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.

Director: Water Resource Classification
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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**
		EWRK3A	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 Khokovela 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	Rihlazeni	**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] (m^3/s)	
								90%	60%
IUA X1-2									
MRU Komati B	X11G-01142 EWR K1	Komati	C	158.6	16.1	27.5	**Oct**	**0.25**	**0.49**
							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 EWR G1	Mngubhudle	D	29.5	19.9	26.9	**Oct**	**0.002**	**0.004**
							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 EWR K2	Komati	C	545.6	9.3	18.3	**Oct**	**0.60**	**0.82**
							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 Komati M	X14H-01066 EWR L1	Lomati	C	294.3	11.7	17.3	**Oct**	**0.50**	**0.66**
							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 Komati D	X13J-01130 EWR K3A	Komati	D	1021.7	9.9	17.2	**Oct**	**0.67**	**1.55**
							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 EWR C1	Crocodile	A/B	15.6	24.4	30.3	**Oct**	**0.03**	**0.07**
							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] (m^3/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%
							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
MRU Croc E	X24D-00994 EWR C5*[4]	Crocodile	C	1117.4	n/a	22.19437981	**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 Sabie A	X31B-00757 EWR S1	Sabie	B	132	34.77	40.31	**Oct**	0.512	0.864
							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 Sabie A	X31D-00755 EWR S2	Sabie	B	261.7	23.72	28.2	**Oct**	0.377	0.693
							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	MacMac	B	65.78	37.15	45.31	**Oct**	0.250	0.438
Mac A	EWR S4						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	A/B	493.69	30.86	37.94	**Oct**	1.572	2.572
Sabie B	EWR S3						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	Marite	B/C	156.4	21.64	28.57	**Oct**	0.352	0.509
Mar A	EWR S5[*5]						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	≥ A (≥ 92%)
A/B				≥ A/B (≥ 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	≥ B (≥ 82%)
B/C				≥ B/C (≥ 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	≥ C (≥ 62%)
C/D				≥ C/D (≥58%)
D	Largely modified.	Largely modified. A large loss of natural habitat, biota and basic ecosystem functions has occurred.	Assemblage attributes as specified	≥ D (≥ 42%)
D/E				≥ D/E (≥ 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) (Kaap 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 *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 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 *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	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 *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 (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 *E.coli*	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 *E.coli*	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 *E.coli*	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 *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 (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 *E.coli*	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 *E.coli*	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 *E.coli*	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 *E.coli*	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 *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 (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 *E.coli*	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 *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	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 *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 (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 *E.coli*	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 *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).
		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 *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).
		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 *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 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 *E.coli*	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 *E.coli*	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 *E.coli*	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 *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).
		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 *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 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 PO4-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 PO4-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 E.coli	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 PO4-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 PO4-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 *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).
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 *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).
		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 PO4-P (aquatic ecosystems: driver).
		Periphyton chl-a levels	Tolerable	50th percentile of the data must be less than or equal to 84 mg/m2 (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).

IUA	RU	Sub-Component	Narrative RQO	Numerical RQO
		Nutrients (phosphate)	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO4-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 it 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# 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 it 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 it 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 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 >2mg/l[2].
X3-2, X3-4, X3-3 and X3-6	GU3-2				Nitrate (as N)<8mg/l in recharge area (based on quality dataset) [2].
X3-7 and X3-8	GU3-3				
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

