DEPARTMENT OF WATER AND SANITATION

NO. 165 **14 FEBRUARY 2020**

NATIONAL WATER ACT, 1998

(ACT NO. 36 OF 1998)

DETERMINATION OF WATER RESOURCE CLASSES AND RESOURCE QUALITY OBJECTIVES FOR THE MZIMVUBU CATCHMENT

I, **Lindiwe Sisulu, Minister of Water and Sanitation**, hereby in terms of section 13(1) of the National Water Act, 1998 (Act No. 36 of 1998) determine the classes of water resources and the resource quality objectives, for the Mzimvubu catchment as set out in the Schedule.

MS LINDIWE SISULU
MINISTER OF WATER AND SANITATION
DATE:

SCHEDULE

DESCRIPTION OF WATER RESOURCE

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

Catchment:	Mzimvubu
Drainage areas:	Secondary drainage area T3 (Mzimvubu)
River(s) and estuary:	Major rivers include the Mzimvubu, Mzintlava, Thina, Kinira, Tsitsa and Inxu (Wildebees) rivers, and the Mzimvubu Estuary

A. CLASSES OF WATER RESOURCES AS REQUIRED IN TERMS OF SECTION 13(1)(a) OF THE NATIONAL WATER ACT, 1998

i. A summary of the water resource classes for Integrated Units of Analysis (IUA) (Figure 1) and Target Ecological Categories (TEC) are set out in Table 1 per Resource Unit (RU).

ii. IUAs are classified in terms of their extent of permissible utilisation and protection as either Class I: indicating high environmental protection and minimal utilisation; Class II indicating moderate protection and moderate utilisation; and Class III indicating sustainable minimal protection and high utilisation.

iii. Table 1 provides the IUA, 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 (RUs). The TEC for each RU in the IUA is provided.

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

i. Resource Quality Objectives (RQOs) are defined for each High Priority RU in terms of water quantity, habitat and biota, and water quality.

ii. Tables 2 to Table 4 provide the RQOs for each Ecological Water Requirement (EWR) site in a High Priority RU.

iii. Table 5 represents the water quality RQOs for each IUA for High Priority Resource Units represented by EWR sites and for each High Priority water quality (WQ) RU.

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iv. Tables 6 and 7 represents the ECs and associated RQOs of the Mzimvubu Estuary for water quality, geomorphology, vegetation, invertebrates, fish and birds, respectively to achieve the TEC listed in Table 1.

v. Table 8 provides the RQOs for each High Priority wetland in the Mzimvubu catchment.

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

1. WATER RESOURCE CLASSES AND CATCHMENT CONFIGURATION

Table 1 Summary of Water Resource Classes and Ecological Categories

IUA	Water Resource Class	Quaternary catchment[1]	RU[2]	Water resource[3]	TEC
T31: Mzimvubu	II	T31A	T31-1	Mzimvubu	B/C
		T31B	T31-2	Krom	B
		T31C	T31-3	Mngeni	B
		T31C	T31-4	Nyongo	C
		T31D	T31-5	Mzimvubu	B
		T31D	T31-6	Riet	C
		T31E	T31-7	Tswereka	B
		T31E	T31-8	Malithasana	B/C
		T31E	T31-9	name unknown	C
		T31E	T31-10	Tswereka	D
		T31F	T31-11	name unknown	B/C
		T31F	T31-12	Mzimvubu	C
		T31F, T31G, T31J	T31-13	Mzimvubu	B/C
		T31H	T31-14	Mvenyane	B
		T31H	T31-15	Mvenyane	B/C
		T31H	T31-16	Mkemane	B
		T31H	T31-17	name unknown	B/C
		T31H	T31-18	Mkemane	B/C
		T31J	T31-19	Mzimvubu	B/C
T32_a: Mzintlava	II	T32A	T32-1	Mzintlava	B/C
		T32A	T32-2	Mzintlanga	C
		T32B	T32-3	name unknown	B/C
		T32C	T32-4	Mill Stream	B/C

1 Quaternary catchment representing the largest section of the RU as RUs may cross quaternary catchment boundaries.

2 Note that each RU is represented by a biophysical node which has the same name as the RU. Where the RU includes an EWR site, the EWR site name follows the RU name in brackets.

3 This refers to the main river and/or estuary in the RU.

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IUA	Water Resource Class	Quaternary catchment[1]	RU[2]	Water resource[3]	TEC
		T32C	T32-5	aManzamnyama	B/C
		T32C	T32-6	Mzintlava	B
		T32C	T32-7	name unknown	B/C
		T32D	T32-8	Droewig	C
		T32C, T32D	T32-9	Mzintlava	D
T32_b: Mzintlava	II	T32D	T32-10	Mzintlava	D
		T32E, T32F	T32-11	Mvalweni	C
		T32G	T32-12	Mzintlavana	B
		T32H	T32-13	Mzintlava	B
T33_a: Kinira	II	T33A	T33-1	Mafube	B
		T33A	T33-2	Kinira	B/C
		T33A	T33-3	Kinira	C
		T33B	T33-4	Jordan	B
		T33B	T33-5	Seeta	B/C
		T33B	T33-6	Mabele	C
T33_b: Kinira	II	T33C, T33D	T33-7	Morulane	C
		T33E	T33-8	Somabadi	C
		T33G	MRU Kinira (MzimEWR3)	Kinira	C
		T33F	T33-9	Rolo	C
		T33F	T33-10	Ncome	C
		T33G	T33-11	Cabazi	C
		T33H	T33-12	Mnceba	B
		T33H	T33-13	Caba	B
		T33J	T33-14	Mzimvubu	B
T34_a: Thina	I	T34C	T34-1	Tinana	B
		T34A	T34-2	Zindawa	B
		T34A	T34-3	Khohlong	B/C
		T34B	T34-4	Nxotshana	B
T34_b: Thina	II	T34D	T34-5	Thina	B/C
		T34D	T34-6	Tokwana	C
		T34E	T34-7	Bradgate se Loop	B
		T34F	T34-8	Luzi	B/C
		T34G	T34-9	Qwidlana	B
		T34H	MRU Thina_B	Thina	C
		T34H	T34-10	Qhanqu	B
		T34H	T34-11	Ngcothi	B
		T34H	T34-12	Mvuzi	C

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IUA	Water Resource Class	Quaternary catchment[1]	RU[2]	Water resource[3]	TEC
		T34J, T34K	MRU Thina_C (MzimEWR2)	Thina	C
T35_a: Tsitsa	I	T35A	T35-1	Tsitsana	B
		T35B	T35-2	Pot	B
		T35C	T35-3	Mooi	B
		T35C, T35D	T35-4	Mooi	C
		T35D, T35E	MRU Tsitsa_B	Tsitsa	C
		T35E	T35-5	Gqukunqa	B
T35_b: Tsitsa	I	T35F	T35-6	Inxu	B
		T35G	T35-7	Gqaqala	B
		T35F	T35-8	Kuntombizininzi	B
		T35H	MRU Inxu (EWR1)	Inxu	C
		T35G	MRU Gat (IFR1)	Gatberg	B
T35_c: Tsitsa	II	T35H	MRU Inxu	Inxu	B/C
		T35H	T35-9	Umnga	B/C
		T35H	T35-10	Qwakele	B/C
		T35J	T35-11	Ncolosi	C
		T35K	T35-12	Culunca	B/C
		T35K	T35-13	Tyira	C/D
		T35K	T35-14	Xokonxa	C
		T35L	T35-15	Ngcolora	C
		T35M	T35-16	Ruze	B
T35_d: Tsitsa	II	T35K	MRU Tsitsa Ca (MzimEWR1)	Tsitsa	C
		T35L	MRU Tsitsa Cb (EWR1 Lalini)	Tsitsa	C
		T35M	MRU Tsitsa_D	Tsitsa	B
T36_a: Mzimvubu	I	T36A	T36-1	Mzintshana	B
		T36A	T36-2	Mkata	B
		T36A	MRU Mzim (MzimEWR4)	Mzimvubu	C

