magoro a A bakeng sa mpholo.
IUA 2	RU EWR 2 (Moka ya Letsitele, B81D-00271)	Diphepo (fosfeite)	C	Ya go kwagala	phesenthaele ya bo 50 ya datha e swanetše go ba ka tlase ga 0.025 mg/L PO4-P (Temo -nošetšo: mootledi).
		Tshepedišo ya Mohlagase (matswai)		Kgonthe	phesenthaele ya bo 95 ya datha e swanetše go ba ka tlase ga goba e lakane le 30 mS/m (phedišano ya diphedi tša ka meetseng: mootledi).
		Dilo tša mpholo		Kgonthe	phesenthaele ya bo 95 ya datha e swanetše go ba ka gare ga TWQR goba magoro a A bakeng sa mpholo.
		Ditwatši tša ka maleng le ikholi		Boitapološo (kamano ka botlalo)	Fihlelela TWQR ya palo tše 0-130 go 100 ml (DWAF, 1996a*2).
IUA 3 & 4	RU EWR 3 (Noka ya Letaba, B81F-00200; B81C-00245; B81E-00244; B81F-00212; B81F-00215; B81F-00218; B81F-00231)	Diphepo (fosfeite)	B/C	Amogelega	E diragala ka bjako: phesenthaele ya bo 95 ya datha e swanetše go ba ka tlase ga 0.025 mg/L PO4-P. Letamo la ka morao ga Nwamitwa: phesenthaele ya bo 95 ya datha e swanetše go ba ka tlase ga 0.025 mg/L PO4-P (phedišano ya diphedi tša ka meetseng: mootledi).
		Tshepedišo		Amogelega	E diragala ka bjako: phesenthaele ya bo

IUA	RU	Karolo ya ka fasana	Tebanyo EC*1	Kanegelo ya RQO	Tatelano ya RQO
	00231)	ya Mohlagase (matswai)			95 ya datha e swanetše go ba ka tlase ga goba e lakane le 55 mS/m.
				Kgonthe	Letamo la ka morago ga Nwamitwa: phesenthaele ya bo 95 ya datha e swanetše go ba ka tlase ga goba e lakane le 30 mS/m (Legoro la Intasteri la 3: mootledi).
		pH		Kgonthe	diphesentaele ya bo 5 le ya bo 95 di swanetše go ba magareng ga 6.5 le 8.4 (phedišano ya diphedi tša ka meetseng: mootledi).
		Dilo tša mpholo		Kgonthe	phesenthaele ya bo 95 ya datha e swanetše go ba ka gare ga TWQR goba magoro a A bakeng sa mpholo.
IUA 3 & 4	RU EWR 4 (Noka ya Letaba, B81J-00219; B81J-00209)	Diphepo (fosfeite)	B/C	Amogelega	phesenthaele ya bo 95 ya datha e swanetše go ba ka tlase ga 0.025 mg/L PO4-P (phedišano ya diphedi tša ka meetseng: mootledi).
		Tshepedišo ya Mohlagase (matswai)		Kgonthe	phesenthaele ya bo 95 ya datha e swanetše go ba ka tlase ga goba e lakane le 30 mS/m (Legoro la Intasteri la 3: mootledi).
		pH		Amogelega	diphesentaele ya bo 5 le ya bo 95 di swanetše go ba magareng ga 6.5 le 8.4 (Legoro la Intasteri la 3: mootledi).
		Dilo tša mpholo		Kgonthe	phesenthaele ya bo 95 ya datha e swanetše go ba ka gare ga TWQR goba magoro a A bakeng sa mpholo.
		Go ba le maru		Amogelega	Ga e hwetšagale (Phedišano ya diphedi tša ka meetseng: mootledi).
IUA 9	RU EWR 5: B82G-00135, go fihla Giyani	Diphepo (fosfeite)	B/C→C	Amogelega	E diragala ka bjako: phesenthaele ya bo 95 ya datha e swanetše go ba ka tlase ga 0.025 mg/L PO4-P.
				Ya go kwagala	phesenthaele ya bo 95 ya datha e swanetše go ba ka tlase ga 0.025 mg/L PO4-P (phedišano ya diphedi tša ka meetseng: mootledi).
		Ditwatši tša ka maleng le ikholi		Boitapološo (kamano ka botlalo)	Fihlelela TWQR ya palo tše 0-130 go 100 ml (DWAF, 1996a).
		Go ba le maru		Amogelega	Ga e hwetšagale (Phedišano ya diphedi tša ka meetseng: mootledi).
		Dilo tša mpholo		Kgonthe	phesenthaele ya bo 95 ya datha e swanetše go ba ka gare ga TWQR goba magoro a A bakeng sa mpholo.
IUA 9	RU EWR 5 (Noka ye nnyane ya Letaba, B82G-00135 e elelago go tšwa ka Giyani; B82J-00165; B82J-00178; B82J-00201; B82J-00207)	Diphepo (fosfeite)	C	Ya go kwagala	phesenthaele ya bo 95 ya datha e swanetše go ba ka tlase ga 0.125 mg/L PO4-P (phedišano ya diphedi tša ka meetseng: mootledi).
		Tshepedišo ya Mohlagase (matswai)		Amogelega	phesenthaele ya bo 95 ya datha e swanetše go ba ka tlase ga goba e lakane le 55 mS/m (phedišano ya diphedi tša ka meetseng: mootledi).
		Ditwatši tša ka maleng le ikholi		Boitapološo (kamano ka botlalo)	Fihlelela TWQR ya palo tše 0-130 go 100 ml (DWAF, 1996a).
		Go ba le maru		Amogelega	Ga e hwetšagale (Phedišano ya diphedi tša ka meetseng: mootledi).
		Dilo tša mpholo		Kgonthe	phesenthaele ya bo 95 ya datha e swanetše go ba ka gare ga TWQR goba