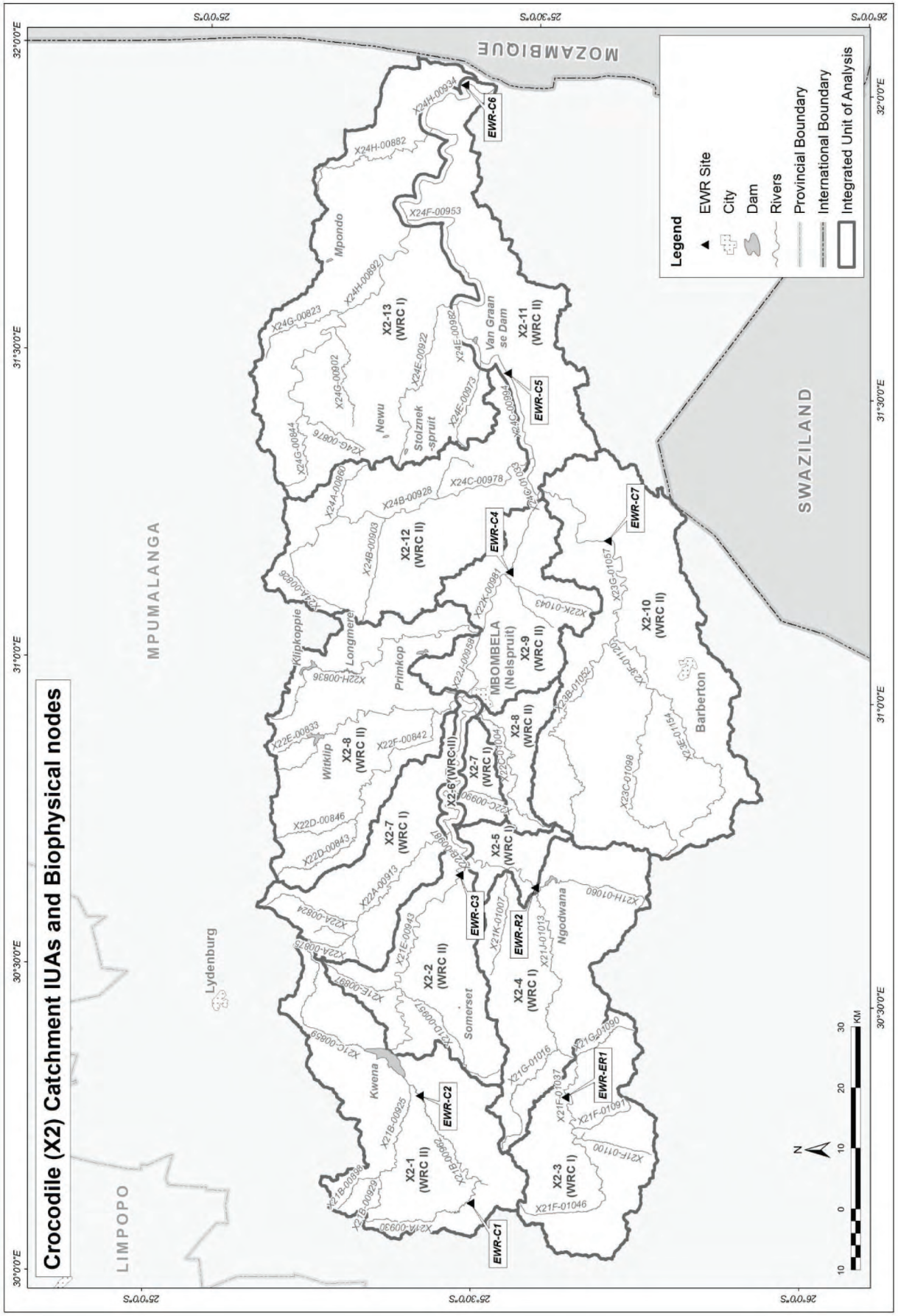

Figure 1.2: Crocodile (X2) Catchment IUAs and Biophysical Nodes

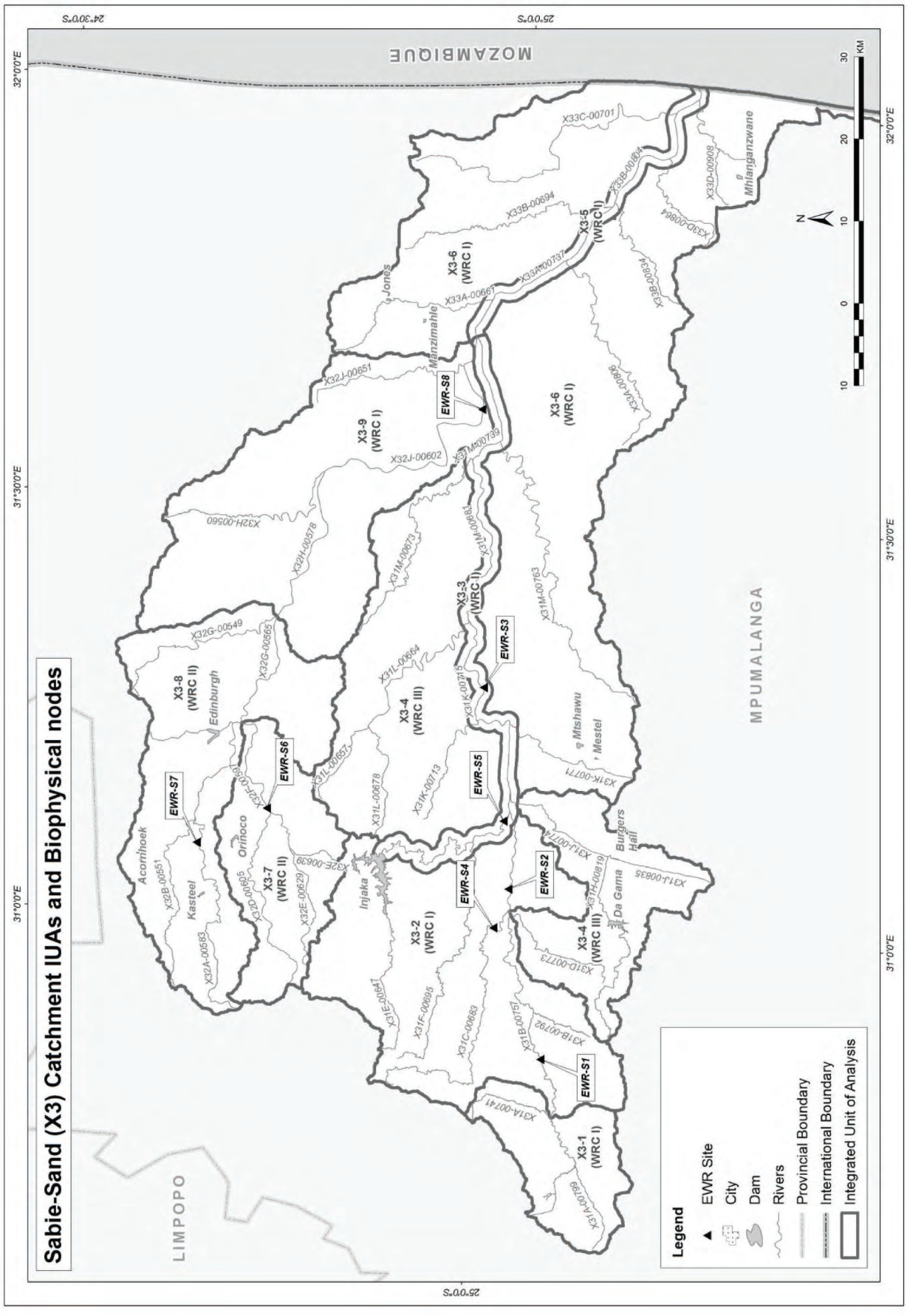

Figure 1.3: Sabie-Sand (X3) Catchment