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IUA	Water Resource Class	Quaternary catchment[1]	RU[2]	Water resource[3]	TEC
T36_b: Mzimvubu	I	T36B	MRU Estuary	Mzimvubu Estuary	B

2. RESOURCE QUALITY OBJECTIVES

RQOs for each Resource Unit (RU) are presented in Tables 2 to 8 below. All RQOs are applicable from the date signed off, unless otherwise specified by the Minister.

Table 2 provides the hydrological RQOs for rivers expressed in terms of an assigned volume at the EWR sites. The volume assigned for low (base) flows and for high (flood) flows are also provided. The distribution of this volume across the months must be variable according to a natural (unless specified differently) variability. The variability is dependent on the intra-annual (seasonal) and inter-annual patterns of natural flow conditions. Details are provided in technical documents as follows:

- Low (base flows): These flows are provided as a monthly volume in the form of a flow assurance table which provides discharg which must be equal to or exceeding with different percentage frequencies.

- High (flood flows): These flows are a set of flood events defined by a peak discharge in cubic meters per second, an event duration in hours and the frequency of the event. The frequency with which these flood events are expected to occur, as well as the size of each event, is also dependent on the natural variability and this is reflected in the high flow assurance table that defines the volume requirements with different percentage frequencies of exceedance.

Information for MzimEWR1 (Tstitsa River) and MzimEWR4 (Lower Mzimvubu River) are presented as both EWR flows (no dam development) and flows related to Scenario (Sc) 69, i.e. flows required to be released from Ntabelanga and Lalini dams (of the Mzimvubu Water Project (MWP)) to meet downstream ecological requirements. Note that the Sc 69 flows therefore represent the total flows, which include releases, spills and tributary inflows (if relevant) that flow past the EWR site.

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Table 2_RIVERS: Summary of key hydrological RQOs

RU	Biophysical node	Water resource	TEC	Low flow volume (MCM[1])		High flow volume (MCM)	Total flow volume (MCM)	Narrative
Thina_C	MzimEWR2	Thina River	C	89.24		32.41	121.65	Flows must be distributed according to specified requirements in terms of low flows and high flows.
Kinira	MzimEWR3	Kinira River	C	82.87		52.57	135.44	Flows must be distributed according to specified requirements in terms of low flows and high flows.
Tsitsa_Ca	MzimEWR1	Tsitsa River	C	EWR	87.43	48.25	135.68	Flows must be distributed according to specified requirements in terms of low flows and high flows.
				Sc 69 [2]			354.7	These flows represent the total flows not to be exceeded if the MWP is implemented. The flows must be distributed as specified.
Tsitsa_Cb	EWR1 Lalini	Tsitsa River	Must be a perennial river to cater for aesthetic and other user requirements (Tsitsa Falls)					This RQO is only relevant if the MWP is implemented. Flows should be released from Lalini Dam to ensure that the Tsitsa Falls are perennial. The flows released from Lalini Dam and the return flows from the main hydropower plant outlet must be equal to Sc 69 at the point in the river downstream of the main hydropower outlet, where the return flows enter back into the river.
Mzim	MzimEWR4	Mzimvubu River	C	EWR	331.16	301.3	632.46	Flows must be distributed according to specified requirements in terms of low flows and high flows.
				Sc 69 [2]			2464.9	These flows represent the total flows not to be exceeded if the MWP is implemented. The flows must be distributed as specified.

[1] MCM: million cubic metres
[2] Sc 69 is the scenario comprising the building of dams of the Mzimvubu Water Project (MWP) i.e. Ntabelanga and Lalini dams

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Habitat and biota RQOs are provided as Ecological Categories. There are generic narrative and numerical RQOs associated with the Ecological Categories. Table 3 describes these for each Ecological Category relevant for rivers. Table 4 provides the habitat and biota RQOs for each IUA for High Priority RUs in rivers.

Table 3 Generic numerical and narrative RQOs associated with RIVER 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%

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Table 4 **RIVERS: RQOs for habitat integrity, riparian vegetation, geomorphology,** macroinvertebrates **and fish in High Priority RUs**

IUA	Water Resource Class	Quaternary catchment[4]	RU	Biophysical node	River	Instream Habitat Integrity	Riparian Habitat Integrity	Fish	Macro-invertebrates	Riparian vegetation	Geomorphology
T35_d	II	T35E	MRU Tsitsa_Ca	MzimEWR1	Tsitsa	**B/C**	**C**	**C**	**C**	**C/D**	**C**
T34_b	II	T34J	MRU Thina_C	MzimEWR2	Thina	**C**	**C**	**B/C**	**C**	**C/D**	**C**
T33_b	II	T33G	MRU Kinira	MzimEWR3	Kinira	**C**	**C**	**C**	**C**	**C/D**	**C**
T36_a	I	T36A	MRU Mzim	MzimEWR4	Mzimvubu	**B/C**	**C**	**C**	**C**	**C/D**	**C**

Table 5 provides the water quality RQOs for each IUA for High Priority RUs, either represented by EWR sites assessed in the Mzimvubu Classification study (shown in bolded text) or high priority 3(WQ) and 4(WQ) sites. Note that water quality includes both the TEC and the user targets as narrative RQOs.

[4] Quaternary catchment where EWR site is located.

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Table 5 RQOs for RIVERS for water quality (ecological and user) in High Priority RUs containing EWR sites or 3(WQ)/ 4(WQ) sites

IUA	Water Resource Class	Quaternary catchment[5]	RU[6]	Water resource	TEC	Component	Sub-Component	Indicator	RQO	
									Narrative	Numerical
IUA T32_a: Mzintlava	II	T32C	RU T32-6: T32C-05273	Mzintlava		River Water Qualtiy	Nutrients	Orthophosphate	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO_4-P (aquatic ecosystems: driver).
						River Water Qualtiy	Toxics		Ideal	95th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996) and DWAF (2008).
						River Water Qualtiy	Microbial	Faecal coliforms and *E.coli*	Recreation (full or partial contact)	Meet targets for recreational / other use*.
	II	T32C, T32D	RU T32-9: T32D-05352	Mzintlava		River Water Qualtiy	Nutrients	Orthophosphate	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO_4-P (aquatic ecosystems: driver).
						River Water Qualtiy	Toxics		Ideal	95th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996) and DWAF (2008).
							Microbial	Faecal coliforms and *E.coli*	Recreation (full or partial contact)	Meet targets for recreational / other use*.