IUA	RU	Karolo ya ka fasana	Tebanyo EC*1	Kanegelo ya RQO	Tatelano ya RQO
					magoro a A bakeng sa mpholo.
IUA 11	RU EWR 7 (Noka ya Letaba, B83D-00255; B83A-00220; B83A-00230; B83A-00235 B83A-00252; B83D-00250; B83E-00265)	Diphepo (fosfeite)	B	Amogelela	phesenthaele ya bo 95 ya datha e swanetše go ba ka tlase ga 0.025 mg/L PO ₄ -P (phedišano ya diphedi tša ka meetseng: mootledi).
		Tshepedišo ya Mohlagase (matswai)		Amogelela	phesenthaele ya bo 95 ya datha e swanetše go ba ka tlase ga goba e lakane le 55 mS/m (phedišano ya diphedi tša ka meetseng: mootledi).
		Dilo tša mpholo		Kgonthe	phesenthaele ya bo 95 ya datha e swanetše go ba ka gare ga TWQR goba magoro a A bakeng sa mpholo.
		Go ba le maru		Kgonthe	Ga e hwetšagale (Phedišano ya diphedi tša ka meetseng: mootledi)

*1Moo Magoro a mabedi a Tikologo a filwego, legoro la bobedi le laetša phetogo ye e holofelwago ka morago ga phethagatšo ya Letamo la Nwamitwa le ge tlhabollo ya mothopo wa meetse e phethagatšwa ka Nokeng ye nnyane ya Letaba.

*2DWAF, 1996a: Kgoro ya Meetse le Kelelatšhila, Afrika Borwa. 1996a. Ditlhalhi tša Afrika Borwa tša Boleng bja Meetse. Bolumo ya 2, Tšhomišo ya Boitapološo.

Lenaneo la 6 le fana ka taetšo ya kanegelo le ka tatelelano ya di-RQOs bakeng sa meetsefase ao a hlagišwago go ya ka ditlhalhi le dikgaotletšo tša kgogolego ya meetsefase. Tekolo ya meetse e dirwa gabjale ka kelo ya kgoboketšo ya meetse ya e lego ka gare ga di-IUAs tša maleba.