IUAs and Biophysical Nodes

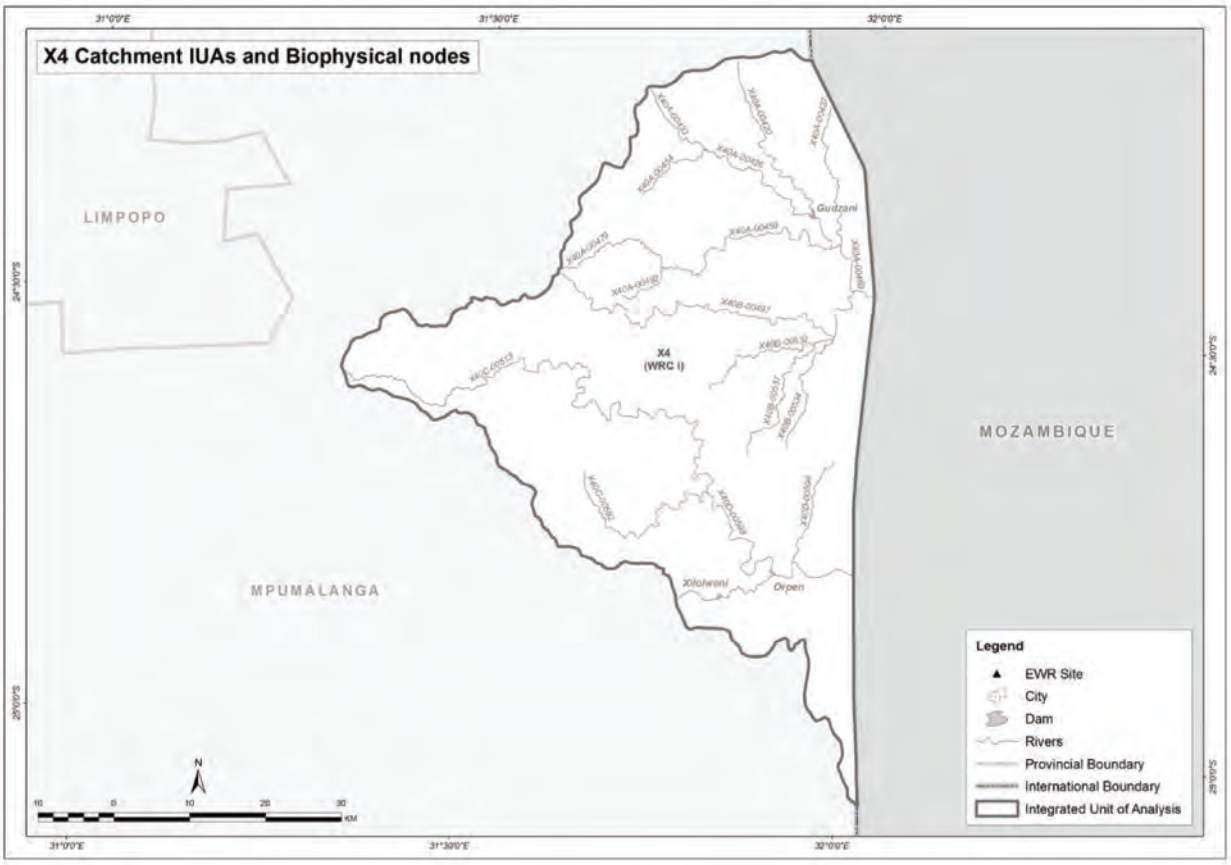

Figure 1.4: X4 Catchment IUAs and Biophysical Nodes

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.