5 Quaternary catchment representing the largest section of the RU as RUs may cross quaternary catchment boundaries

6 Note that each RU is represented by a biophysical node which has the same name as the RU. Where the RU includes an EWR site, the EWR site name follows the RU name in brackets.RU designation also lists sub-quaternary (SQ) catchments where water quality RQOs are applicable.

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IUA	Water Resource Class	Quaternary catchment	RU	Water resource	TEC	Component	Sub-Component	Indicator	RQO	
									Narrative	Numerical
IUA T32_b: Mzintlava	II	T32D	RU T32-10: T32D-05373	Mzintlava		River Water Quality	Nutrients	Orthophosphate	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO_4-P (aquatic ecosystems: driver).
						River Water Quality	Toxics		Ideal	95th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996) and DWAF (2008).
						River Water Quality	Salts	Electrical conductivity	Acceptable	95th percentile of the data must be less than or equal to 55 mS/m (aquatic ecosystems: driver).
						River Water Quality	Microbial	Faecal coliforms and *E.coli*	Recreation (full or partial contact)	Meet targets for recreational / other use*.
	II	T32E, T32F	RU T32-11: T32F-05464	Mvalweni		River Water Quality	Nutrients	Orthophosphate	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO_4-P (aquatic ecosystems: driver).
						River Water Quality	Nutrients	Total Inorganic Nitrogen	Acceptable	50th percentile of the data must be less than 1.0 mg/L TIN-N (aquatic ecosystems: driver).
						River Water Quality	Toxics		Ideal	95th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996) and DWAF (2008).
						River Water Quality	Salts	Electrical conductivity	Ideal	95th percentile of the data must be less than or equal to 30 mS/m (aquatic ecosystems: driver).
						River Water Quality	Suspended sediments	Turbidity/clarity or TSS levels.	Acceptable	A moderate change from natural with temporary high sediment loads and turbidity during runoff events (aquatic ecosystems: driver).
						River Water Quality	Microbial	Faecal coliforms and *E.coli*	Recreation (full or partial contact)	Meet targets for recreational / other use*.

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IUA	Water Resource Class	Quaternary catchment	RU	Water resource	TEC	Component	Sub-Component	Indicator	RQO	
									Narrative	Numerical
IUA T33_a: Kinira	II	T33A	RU T33-3: T33A-04990, T33A-04991	Kinira		River Water Quality	Nutrients	Orthophosphate	Acceptable	50th percentile of the data must be less than 0.025 mg/L PO_4-P (aquatic ecosystems: driver).
						River Water Quality	Suspended sediments	Turbidity/clarity or TSS levels	Acceptable	A moderate change from natural with temporary high sediment loads and turbidity during runoff events (aquatic ecosystems: driver).
						River Water Quality	Microbial	Faecal coliforms and *E.coli*	Recreation (full or partial contact)	Meet targets for recreational / other use*.
IUA T33_b: Kinira	II	T33G	**MRU Kinira (MzimEWR3):** T33E-05213, T33F-05326, T33G-05395	Kinira	**B/C**	River Water Quality	Suspended sediments	Turbidity/clarity or TSS levels	Tolerable	A large change from natural with erosion being a known cause of unnaturally large increases in sediment loads and turbidity. Habitat often silted but clears (aquatic ecosystems: driver).

IUA	Water Resource Class	Quaternary catchment	RU	Water resource	TEC	Component	Sub-Component	Indicator	RQO	
									Narrative	Numerical
IUA T34_b: Thina	II	T34D	RU T34-6: T34D-05463	Tokwana		River Water Quality	Nutrients	Orthophosphate	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. Numerical limits can be found in DWAF (1996) and DWAF (2008).
							Microbial	Faecal coliforms and *E.coli*	Recreation (full or partial contact)	Meet targets for recreational / other use*.
IUA T34_b: Thina	II	T34J, T34K	**MRU Thina_C (MzImEWR2):** T34H-05772, T34H-05838, T34K-05835	Thina	**B**	River Water Quality	Suspended sediments	Turbidity/clarity or TSS levels	Acceptable	A moderate change from natural with temporary high sediment loads and turbidity during runoff events (aquatic ecosystems: driver).
							Nutrients	Orthophosphate	Acceptable	50th percentile of the data must be less than 0.025 mg/L (aquatic ecosystems: driver).

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IUA	Water Resource Class	Quaternary catchment	RU	Water resource	TEC	Component	Sub-component	Indicator	RQO	
									Narrative	Numerical
IUA T35_a: Tsitsa	I	T35C, T35D	RU T35-4: T35C-05874	Mooi		River Water Quality	Nutrients	Orthophosphate	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. Numerical limits can be found in DWAF (1996) and DWAF (2008).
							Microbial	Faecal coliforms and *E.coli*	Recreation (full or partial contact)	Meet targets for recreational / other use*.
IUA T35_b: Tsitsa	I	T35H	MRU Inxu (EWR1): T35F-06020	Inxu		River Water Quality	Nutrients	Orthophosphate	Acceptable	50th percentile of the data must be less than 0.075 mg/L PO_4-P (aquatic ecosystems: driver).
							Toxics		Ideal	95th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996) and DWAF (2008).
							Microbial	Faecal coliforms and *E.coli*	Recreation (full or partial contact)	Meet targets for recreational / other use*.
IUA T35_c: Tsitsa	II	T35K	RU T35-14: T35K-06167	Xokonxa		River Water Quality	Nutrients	Orthophosphate	Tolerable	50th percentile of the data must be less than 0.125 mg/L PO_4-P (aquatic ecosystems: driver).
							Toxics		Ideal	95th percentile of the data must be within the TWQR for toxics. Numerical limits can be found in DWAF (1996) and DWAF (2008).
							Microbial	Faecal coliforms and *E.coli*	Recreation (full or partial contact)	Meet targets for recreational / other use*.

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IUA	Water Resource Class	Quaternary catchment	RU	Water resource	TEC	Component	Sub-Component	Indicator	RQO	
									Narrative	Numerical
IUA T35_d: Tsitsa	II	T35K	**MRU Tsitsa_Ca (MzimEWR1):** T35E-05977, T35K-06037, T35K-06098, T35L-05976	Tsitsa	**B**	River Water Quality	Nutrients	Orthophosphate	Acceptable	50th percentile of the data must be less than 0.015 mg/L (aquatic ecosystems: driver).
							Suspended sediments	Turbidity/clarity or TSS levels	Acceptable	Moderate – Large changes from natural are evident, with erosion and urban runoff processes being known causes of unnaturally large increases in sediment loads and turbidity. Increases are not permanent with clearing of habitats at times (aquatic ecosystems: driver).
IUA T36_a: Mzimvubu	I	T36A	**MRU Mzim (MzimEWR4):** T36A-06250, T36A-06354, T36B-06391	Mzimvubu	**A/B**	River Water Quality	Suspended sediments	Turbidity/clarity or TSS levels	Acceptable	Moderate changes from natural with temporary high sediment loads and turbidity during runoff events. Urban activities and land-use have resulted in high sediment loads

TWQR = Target Water Quality Range (DWAF, 1996a).
DWAF (1996): South African Water Quality Guidelines: Volume 7: Aquatic Ecosystems.
DWAF (2008): Methods for determining the water quality component of the Ecological Reserve for rivers.