Table 6: Kakaretšo ya di-RQOs tša MEETSEFASE ka go Kgoboketšo ya meetse ya bogareng bja noka ya Letaba

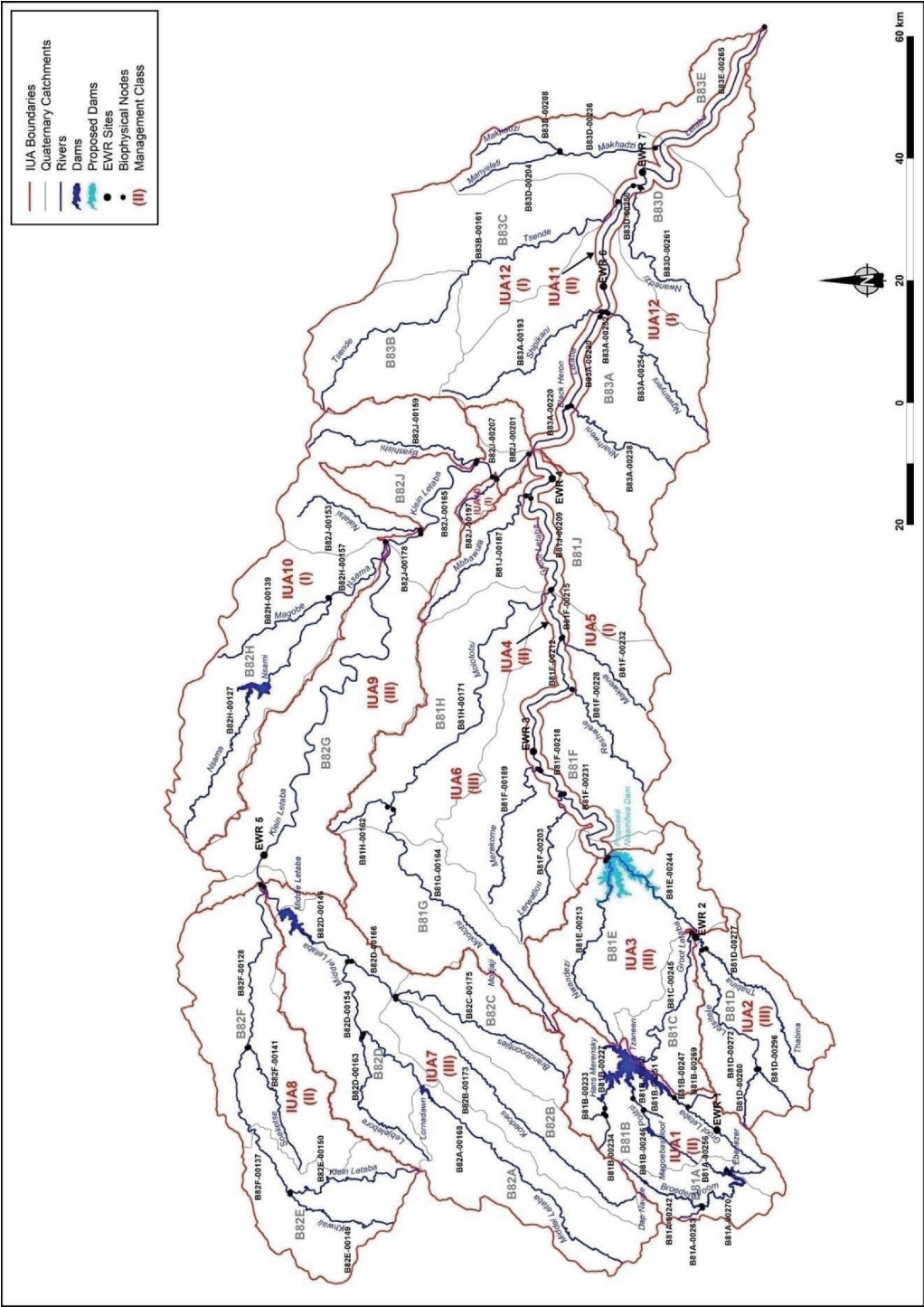
IUA 1: B81A; B81B	
Kanegelo ya RQO ya meetsefase	
Kgogolo	Kgogolo ye bohlokwa ya meetsefase ka gare ga 500 m ya kanale ye e elago ka mehla e swanetše go thibelwa. Bašomiši ka moka ba swanetše go obamela dipeakanyo tše di lego gona tša kabo le maemo a laesense ya motho ka tšweletšo ye e hwetšagalago ye e tlišeditšwego.
Kelelotlase	Kobamelo go kelo ya dinyakwa tša tlase bakeng sa dinokana tšeo di elelago ka Letamong la Tzaneen.
Bogomo bja Meetse	Maemo a meetse ka go ekhwafaya a swanetše go ba godimo go feta maemo a meetse ka bogodimong bja meetse .
Boleng bja Meetse	Bo ka se senyege go tšwa go bokamorago bja tlhago.
Tatelano ya RQO ya meetsefase	
Palomoka ya tšhomišo ya meetse a a ngwadišitšwego e swanetše go dula e le ka tlase ga 7.52 Mm ³ .	
IUA 2: B81D	
Kanegelo ya RQO ya meetsefase	
Kgogolo	Kgogolo ye bohlokwa ya meetsefase ka gare ga 500 m ya kanale ye e elago ka mehla e swanetše go thibelwa. Bašomiši ka moka ba swanetše go obamela dipeakanyo tše di lego gona tša kabo le maemo a laesense ya motho ka tšweletšo ye e hwetšagalago ye e tlišeditšwego.
Kelelotlase	Kobamelo go kelo ya dinyakwa tša tlase go EWR 2. Diabe tša phokotšo ya kelelotlase e swanetše go hlokomelwa ka B1H010.
Bogomo bja Meetse	Maemo a meetse ka go ekhwafaya a swanetše go ba godimo go feta maemo a meetse ka bogodimong bja meetse .
Boleng bja Meetse	Bo ka se senyege go tšwa go bokamorago bja tlhago.
Tatelano ya RQO ya meetsefase	
Palomoka ya tšhomišo ya meetse a a ngwadišitšwego e swanetše go dula e le ka tlase ga 7.77 Mm ³ .	