Umcondzisi: Kuhlelwa Kwemitfombolusito Yemanti
Sicondziswe ku: Nks Lebogang Matlala
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LUSUKU: 24/11/2016

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 eKuhlatiywa (Sitfombe 1.1-1.4) kanye neTigaba Temvelo (ECs) ngeinodi yemvelo sibekwe kuLithebuli 1 kuya kuLithebuli 4.
2. EmaYunithi Lahlanganisiwe eKuhlatiya (IUA) ahlukaniswa 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 Yekuhlatiywa 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 Yekuhlatiywa 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 sentfutfuko lesihlelwe ngaphambilini.
3. Tinjongo telizinga lemtfombolusito titawucala kusebenta kusukela ngelusuku lwekusayindwa loluncunywe 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 Lahlanganisiwe 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	ISeekoeispruit	**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 Ekuhlatiywa	Sigaba semaYunithi Lahlanganisiwe Ekuhlatiywa	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**
		EWRK3A	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 Ekuhlatiywa	Sigaba semaYunithi Lahlanganisiwe Ekuhlatiywa	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	ISwartkoppiespruit	**C**
		X21H-01060	INgodwana	**B**
		X21K-01007	ILupelule	**B**

EmaYunithi Lahlanganisiwe Ekuhlatiywa	Sigaba semaYunithi Lahlanganisiwe Ekuhlatiywa	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**
		EWRK7	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 Ekuhlatiywa	Sigaba semaYunithi Lahlanganisiwe Ekuhlatiywa	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 Ekuhlatiywa	Sigaba semaYunithi Lahlanganisiwe Ekuhlatiywa	Inodi yemvelo	Libito Lemfula	Sigaba Semvelo Lesihlosiwe
X3-1: Umfula iSabie longenhla kweKlein Sabie kufaka ekhatsi inhlangano 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 iSabie lotsela emahlanganweni eSand kuye emnceleni weRSA.	**I**	X33A-00731	ISabie	**A/B**
		X33A-00737	ISabie	**A/B**
		X33B-00784	ISabie	**A/B**
		X33B-00804	ISabie	**A/B**
		X33B-00829	ISabie	**A/B**
		X33D-00811	ISabie	**A/B**
		X33D-00861	ISabie	**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	ILubyelubye	**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**
		EWR S6	IMutlumuvi	**C**
		X32F-00628	INwarhele	**C/D**
X3-8: Umfula iSand kuya emahlanganweni eKhokhovela	**II**	EWR 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 eKhokovela.	**I**	X32H-00560	IPhungwe	**A**
		EWR S8	ISand	**B**
		X32J-00651	IMutlumuvi	**A**

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

EmaYunithi Lahlanganisiwe Ekuhlatiywa	Sigaba semaYunithi Lahlanganisiwe Ekuhlatiywa	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	IRihlazeni	**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) tetfulwa emaThebuleni ngaphasi. Tonkhe Tinjongo Telizinga Lemitfombolusito tisebenta kusukela ngelusuku lwekusayindwa, ngaphandle uma kushiwo ngalenye indlela.

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

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

RU	Inodi yemvelo	Umfula	Sigaba Semvelo Lesihlosiwe	nMAR[1] (MCM)	Kugeleta lokuphasi (%nMAR)2	Kugeleta sekukonkhe (%nMAR)	Tinyanga	RQO[3] (m^3/s)	
								90%	60%
IUA X1-2									
MRU Inkomazi B	X11G-01142 EWR K1	Inkomazi	C	158.6	16.1	27.5	**Okt**	**0.25**	**0.49**
							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 Inkomazi G	X11J-01106 EWR G1	Mngubhudle	D	29.5	19.9	26.9	**Okt**	**0.002**	**0.004**
							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 Inkomazi C	X12H-01258 EWR K2	Inkomazi	C	545.6	9.3	18.3	**Okt**	**0.60**	**0.82**
							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 Semvelo Lesihlosiwe	nMAR[1] (MCM)	Kugeleta lokuphasi (%nMAR)2	Kugeleta sekukonkhe (%nMAR)	Tinyanga	RQO[3] (m^3/s)	
								90%	60%
IUA X1-5									
MRU Inkomazi T	X12E-01287 EWR T1	ITeespruit	C	56.4	22.6	35.3	**Okt**	**0.21**	**0.27**
							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 EWR L1	Umlumati	C	294.3	11.7	17.3	**Okt**	**0.50**	**0.66**
							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 EWR K3A	Inkomazi	D	1021.7	9.9	17.2	**Okt**	**0.67**	**1.55**
							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 kundlule emanani laphasi lakhonjisiwe. Khumbula kutsi Tinjongo Telizinga Lemitfombolusito tekugeleta letijulile tiniketwe kumculu webucwepheshe.