* Note that all river faecal coliform and *E. coli* targets for full and partial contact are presented in terms of SA National Microbial Monitoring Programme (NMMP) guidelines and health risks in terms of counts/100 mL, as follows:

Low	Medium	High
< 600	600 - 2 000	> 2 000

Guidelines are provided in the absence of data or knowledge of recreational activities in the area.

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Ecological Categories for estuaries represent both a numerical and narrative RQO, according to the guidelines in Table 6. In accordance with these guidelines the Ecological Categories and associated RQOs of the Mzimvubu Estuary for flow, water quality, sediment dynamics, vegetation, macrophytes, microalgae, invertebrates, fish and birds, respectively to achieve the target Ecological Category (as listed in Table 1) are presented in Table 7. The configurations of TECs, as well as quantification of RQOs, are based on best available information at the time of gazetting. ROQs for complex and dynamic ecosystems such as estuary may require refinement to meet the target Ecological Category if so indicated by future monitoring programmes (through the adaptive management approach).

Table 6 Generic numerical and narrative RQOs associated with Ecological Categories for ESTUARIES

Ecological Category	Generic narrative RQO	Narrative RQO	Numerical RQO
A	Unmodified, or approximates natural condition	Characteristics of resource should be determined by unmodifed natural disturbance regimes. No human induced risks to abiotic and biotic maintenance of resource. The supply capacity of resource not to be used.	> 92%
A/B			> 87%
B	Largely natural with few modifications.	Small change in natural habitats and biota may have taken place, but ecosystem functions are essentially unchanged. Only a small risk of modifying natural abiotic template and exceeding resource base should not be allowed. Although risk to well-being and survival of especially intolerant biota at a very limited number of localities may be slightly higher than expected under natural conditions, the resilience and adaptability of biota must not be compromised. Impact of acute disturbances must be totally mitigated by presence of sufficient refuge areas.	>78%
B/C			>72%
C	Moderately modified.	Loss and change of natural habitat and biota have occurred, but basic ecosystem functions still predominantly unchanged. A moderate risk of modifying the abiotic template and exceeding the resource base may be allowed. Risks to wellbeing and survival of intolerant biota may generally be increased with some reduction of resilience and adaptability at a small number of localities. Impact of local and acute disturbances must at least partly be mitigated by the presence of sufficient refuge areas.	>63%
C/D			>57%
D	Largely modified	Large loss of natural habitat, biota and basic ecosystem functions has occurred. Large risk of modifying the abiotic template and exceeding the resource base. Risk to the well-being and survival of intolerant biota at a large number of localities depending on their resilience and adaptability. Associated increase in abundance of tolerant species must not be allowed to assume pest proportions. Impact of local and acute disturbances must at least to some extent be mitigated by refuge areas.	>43
D/E			≥37%
E	Seriously modified	Loss of natural habitat, biota and basic ecosystem functions is extensive	>23%
E/F			>17%
F	Critically modified	Modifications have reached a critical level and ecosystem modified completely with an almost complete loss of natural habitat and biota. In worst instances basic ecosystem functions have been destroyed and changes are irreversible	≤ 17%

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Table 7 **MZIMVUBU ESTUARY: RQOs for hydrology, hydrodynamics, water quality, sediment dynamics, microalgae, macrophytes, invertebrates, fish and birds (based on best available information at time of gazetting)**

IUA	Water Resource Class	Quaternary Catchment	RU	Water resource	Target EC	Component	Sub-Component	Indicator	RQO	
									Narrative	Numerical
IUA T36_b	I	T36B	MRU Estuary	Mzimvubu Estuary	B	Hydrology	-	Protect the flow regime to create the required habitat for birds, fish, macrophytes, microalgae and water quality	• Changes in river inflow distribution patterns (i.e. floods and base flows) less than 5% from that of Scenario 69 (i.e. the target flow scenario).	Maintain TEC = A (> 92%).
						Hydro-dynamics	-	Maintain a mouth conditions to protect estuarine ecosystems and the associated habitat for birds, fish, macrophytes, microalgae and water quality	• Estuary mouth not to close or become very constricted • Changes in tidal amplitude at the tidal gauge not to be more than 20% from present baseline (refer to DWS, 2014a, 2014b and 2017).	Maintain TEC = A (> 92%).
						Water quality	Salinity	Water quality to be suitable for maintaining TEC for dependent biotic components.	▪ Salinity in lower reaches to remain above 20 for at least 4 to 6 months (i.e. overlapping with winter period) ▪ Salinity in lower reaches to remain above 25 and in middle reaches above 15 for at least 1 to 2 months (overlapping with winter period).	Maintain TEC = A/B (> 87%).
							pH		River: pH 7.0 - 8.5 Estuary: pH 7.0 - 8.5	Maintain TEC = C (> 63%).
							Dissolved oxygen		River: DO > 6 mg/ℓ Estuary: DO > 6 mg/ℓ	
							Turbidity		River: Naturally turbid Estuary: Naturally turbid	
							Nutrients		River: ▪ Dissolved Inorganic Nitrogen (DIN) < 200 µg/ℓ (monthly average) ▪ Dissolved Inorganic Phosphate (DIP) < 30 µg/ℓ (monthly average).	

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IUA	Water Resource Class	Quaternary Catchment	RU	Water resource	Target EC	Component	Sub-Component	Indicator	RQO	
									Narrative	Numerical
									Estuary: ▪ Dissolved Inorganic Nitrogen (DIN) < 150 µg/ℓ (average across estuary) ▪ Dissolved Inorganic Phosphate (DIP) < 20 µg/ℓ (average across estuary)	
							Toxics		▪ Total metal concentrations in water not to exceed target values as per South African Water Quality Guidelines for coastal marine waters (DWAF, 1995 or official future updates thereof) ▪ Total metal concentration in sediment not to exceed target values as per WIO Region guidelines (UNEP/Nairobi Convention Secretariat and CSIR, 2009 or official future updates thereof for South Africa)	
							Micro-biology		For recreational use areas in estuary (refer to DEA, 2012): ▪ Enterococci < 185 counts per 100 ml (90th percentile), and ▪ E. coli < 500 counts per 100 ml (90th percentile).	-
						Sediment dynamics				Maintain TEC = A/B (> 87%)
						Microalgae				Maintain TEC = C (> 63%)
						Macrophytes				Maintain TEC = C (> 63%)
						Invertebrates				Maintain TEC = A/B (> 87%)
						Fish				Maintain TEC = B/C (> 72%)
						Birds				Maintain TEC of C/D (> 60%).

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UNEP/Nairobi Convention Secretariat and CSIR. 2009. Guidelines for the Establishment of Environmental Quality Objectives and Targets in the Coastal Zone of the Western Indian Ocean (WIO) Region, UNEP, Nairobi, Kenya, 169p.