IUA 3: B81C	
Kanegelo ya RQO ya meetsefase	
Kgogolo	Ga go kgogolo ya meetsefase yeo e tlogo diragala. Bašomiši ka moka ba swanetše go obamela dipeakanyo tše di lego gona tša kabo le maemo a laesense ya motho ka tšweletšo ye e hwetšagalago ye e tiišeditšwego.
Kelelotlase	Kobamelo go kelo ya dinyakwa tša tlase go EWR 3. Diabe tša phokotšo ya kelelotlase e swanetše go hlokomelwa ka B1H017.
Bogomo bja Meetse	Maemo a meetse ka go ekhwafaya a swanetše go ba godimo go feta maemo a meetse ka bogodimong bja meetse .
Boleng bja Meetse	Bo ka se senyege go tšwa go bokamorago bja tlhago.
IUA 3: B81E	
Kanegelo ya RQO ya meetsefase	
Kgogolo	Ga go kgogolo ya meetsefase yeo e tlogo diragala. Bašomiši ka moka ba swanetše go obamela dipeakanyo tše di lego gona tša kabo le maemo a laesense ya motho ka tšweletšo ye e hwetšagalago ye e tiišeditšwego.
Kelelotlase	Kobamelo go kelo ya dinyakwa tša tlase go EWR 3. Diabe tša phokotšo ya kelelotlase e swanetše go hlokomelwa ka B1H017.
Bogomo bja Meetse	Ga go na mokgwa wo o sa lokago wa maemo a meetse ka nako ya dihla tše di omilego tša ngwaga ka ngwaga. Netweke ya tlhokomelo ya maemo a meetse e nyakega kgauswi le mafelo a godimo a kgogolo.
Boleng bja Meetse	Bo ka se senyege go tšwa go bokamorago bja tlhago.
IUA 4 - 6: B81F	
Kanegelo ya RQO ya meetsefase	
Kgogolo	Bašomiši ka moka ba swanetše go obamela dipeakanyo tše di lego gona tša kabo le maemo a laesense ya motho ka tšweletšo ye e hwetšagalago ye e tiišeditšwego.
Bogomo bja Meetse	Ga go na mokgwa wo o sa lokago wa maemo a meetse ka nako ya dihla tše di omilego tša ngwaga ka ngwaga. Netweke ya tlhokomelo ya maemo a meetse e nyakega kgauswi le mafelo a godimo a kgogolo.
Boleng bja Meetse	Ka se senyege go tšwa go maemo a bjale. Tlhokomelo ya naethereite e swanetše go katološwa.
Tatelano ya RQO ya meetsefase	
Palomoka ya tšhomišo ya meetse a a ngwadišitšwego e swanetše go dula e le ka tlase ga 14.40 Mm ³ .	
IUA 4 - 6: B81J	
Kanegelo ya RQO ya meetsefase	
Kgogolo	Bašomiši ka moka ba swanetše go obamela dipeakanyo tše di lego gona tša kabo le maemo a laesense ya motho ka tšweletšo ye e hwetšagalago ye e tiišeditšwego.
Bogomo bja Meetse	Ga go na mokgwa wo o sa lokago wa maemo a meetse ka nako ya dihla tše di omilego tša ngwaga ka ngwaga. Netweke ya tlhokomelo ya maemo a meetse e nyakega kgauswi le mafelo a godimo a kgogolo.
Boleng bja Meetse	Ka se senyege go tšwa go maemo a bjale.
Tatelano ya RQO ya meetsefase	
Palomoka ya tshedimošo ya meetse a a ngwadišitšwego e swanetše go dula e le ka tlase ga 6.46 Mm ³ .	
IUA 6: B81G	
Kanegelo ya RQO ya meetsefase	
Kgogolo	Bašomiši ka moka ba swanetše go obamela dipeakanyo tše di lego gona tša kabo le maemo a laesense ya motho ka tšweletšo ye e hwetšagalago ye e tiišeditšwego.
Bogomo bja Meetse	Ga go na mokgwa wo o sa lokago wa maemo a meetse ka nako ya dihla tše di omilego tša ngwaga ka ngwaga. Netweke ya tlhokomelo ya maemo a meetse e nyakega kgauswi le mafelo a godimo a kgogolo.