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

RU	Inodi yemvelo	Umfula	Sigaba Semvelo Lesihlosiwe	nMAR[1] (MCM)	Kugeleta lokuphasi (%nMAR)2	Kugeleta sekukonkhe (%nMAR)	Tinyanga	RQO[3] (m^3/s)	
								90%	60%
IUA X2-1									
MRU	X21A-00930	UMgwenya	A/B	15.6	24.4	30.3	**Okt**	**0.03**	**0.07**

RU	Inodi yemvelo	Umfula	Sigaba Semvelo Lesihlosiwe	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	X21E-00943	UMgwenya	B/C	194	40.22	48.8	**Okt**	**1.24**	**2.46**
Croc B	(EWR C3)						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	X21K-01018	UMgwenya	C	824.8	25.96	31.74	**Okt**	**2.10**	**4.37**
Croc D	EWR C4						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	X23G-01057	IKaap	C	179.5	16.38	21.84	**Okt**	**0.19**	**0.45**
Kaap A	EWR C7						Nov	0.32	0.67
							Dis	0.47	0.89
							Jan	0.61	1.12

RU	Inodi yemvelo	Umfula	Sigaba Semvelo Lesihlosiwe	nMAR[1] (MCM)	Kugeleta lokuphasi (%nMAR)2	Kugeleta sekukonkhe (%nMAR)	Tinyanga	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	UMgwenya	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	UMgwenya	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 timele 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 A	EWR S1						Nov	0.579	0.995
							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 ISabie A	X31D-00755 EWR S2	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 Mac A	X31C-00683 EWR S4	MacMac	B	65.78	37.15	45.31	**Okt**	0.250	0.438
							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 Sabie B	X31K-00715 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	X31G-00728	IMarite	B/C	156.4	21.64	28.57	**Okt**	0.352	0.509
Mar A	EWR S5[*5]						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	X32F-00597	IMutlumuvi	C	45	26.01	28.46	**Okt**	0.076	0.148
Mut A	EWR S6						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	X32A-00583	ITlulandziteka	C	28.896	20.44	32.67	**Okt**	0.026	0.071
Sand A	EWR S7						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	X32J-00602	ISand	B	133.6	18.48	25.46	**Okt**	0.076	0.240
Sand B	EWR S8						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 iitfola kugeleta lokunyenti kundlula ngemvelo ngaletinye tikhatsi. Nobe ngukuphi lokunye kukhula kutawehlisa luhlelo futsi neNjongo yeLizinga leMtfombolusito angeke ifinyelelwe.

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

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

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
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	Kuntjintje kakhulu.	Kuntjintje kakhulu. Kulahleka lokukhulu 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
		lwemvelo 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 netinhlanti 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 yemaYunithi eMtfombolusito lobekwe emphilo lomekwe tindzawo te-EWR. Khumbula kutsi lizinga lemanti lifaka inhloso yemvelo (TEC) kanye netinhloso temsebenti njengema-RQO lalandziswako.

Lithebula 12: Ema-RQO eMIFULA elizinga lemanti (lemvelo nelemsebentisi) kumaYunithi eMtfombolusito labekwe emphilo eLuhlelo LWEMFULA INKOMAZI (X1)

I-IUA	RU	Sigaba Semvelo Lesihlosiwe	Incenye lencane	I-RQO lelandziswako	I-RQO ngekwetinamba
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 lencane	I-RQO lelandziswako	I-RQO ngekwetinamba
				Inhloso lephakeme	Njengetigaba: Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.020 (umholi wetinhlelo temvelo tasemantini).
				Inhloso lephakeme	Tigaba (letingenayo) te-Cn: Sibalo sema-95 sedatha kumele sibe ngaphasi kwa 0.0042 (umholi wetinhlelo temvelo tasemantini).
			Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
IUA X1-5	MRU KOMATI C (EWR K2) (Umfula Inkomazi)	**B/C**	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 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).
IUA X1-5	MRU KOMATI T (EWR T1) (Umfula iTeewaterspruit)	**B/C**	Takhamtimba (Ifosifethi)	Lwemukelekile	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 (Lokuhola tinhlelo temvelo yasemantini).
IUA X1-8	MRU KOMATI M (EWR L1) (Umfula Umlumati)	**B/C**	Takhamtimba (Ifosifethi neNayithrojini Yalokungazange kuphile lephelele)	Kufanele	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.175 mg/L PO4-P (umholi wetinhlelo temvelo tasemantini).
				Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 1 mg/L TIN (Umholi wetinhlelo temvelo tasemantini).
			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 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).
			Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
			Tintfo letiyingoti	Inhloso lephakeme	Sibalo sema-95 sedatha kumele sibe ngekhatsi kweTWQR setintfo letiyingoti (1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).
IUA X1-9	MRU KOMATI D (EWR K3) (umfula Inkomazi)	**D**	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).
				Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 1 mg/L (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 letingaphili letinamatsela etihlahleni (Periphyton)	Lwemukelekile	Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 21 mg/m2 (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).