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Table 8 RQOs for High Priority wetlands of the Mzimvubu catchment

IUA	Water Resource Class	Quaternary Catchment	RU	Water Resource	TEC	Component	Sub-component	Indicator	RQO	
									Narrative	Numerical
IUA T31	II	T31D, T31E, T31F: T31D-05076, T31E-05013, T31F-05112, T31F-05108, T31F-05111	T31-5, T31-12, T31-13	Wetlands: Mzimvubu floodplains	C	Quantity	Hydrology	Wetland hydrology score. Detailed assessment of wetland hydrology using a PES tool.	The quantity and timing of inputs, and the distribution and retention patterns within the wetland must be maintained to avoid the loss of wetland hydrological function.	
							Shallow flooding by damming	Impact score within Wet-Health.	The current extent of damming within the wetland complex should not be permitted to increase	The aerial extent of damming within the delineated wetland area shall not exceed 8.4%.
						Quality			Detailed data of water quality indicators for this wetland were not available and no detailed RQOs related to water quality have been determined.	
						Habitat	General wetland vegetation	Impact score: Wetland vegetation score and PES as assessed with Wet-Health.	The wetland vegetation must be maintained to ensure that the ecosystem structure and function are maintained.	Present condition is a D (impact score of 4.7), while the TEC is a C (impact score of 3.9 or less). The numerical criteria should equate to the same or improved value.
							Loss / de-fragmentation due to direct agricultural activities	Impact score (aerial extent) as assessed with Wet-Health.	Direct agricultural activities and croplands should not be permitted to increase in extent within the wetland complex.	The aerial extent of agricultural activities and croplands within the delineated wetland area shall not exceed 20%.
							Loss / de-fragmentation due to infrastructure, including canals, furrows and trenching	Impact score (aerial extent) as assessed with Wet-Health.	Additional development of infrastructure should not be permitted within the wetland complex.	The aerial extent of infrastructure, including canals, furrows and trenching, within the delineated wetland area shall not exceed 5%.

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IUA	Water Resource Class	Quaternary Catchment	RU	Water Resource	TEC	Component	Sub-component	Indicator	RQO	
									Narrative	Numerical
							Overall vegetation PES	Wetland vegetation score and PES as assessed with Wet-Health.	The overall wetland PES as indicated by the vegetation component of Wet-Health, must be maintained, or the TEC should be achieved.	Present condition is a D (impact score of 4.7), while the TEC is a C (impact score of 3.9 or less). The numerical criteria should equate to the same or improved value.
						Biota	Endangered crane species	Counts of the number of breeding pairs of crane species.	Water quantity, vegetation condition and land use practices must be maintained so as to not cause any population decline.	Data exist but were not available for this assessment
							Invasive alien vegetation	Impact score (aerial extent) as assessed with Wet-Health.	Invasive alien vegetation within the wetland complex should be kept in check so as not to increase in aerial extent.	The aerial extent of invasive alien vegetation within the delineated wetland area shall not exceed 3%.

IUA	Water Resource Class	Quaternary Catchment	RU	Water Resource	TEC	Component	Sub- component	Indicator	RQO	
									Narrative	Numerical
IUA T33_a	II	T33A: T33A-04990, T33A-04991, T33A-05011	T33-1 T33-2 T33-3	Wetlands:Matatiele Floodplains	C	Water quantity	Hydrology	Wetland hydrology score. Detailed assessment of wetland hydrology using a PES tool.	The quantity and timing of inputs, and the distribution and retention patterns within the wetland must be maintained to avoid the loss of wetland hydrological function.	
							Shallow flooding by damming	Impact score within Wet-Health.	The current extent of damming within the wetland complex should not be permitted to increase	The aerial extent of damming within the delineated wetland area shall not exceed 2.2%.
						Habitat	General wetland vegetation	Impact score: Wetland vegetation score and PES as assessed with Wet-Health.	The wetland vegetation must be maintained to ensure that the ecosystem structure and function are maintained.	Present condition is a D (impact score of 5.5), while the TEC is a C (impact score of 3.9 or less). The numerical criteria should equate to the same or improved value.
							Loss / defragmentation due to direct agricultural activities	Impact score (aerial extent) as assessed with Wet-Health.	Direct agricultural activities and croplands should not be permitted to increase in extent within the wetland complex.	The aerial extent of agricultural activities and croplands within the delineated wetland area shall not exceed 34%.
							Loss / defragmentation due to infrastructure, including canals, furrows and trenching	Impact score (aerial extent) as assessed with Wet-Health.	Additional development of infrastructure should not be permitted within the wetland complex.	The aerial extent of infrastructure, including canals, furrows and trenching, within the delineated wetland area shall not exceed 4.5%.
							Overall vegetation PES	Wetland vegetation score and PES as assessed with Wet-Health.	The overall wetland PES as indicated by the vegetation component of Wet-Health, must be maintained, or the TEC should be achieved.	Present condition is a D (impact score of 5.5), while the TEC is a C (impact score of 3.9 or less). The numerical criteria should equate to the same or improved value.
						Biota	Invasive alien vegetation	Impact score (aerial extent) as assessed with Wet-Health.	Invasive alien vegetation within the wetland complex should be kept in check so as not to increase in aerial extent.	The aerial extent of invasive alien vegetation within the delineated wetland area shall not exceed 3%.

T35_b	I	T35G: T35G-06099, T35G-06133, T35G-06118	T35-7, MRU Gat	Wetlands: Gatberg Floodplains	B	Quality	Water quantity	Hydrology	Wetland hydrology score. Detailed assessment of wetland hydrology using a PES tool.	Detailed data of water quality indicators for this wetland were not available and no detailed RQOs related to water quality have been determined.	Wetland hydrology score. Detailed assessment of wetland hydrology using a PES tool.
								Shallow flooding by damming	Impact score within Wet-Health.	The aerial extent of damming within the delineated wetland area shall not exceed 0%.	Impact score within Wet-Health.
							Habitat	General wetland vegetation	Impact score: Wetland vegetation score and PES as assessed with Wet-Health.	Present condition is a B (impact score of 1.8). The numerical criteria should equate to the same or improved value.	Impact score: Wetland vegetation score and PES as assessed with Wet-Health.
								Loss / defragmentation due to direct agricultural activities	Impact score (aerial extent) as assessed with Wet-Health.	The aerial extent of agricultural activities and croplands within the delineated wetland area shall not exceed 3.5%.	Impact score (aerial extent) as assessed with Wet-Health.
								Loss / defragmentation due to commercial plantations or forestry	Impact score (aerial extent) as assessed with Wet-Health.	The aerial extent of commercial plantations or forestry within the delineated wetland area shall not exceed 10%.	Impact score (aerial extent) as assessed with Wet-Health.
								Loss / defragmentation due to infrastructure, including canals, furrows and trenching	Impact score (aerial extent) as assessed with Wet-Health.	The aerial extent of infrastructure, including canals, furrows and trenching, within the delineated wetland area shall not exceed 2%.	Impact score (aerial extent) as assessed with Wet-Health.
								Overall vegetation PES	Wetland vegetation score and PES as assessed with Wet-Health.	Present condition is a B (impact score of 1.8). The numerical criteria should equate to the same or improved value.	Wetland vegetation score and PES as assessed with Wet-Health.