Boleng bja Meetse	Ka se senyege go tšwa go maemo a bjale. Tlhokomelo ya naethereite e swanetše go katološwa.
Tatelano ya RQO ya meetsefase	
Palomoka ya tshedimošo ya meetse a a ngwadišitšwego e swanetše go dula e le ka tlase ga 6.78 Mm ³ .	
IUA 4 - 6: B81H	
Kanegelo ya RQO ya meetsefase	
Kgogolo	Bašomiši ka moka ba swanetše go obamela dipeakanyo tše di lego gona tša kabo le maemo a laesense ya motho ka tšweletšo ye e hwetšagalago ye e tiišeditšwego.
Bogomo bja Meetse	Ga go na mokgwa wo o sa lokago wa maemo a meetse ka nako ya dihla tše di omilego tša ngwaga ka ngwaga.
Boleng bja Meetse	Ka se senyege go tšwa go maemo a bjale. Tlhokomelo ya naethereite e swanetše go katološwa.
Tatelano ya RQO ya meetsefase	
Palomoka ya tšhomišo ya meetse a a ngwadišitšwego e swanetše go dula e le ka tlase ga 7.97 Mm ³ .	
IUA 7: B82A; B82D	
Kanegelo ya RQO ya meetsefase	
Kgogolo	Kgogolo ye bohlokwa ya meetsefase ka gare ga 500 m ya kanale ye e elago ka mehla e swanetše go thibelwa. Bašomiši ka moka ba swanetše go obamela dipeakanyo tše di lego gona tša kabo le maemo a laesense ya motho ka tšweletšo ye e hwetšagalago ye e tiišeditšwego.
Kelelotlase	Kelelo-ka-gare ya Oktobere ka ga Bogareng bja Letamo la Letaba e swanetše go lekolwa.
Bogomo bja Meetse	Maemo a meetse ka go ekhwafaya a swanetše go ba godimo go feta maemo a meetse ka bogodimong bja meetse . Ga go na mokgwa wo o sa lokago wa maemo a meetse ka nako ya dihla tše di omilego tša ngwaga ka ngwaga.
Boleng bja Meetse	Ka se senyege go tšwa go maemo a bjale.
Tatelano ya RQO ya meetsefase	
Palomoka ya tshedimošo ya meetse a a ngwadišitšwego e swanetše go dula e le ka tlase ga 17.47 Mm ³ .	
IUA 7: B82B; B82C	
Kanegelo ya RQO ya meetsefase	
Kgogolo	Bašomiši ka moka ba swanetše go obamela dipeakanyo tše di lego gona tša kabo le maemo a laesense ya motho ka tšweletšo ye e hwetšagalago ye e tiišeditšwego. Ga go tšwelopele ya kgogolo ya metsefase yeo e tlogo dumelelwa ka ge e tla fokotša dikelelo ka gare ga Letamo la Bogareng la Letaba .
Bogomo bja Meetse	Maemo a meetse ka go ekhwafaya a swanetše go ba godimo go feta maemo a meetse ka bogodimong bja meetse . Ga go na mokgwa wo o sa lokago wa maemo a meetse ka nako ya dihla tše di omilego tša ngwaga ka ngwaga.
Boleng bja Meetse	Ka se senyege go tšwa go maemo a bjale.
IUA 8: B82E; B82F	
Kanegelo ya RQO ya meetsefase	
Kgogolo	Bašomiši ka moka ba swanetše go obamela dipeakanyo tše di lego gona tša kabo le maemo a laesense ya motho ka tšweletšo ye e hwetšagalago ye e tiišeditšwego.
Bogomo bja Meetse	Ga go na mokgwa wo o sa lokago wa maemo a meetse ka nako ya dihla tše di omilego tša ngwaga ka ngwaga.
Boleng bja Meetse	Ka se senyege go tšwa go maemo a bjale. Tlhokomelo ya naethereite e swanetše go katološwa.
Tatelano ya RQO ya meetsefase	
Palomoka ya tshedimošo ya meetse a a ngwadišitšwego e swanetše go dula e le ka tlase ga 18.46 Mm ³ .	
IUA 9: B82G	