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 13: Ema-RQO eMIFULA elizinga lemanti (lemvelo nelemsebentisi) kumaYunithi eMtfombolusito labekwe emphilo eLuhlelo LWEMFULA UMGWENYA (X2)

I-IUA	RU	Sigaba Semvelo Lesihlosiwe	Incenye lencane	I-RQO lelandziswako	I-RQO ngekwetinamba
IUA X2-1	MRU CROCA (EWR C1) (Umfula Umgwenya)	**A**	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).
			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 CROCA (EWR C2) (Umfula Umgwenya)	**C**	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).
IUA X2-2	MRU CROCA (EWR C3) (Umfula Umgwenya)	**C**	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 kuDWAF (2008).

I-IUA	RU	Sigaba Semvelo Lesihlosiwe	Incenye lencane	I-RQO lelandziswako	I-RQO ngekwetinamba
IUA X2-9	MRU CROCA (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 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 (1996a) nobe ngetulu kwemkhawulo wesigaba A kuDWAF (2008).
IUA X2-11	MRU CROCA (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 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 ngetulu kwemkhawulo wesigaba B kuDWAF (2008).
IUA X2-11	MRU CROCA (EWR C6) (Umfula	C	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 lelandziswako	I-RQO ngekwetinamba
	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).
IUA X2-10	MRU KAAP A (EWR C7) (Umfula iKaap)	**B**	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).
					Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 4 mg/L TIN (umholi wetinhlelo temvelo tasemantini).
			Kuhanjiswa Kwagezi (sawoti)	Lwemukelekile	Sibalo sema-95 sedatha kumele sibe ngaphasi nobe silingane ku 200 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).
				Inhloso lephakeme	Njengetigaba: Sibalo sema-50 sedatha kumele sibe ngaphasi kwa 0.020 (umholi wetinhlelo temvelo tasemantini).
				Inhloso lephakeme	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 Lelihlosiwe (DWAF, 1996a).
CEV = Chronic Effects Value (Bungako Bemitselela Leyingoti) (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 14: Ema-RQO eMIFULA elizinga lemanti (lemvelo nelemsebentisi) kumaYunithi eMtfombolusito labekwe emphilo eLuhlelo LWEMFULA ISABIE NESAND (X3)

I-IUA	RU	Sigaba Semvelo Lesihlosiwe	Incenye lencane	I-RQO lelandziswako	I-RQO ngekwetinamba
IUA X3-2	MRU SABIE A (EWR S1) (Umfula iSabie)	**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 kuDWAF (2008).
			Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
IUA X3-2	MRU SABIE A (EWR S2) (Umfula iSabie)	**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 kuDWAF (2008).
			Tifo letihlobene nekungcola kanye ne-E.coli	Kudala kabusha (kutsintsana lokuphelele)	Kuhlangana ne-TWQR yekubala nga 0-130 nga 100 ml (DWAF, 1996b).
IUA X3-3	MRU SABIE A (EWR S3) (Umfula iSabie)	**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 lencane	I-RQO lelandziswako	I-RQO ngekwetinamba
			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).
			Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
			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 (tinhlelo temvelo yasemantini: letiholako).
IUA X3-3	MRU MAR A (EWR S5) (Umfula iMarite)	**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 kuDWAF (2008).
			Tifo letihlobene 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 (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 55 mS/m (umholi wetinhlelo temvelo tasemantini).

I-IUA	RU	Sigaba Semvelo Lesihlosiwe	Incenye 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).
			Kudvungeka	Lwemukelekile	Kute linani (tinhlelo temvelo yasemantini: letiholako).
			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 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 (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 letihlobene 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 Lelizinga Lemanti Lelihlosiwe (DWAF, 1996a).
CEV = Chronic Effects Value (Bungako Bemitselela Leyingoti) (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.

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 lelandziswako	I-RQO ngekwetinamba
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-IUA	RU	Incenye lencane	I-RQO lelandziswako	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 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).

Kute linani: kute inkhombandlela yetinombolo.
TWQR = Libanga Lelizinga Lemanti Lelihlosiwe (DWAF, 1996a).
CEV = Chronic Effects Value (Bungako Bemitselela Leyingoti) (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 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 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).
		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 X2-3	RU C7: X21F-01100.	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).

I-IUA	RU	Incenye 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 lelandziswako	I-RQO ngekwetinamba
		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 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).
		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 lelandziswako	I-RQO ngekwetinamba
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 PO4-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 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).