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			Endangered crane species	Counts of the number of breeding pairs of crane species.		Counts of the number of breeding pairs of crane species.	
		Biota	Invasive alien vegetation	Impact score (aerial extent) as assessed with Wet-Health.	The aerial extent of invasive alien vegetation within the delineated wetland area shall not exceed 1%.	Impact score (aerial extent) as assessed with Wet-Health.	

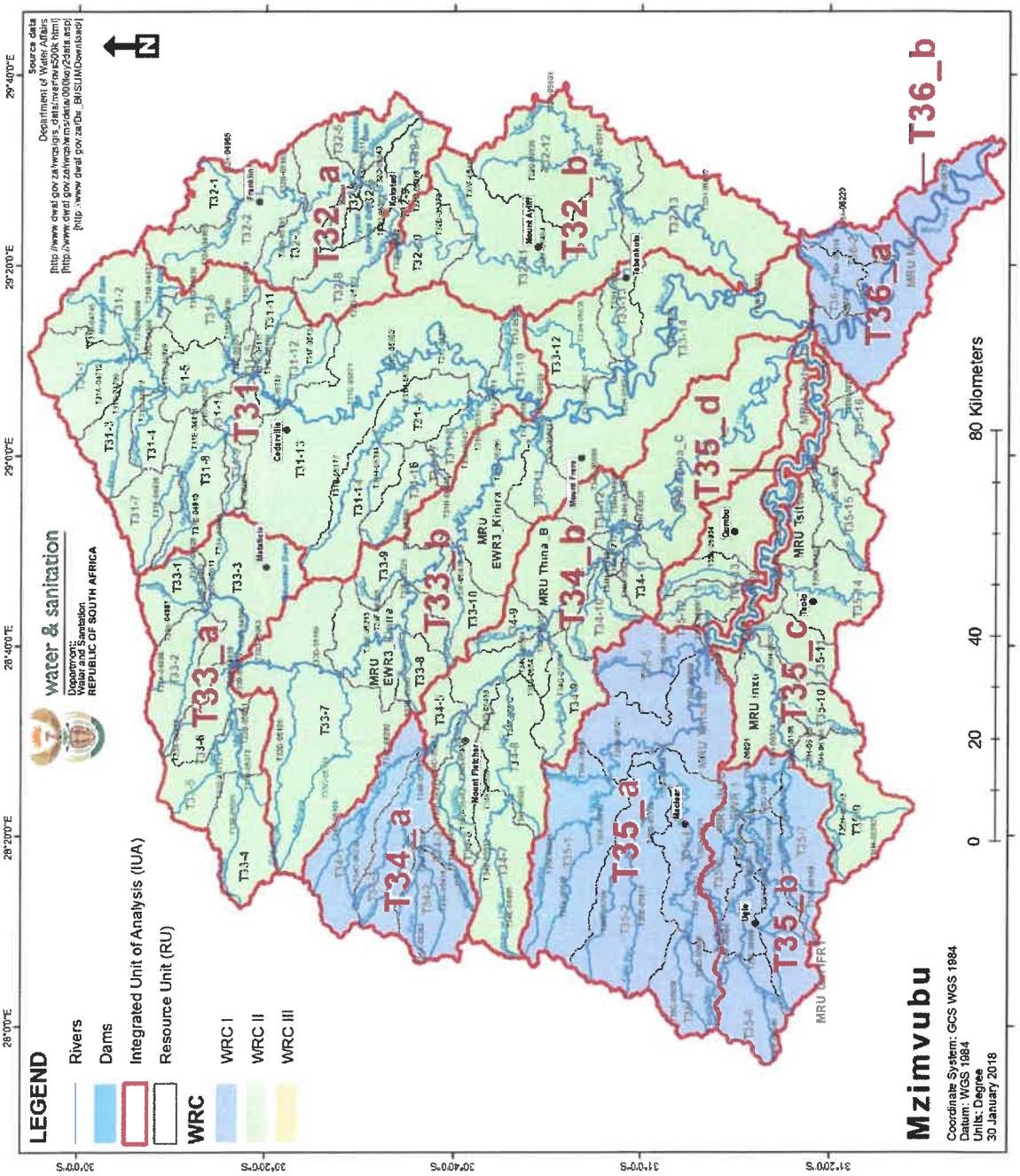

Figure 1 Water Resource Classes for IUAs of the Mzimvubu catchment

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ISAZISO SIKARHULUMENTE

ISEBE LEZAMANZI NOGUTYULO

UMTHETHO WAMANZI WESIZWE, 1998

(UMTHETHO NO. 36 KA1998)

AMAHLELO EMIJELO YAMANZI NEENJONGO MALUNGA NEKWALITI YEMIJELO NGOKUBHEKISELELE KWINDAWO YOBONISELO NGAMANZI IMZIMVUBU

Mna, Deborah Mochotlhi, kwisikhundla sam njengoMphathi-Jikelele oBambeleyo weSebe lezaManzi noGutyulo, ndigunyaziswa yimiqathango yeziqendu-13(1) no63(1)(a) zoMthetho wezaManzi weSizwe, ka1998 (uMthetho No.36 ka1998), ukuba ndishicilele esi saziso malunga namahlelo emijelo yamanzi neenjongo malunga nekwaliti yemijelo ngokubhekiselele kwindawo yoboniselo ngamanzi iMzimvubu.

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INKCAZO NGOMJELO WAMANZI

Imiba yamahlelo ndawonye neenjongo malunga nekwaliti yemijelo igqitywa ngomjelo ngamnye (okanye inxalenye yawo) wamanzi okwisithuba esiphakathi kwendawo yoboniselo ngamanzi, iMzimvubu, njongo kuboniswa apha ngezantsi:

Indawo yoboniselo:	Mzimvubu
Imimandla yofunxo:	ummandla ongenelelayo wofunxo T3 (Mzimvubu)
Imilambo namachweba :	imilambo emikhulu iquka iMzimvubu, iMzintlava, iThina, iKinira, iTsitsa kunye ne-Inxu (Wildebees), ndawonye nechweba lomlambo i-Mzimvubu

A. AMAHELO EMIJELO YAMANZI AYAFUNEKA NGOKWEMIQATHANGO YESIQENDU 13(1)(a) SOMTHETHO WAMANZI WESIZWE, KA1998

i. Ushwankathelo lwamahlelo emijelo yamanzi kwiindawana ezihlangeneyo zohlalutyo (ii-Integrated Units of Analysis (ii-IUA) (uMzobo 1) namabakala eendawo zokuphilisana ezingqaliweyo (ii-Target Ecological Categories (iiTEC) abonisiwe kuTafile Table 1 ngokweendawana zomjelo (iiResource Unit (iiRU).

ii. Ii-IUAs zihlelwa ngokwezinga losetyenziso elivumelekileyo: zingakwiHlelo I: elibonisa ukhuselo lokusingqongileyo olukwizinga eliphezulu nosetyenziso olusezantsi; iHlelo II elibonisa ukhuselo oluphakathi nosetyenziso oluphakathi; okanye iHlelo III elibonisa ukhuselo olusezantsi nosetyenziso olukwizinga eliphezulu.

iii. UTafile 1 ubonisa ii-IUA, amahlelo emijelo yamanzi azo nolungiso loomandla woboniselo wazo nganye nganye. Ummandla woboniselo ngamnye olungisiweyo unamalungu amaninzi endibano yendalo amele iindawo apho ifikelela khona imilambo (okanye ii-Resource Units (iiRUs). I-TEC yeRU nganye ekwi-IUA iyaboniswa.