Kanegelo ya RQO ya meetsefase	
Kgogolo	Bašomiši ka moka ba swanetše go obamela dipeakanyo tše di lego gona tša kabo le maemo a laesense ya motho ka tšweletšo ye e hwetšagalago ye e tiišeditšwego.
Bogomo bja Meetse	Ga go na mokgwa wo o sa lokago wa maemo a meetse ka nako ya dihla tše di omilego tša ngwaga ka ngwaga.
Boleng bja Meetse	Ka se senyege go tšwa go maemo a bjale. Tlhokomelo ya naethereite e swanetše go katološwa.
Tatelano ya RQO ya meetsefase	
Palomoka ya tshedimošo ya meetse a a ngwadišitšwego e swanetše go dula e le ka tlase ga 11.02 Mm ³ .	
IUA 9 - 10: B82H; B82J	
Kanegelo ya RQO ya meetsefase	
Kgogolo	Bašomiši ka moka ba swanetše go obamela dipeakanyo tše di lego gona tša kabo le maemo a laesense ya motho ka tšweletšo ye e hwetšagalago ye e tiišeditšwego.
Bogomo bja Meetse	Ga go na mokgwa wo o sa lokago wa maemo a meetse ka nako ya dihla tše di omilego tša ngwaga ka ngwaga.
Boleng bja Meetse	Ka se senyege go tšwa go maemo a bjale. Tlhokomelo ya naethereite e swanetše go katološwa.
Tatelano ya RQO ya meetsefase	
Palomoka ya tshedimošo ya meetse a a ngwadišitšwego e swanetše go dula e le ka tlase ga 14.89 Mm ³ .	
IUA 12*: B83A; B83B; B83C; B83D; B83E	
Kanegelo ya RQO ya meetsefase	
Kgogolo	Bašomiši ka moka ba swanetše go obamela dipeakanyo tše di lego gona tša kabo le maemo a laesense ya motho ka tšweletšo ye e hwetšagalago ye e tiišeditšwego.
Bogomo bja Meetse	Ga go na mokgwa wo o sa lokago wa maemo a meetse ka nako ya dihla tše di omilego tša ngwaga ka ngwaga.
Boleng bja Meetse	Ka se senyege go tšwa go maemo a bjale.
Tatelano ya RQO ya meetsefase	
Palomoka ya tšhomišo ya meetse a a ngwadišitšwego e swanetše go dula e le ka tlase ga 29.44 Mm ³ .	

* Go dumeletšwe gore UA 12 e wela ka tlase ga KNP.



Seswantšho sa 1: Diyuniti tše di Kopantšwego tša Tshekatsheko ya Kgoboketšo ya meetse ya bogareng bja noka ya Letaba

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