I-IUA	RU	Incenye lencane	I-RQO lelandziswako	I-RQO ngekwetinamba
		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 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 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 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).
		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): Tinkhombandlela Telizinga Lemanti aseNingizimu Afrika: Ivolumu 7: Tinhlelo temvelo yasemantini.
DWAF (1996b): Tinkhombandlela 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	Incenye lencane	I-RQO lelandziswako	I-RQO ngekwetinamba
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 ngekwetinamba
		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 ngekwetinamba
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 lelandziswako	I-RQO ngekwetinamba
		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/m2 (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 temnvelo kucinisekisa kuzuza lokwanele kwabo bonkhe basebentisi futsi nekwentancono nobe kugcina kuphuma kwemanti aphasi kwesekela tidzingo temfula logeleta kancane. Kubekwa kwemaRQO lahlobene nelizngа 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 kuYinithi Yemanti aphasi.

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

I-IUA	Iyunithi Yemanti aphasi	Incenye	I-RQO lelandziswako	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 lelandziswako	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 % nMAR1.
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	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*.	
X2-2 na X2-4	GU2-3		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 enayithreti endzaweni yekuvuselela kumele angakhuli aye ku >3mg/l2.
X2-10	GUA2-5				
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.

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

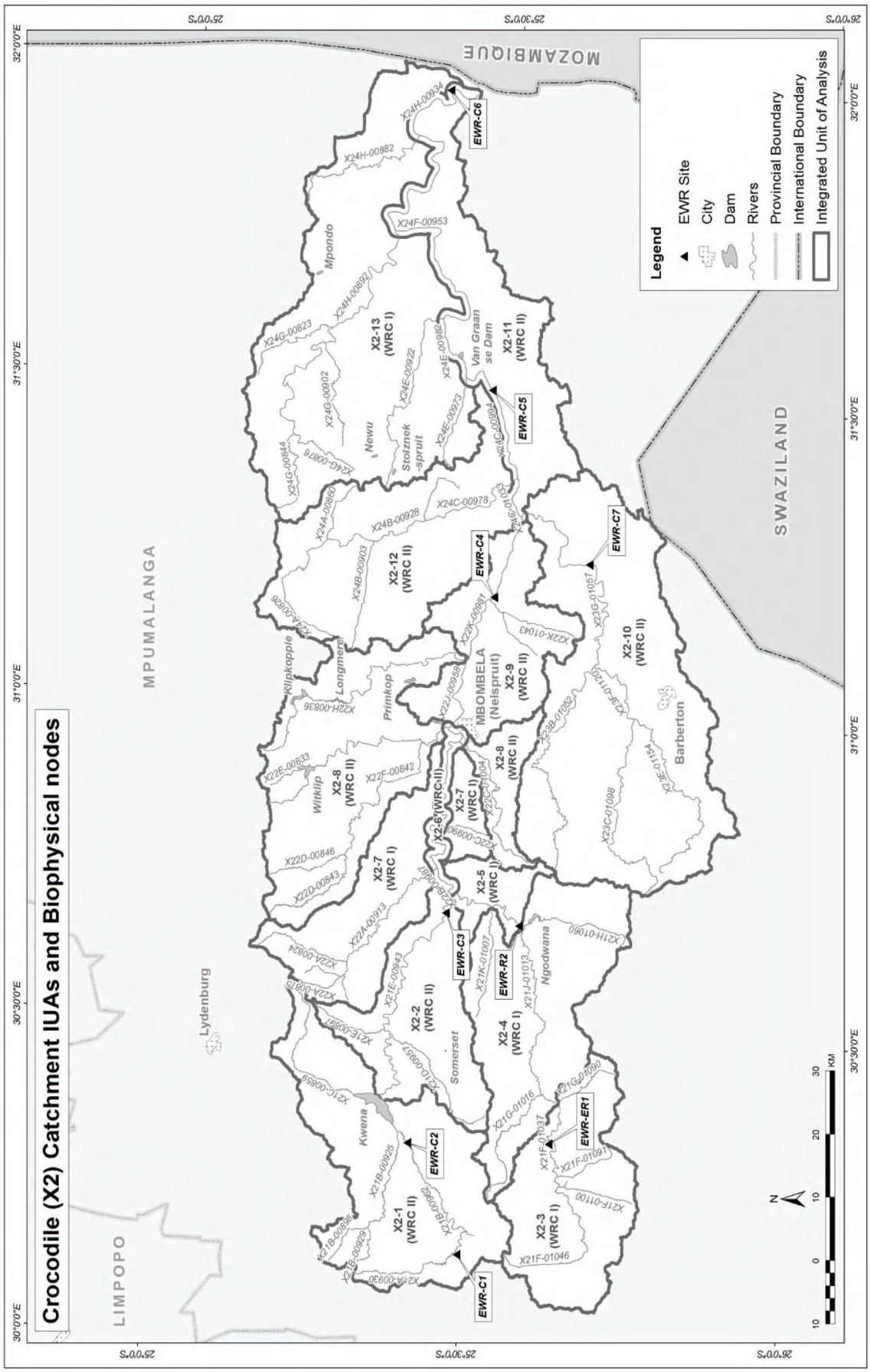
I-IUA	GUs	Incenye	I-RQO lelandziswako	Inkhomba/Silinganiso	Indlela Yetinombolo
X3-1 na X3-2	GU3-1	Buningi	Tindlela tekugeleta kwemanti aphasi kuyunithi yemtfombolusito kumele kungabuyiselwa emuva kuletindlela tekugeleta kwemvelo kwayo ngalesitindzaweni tekudvonswa kwemanti.	Kulinganiswa kwekugeleta ku 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 enayithreti endzaweni yekuvuselela kumele angakhuli aye ku >2mg/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.