B. IINJONGO NGEKWALITI YEMIJELO YAMANZI NGOKWEEMFUNO ZEMIQATHANGO YESIQENDU 13(1)(a) SOMTHETHO WAMANZI WESIZWE, KA1998

i. Iinjongo zekwaliti yemijelo (iiRQOs) ziyachazwa ngeRU nganye yongxamiseko oluphezulu ngokubhekiselele kwikwaliti yamanzi, indawo yokuphilisana nebiota.
ii. UTafile 2 noTafile 4 babonisa iiRQOs ngesikhundla ngasinye seMfuneko yamanzi kuloo ndawo ithile (kuloo-Ecological Water Requirement (iEWR) kwi RU nganye yongxamiseko oluphezulu.
iii. UTafile 5 umele ii- RQOs zekwaliti yamanzi kwi-IUA ngeRU nganye yongxamiseko oluphezulu emelwe zizikhundla ze-EWR, nangekwaliti yamanzi (Water Quality-WQ) ngeRU nganye yongxamiseko oluphezulu.
iv. UTafile 6 noTafile 7 bamele ii-ECs nee-RQOs ezibandakanyekayo zechweba lomlambo iMzimvubu ngekwaliti yamanzi, ngokwakheka komhlaba, ngotyani,

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ngokwezilwanyana ezingenamathambo, iintlanzi neentaka ngokulandelelana kwazo khonukuze kuphunyezwe iTEC edweliswe apha ngezantsi.

v. UTafile 8 ubonisa ii-RQOs ngomwonyo ngamnye wongxamiseko oluphezulu kwindawo yoboniselo ngamanzi iMzimvubu.

vi. Ezi RQOs ziza kuqala ukusebenza ukusukela ngaloo mhla ziya kutyikitywa ngawo ngokwezigqibo zemiqathango zeSiqendu 13(1) soMthetho weSizwe waManzi, ngaphandle kokuba uMphathiswa ufuna ngenye indlela.

1. AMAHLELO EMIJELO YAMANZI NOLUNGISO LWENDAWO YOBONISELO NGAMANZI

UTafile 1 Ushwankathelo lwamahlelo emijelo yamanzi naMabakala eeNdawo zokuphilisana

i-IUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile[1]	i-RU[2]	Umjelo wamanzi[3]	i-TEC
T31: Mzimvubu	II	T31A	T31-1	Mzimvubu	B/C
		T31B	T31-2	Krom	B
		T31C	T31-3	Mngeni	B
		T31C	T31-4	Nyongo	C
		T31D	T31-5	Mzimvubu	B
		T31D	T31-6	Riet	C
		T31E	T31-7	Tswereka	B
		T31E	T31-8	Malithasana	B/C
		T31E	T31-9	name unknown	C
		T31E	T31-10	Tswereka	D
		T31F	T31-11	name unknown	B/C
		T31F	T31-12	Mzimvubu	C
		T31F, T31G, T31J	T31-13	Mzimvubu	B/C
		T31H	T31-14	Mvenyane	B
		T31H	T31-15	Mvenyane	B/C
		T31H	T31-16	Mkemane	B
		T31H	T31-17	name unknown	B/C
		T31H	T31-18	Mkemane	B/C
		T31J	T31-19	Mzimvubu	B/C
T32_a: Mzintlava	II	T32A	T32-1	Mzintlava	B/C
		T32A	T32-2	Mzintlanga	C
		T32B	T32-3	name unknown	B/C
		T32C	T32-4	Mill Stream	B/C

[1] I-Quaternary catchment imele ummandla omkhulu we-RU njengoko ii-RUs zinakho ukunqumleza imida yenndawo zoboniselo zexesha elithile.

[2] Qaphela ukuba i-RU nganye imelwe yindawo yendibano yendalo enegama elifanayo nelo leRU. Apho iRU iquka isikhundla se-EWR, igama lesikhundla se-EWR lilandela igama leRU ngokwezivala zikhewu.

[3] Oku kubhekisa kowona mlambo okanye icheba elikuloo RU ithile.

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i-IUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile[1]	i-RU[2]	Umjelo wamanzi[3]	i-TEC
		T32C	T32-5	aManzamnyama	B/C
		T32C	T32-6	Mzintlava	B
		T32C	T32-7	name unknown	B/C
		T32D	T32-8	Droewig	C
		T32C, T32D	T32-9	Mzintlava	D
T32_b: Mzintlava	II	T32D	T32-10	Mzintlava	D
		T32E, T32F	T32-11	Mvalweni	C
		T32G	T32-12	Mzintlavana	B
		T32H	T32-13	Mzintlava	B
T33_a: Kinira	II	T33A	T33-1	Mafube	B
		T33A	T33-2	Kinira	B/C
		T33A	T33-3	Kinira	C
		T33B	T33-4	Jordan	B
		T33B	T33-5	Seeta	B/C
		T33B	T33-6	Mabele	C
T33_b: Kinira	II	T33C, T33D	T33-7	Morulane	C
		T33E	T33-8	Somabadi	C
		T33G	MRU Kinira (MzimEWR3)	Kinira	C
		T33F	T33-9	Rolo	C
		T33F	T33-10	Ncome	C
		T33G	T33-11	Cabazi	C
		T33H	T33-12	Mnceba	B
		T33H	T33-13	Caba	B
		T33J	T33-14	Mzimvubu	B
T34_a: Thina	I	T34C	T34-1	Tinana	B
		T34A	T34-2	Zindawa	B
		T34A	T34-3	Khohlong	B/C
		T34B	T34-4	Nxotshana	B
T34_b: Thina	II	T34D	T34-5	Thina	B/C
		T34D	T34-6	Tokwana	C
		T34E	T34-7	Bradgate se Loop	B
		T34F	T34-8	Luzi	B/C
		T34G	T34-9	Qwidlana	B
		T34H	MRU Thina_B	Thina	C
		T34H	T34-10	Qhanqu	B
		T34H	T34-11	Ngcothi	B
		T34H	T34-12	Mvuzi	C

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i-IUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile[1]	i-RU[2]	Umjelo wamanzi[3]	i-TEC
		T34J, T34K	MRU Thina_C (MzimEWR2)	Thina	C
T35_a: Tsitsa	I	T35A	T35-1	Tsitsana	B
		T35B	T35-2	Pot	B
		T35C	T35-3	Mooi	B
		T35C, T35D	T35-4	Mooi	C
		T35D, T35E	MRU Tsitsa_B	Tsitsa	C
		T35E	T35-5	Gqukunqa	B
T35_b: Tsitsa	I	T35F	T35-6	Inxu	B
		T35G	T35-7	Gqaqala	B
		T35F	T35-8	Kuntombizininzi	B
		T35H	MRU Inxu (EWR1)	Inxu	C
		T35G	MRU Gat (IFR1)	Gatberg	B
T35_c: Tsitsa	II	T35H	MRU Inxu	Inxu	B/C
		T35H	T35-9	Umnga	B/C
		T35H	T35-10	Qwakele	B/C
		T35J	T35-11	Ncolosi	C
		T35K	T35-12	Culunca	B/C
		T35K	T35-13	Tyira	C/D
		T35K	T35-14	Xokonxa	C
		T35L	T35-15	Ngcolora	C
		T35M	T35-16	Ruze	B
T35_d: Tsitsa	II	T35K	MRU Tsitsa Ca (MzimEWR1)	Tsitsa	C
		T35L	MRU Tsitsa Cb (EWR1 Lalini)	Tsitsa	C
		T35M	MRU Tsitsa_D	Tsitsa	B
T36_a: Mzimvubu	I	T36A	T36-1	Mzintshana	B
		T36A	T36-2	Mkata	B
		T36A	MRU Mzim (MzimEWR4)	Mzimvubu	C