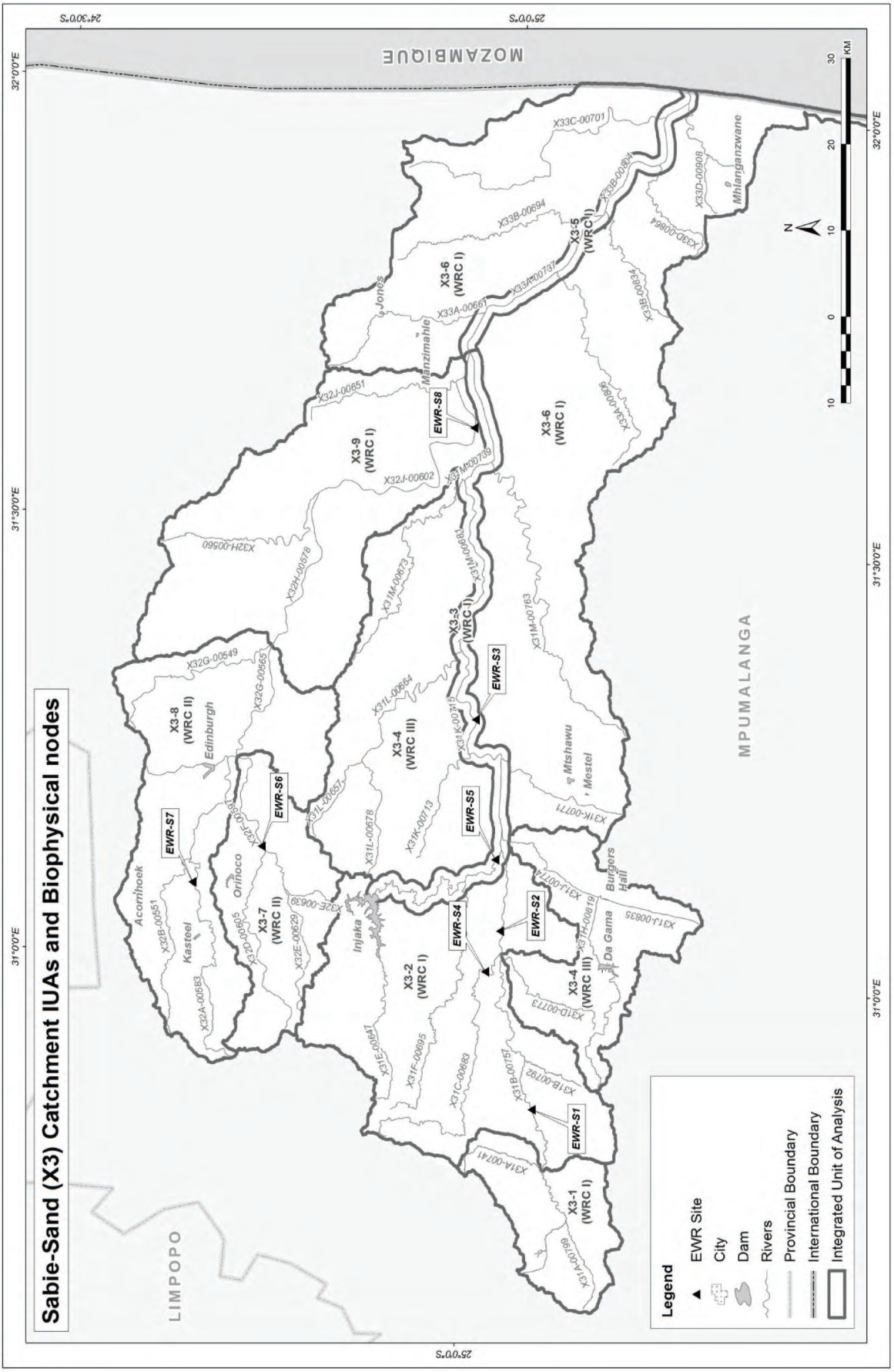
* - Inkhombandlela yeKuhlola, Kuhlela neKuphatsa iMitfombolusito yeManti aphasi eNingizimu Afrika, DWAF (2008).
DWAF (1996b): Tinkhombandlela telizinga lemanti aseNingizimu Afrika, DWAF (1196).

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.

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



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



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

Umdwwebo 1.1: Sigodzi X4 kanye nemaNodi eMvelo ema-IUA