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i-IUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile[1]	i-RU[2]	Umjelo wamanzi[3]	i-TEC
T36_b: Mzimvubu	I	T36B	Ichweba lomlambo iMRU	Ichweba lomlambo iMzimvubu	B

2. IINJONGO ZEKWALITI YEMIJELO

IInjongo zekwaliti yemijelo kwiRU nganye ziyaboniswa kuTafile 2 no 8 apha ngezantsi. Zonke ii-RQOs ziqala ukusebenza ukusukela kuloo mhla ziya kutyikitywa ngawo, ngaphandle kokuba uMphathiswa ufuna ngendlela ethile.

UTafile 2 ubonisa iiRQOs zofundo ngamanzi ngemilambo echazwa ngokwemiqathango yomthamo ovumelekileyo kwizikhundla zemfuneko yamanzi kuloo ndawo yokuphilisana (kwii-EWR). UMthamo ovumelekileyo ngamanzana ahambayo nangamanzi eempuphuma (alwatyuzayo) nawo ubonisiwe. Ukusasazwa kwalo mthamo kwiinyanga ngeenyanga makwahlukahluke ngolwahluko lwendalo (ngaphandle kokuba kuxelwe ngandlela ithile eyahlukileyo). Ukwahlula kuxhomekeke kumaxesha omnyala neepethini zamaxesha omnyaka ngeemeko zokuhamba kwamanzi ngendalo. Iinkcukhaca ziboniswa kumaxwebhu obugcisa ngale ndlela ilandelayo:

- Amanzana angenayo: Ia manzana aboniswa njengomthamo wenyanga kwitafile yoqinisekiso lomthamo wamanzi angena rhoqo ngenyanga nebonisa amanzi alahlwayo emakulinganiselwe kuwo kungenjalo udluliswe umlinganiselo ngokweepesenti zoxhaphako ezahlukayo.

- Amanzi amaninzi angenayo/iimpuphuma: Ia manzi yingqokelela yeziganeko zeempuphuma ezichazeka lula ngokwexesha lokulahlwa kwamanzi amaninzi ngokwee-cubic meters ngomzuzwana, ixesha elichithwa seso siganeko ngokweeyure nangokuxhaphaka kwesiganeko eso. Ixesha nendlela eziza ngayo ezi mpuphuma, nobukhulu besiganeko ngasinye konke oku kuxhomekeke kulwahluko lwendalo kwaye le nto iyboniswa kulaa tafile yoqinisekiso lokulwatyuza kwamanzi nechaza umthamo wamanzi ofunekayo ngokweepesenti zokuxhaphaka okwahlukileyo okugqithisileyo.

Inkcazo ngeMzimEWR1 (umlambo iTsitsa) neMzimEWR4 (kumazantsi omlambo iMzimvubu) iboniswa ngokwendlela ahamba ngayo amanzi kwiEWR zombini (kungekho phuhliso lwadama) namanzi angqameneyo noMboniso (Scenario (Sc) 69, oko kukuthi makavulelwe amanzi asuke kumadama iNtabelanga neLalini (eprojekhthi yamanzi iMzimvubu (Water Project (MWP) khonukuze alungelane neemfuneko zamanzi kwiindawo zokuphilisana ezikumazantsi onxweme. Ngoko ke qaphela ukuba amanzi ka Sc 69 amele amanzi angenayo ewonke – nto leyo iquka amanzi avulelweyo, achithakalayo, angenelayo (ukuba ayabandakanyeka) agqitha kwisikhundla se EWR.

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Table 2 IMILAMBO : Ushwankathelo lweeRQOs eziphambili zofundo ngamanzi

I-RU	Indawo yendibano yendalo	Umjelo wamanzi	I-TEC	Umthamo wamanzana ahambayo Low (MCM[1])		Umthamo wamanzi amaninzi ahambayo (MCM)	Umthamo wokuhamba kwamanzi uwonke volume (MCM)	Indlela yobaliso
Thina_C	MzimEWR2	Umlambo iThina	C	89.24		32.41	121.65	Amanzi ahambayo makobiwe ngokweemfuno ezixeliweyo ngokubhekiselele kumanzana ahambayo namanzi amaninzi ahambayo
Kinira	MzimEWR3	Umlambo iKinira	C	82.87		52.57	135.44	Amanzi makobiwe ngokweemfuno ezixeliweyo ngokubhekiselele kumanzana ahambayo namanzi amaninzi ahambayo.
Tsitsa_Ca	MzimEWR1	Umlambo iTsitsa	C	EWR	87.43	48.25	135.68	Amanzi makobiwe ngokweemfuno ezixeliweyo ngokubhekiselele kumanzana ahambayo namanzi amaninzi ahambayo .
				Sc 69 [2]			354.7	La manzi amele amanzi ahambayo xa ewonke ekungafunekanga ukuba kugqithiswe kuwo ukuba ngaba iMWP sele iqalisiwe. is implemented. Amanzi ahambayo makobiwe ngokweemfuno ezixeliweyo
Tsitsa_Cb	EWR1 Lalini	Umlambo iTsitsa	Mayibe ngumlambo wonyaka wonke khonukuze kwaneliswe iimfuno zolonwabo nosetyenziso emakhayeni nezinye iimfuno (njengengxangxasi iTsitsa)					Le RQO ibandakanyeka kuphela xa iMWP sele iqalisile. Amanzi makavulelwe kwiDama iLalini ukuqinisekisa ukuba iingxangxasi zeTsitsa zitsala unyaka wonke. Amanzi avulelwe kwiDama iLalini naloo manzi abuyiselwa emjelweni esuka kwindawo yokwenziwa kombane wamanzi makalingane noSc 69 ngelixa esemlanjeni osezantsi konxweme lwaloo ndawo yokwenziwa kombane wamanzi, apho loo manzi abuyiselwayo selengenile emlanjeni.
Mzim	MzimEWR4	Umlambo iMzimvubu	C	EWR	331.16	301.3	632.46	Amanzi makobiwe ngokweemfuno ezixeliweyo ngokubhekiselele kumanzana ahambayo namanzi amaninzi ahambayo .
				Sc 69 [2]			2464.9	La manzi amele amanzi ahambayo xa ewonke ekungafunekanga ukuba kugqithiswe kuwo ukuba ngaba iMWP sele iqalisiwe. Amanzi ahambayo makobiwe ngokweemfuno ezixeliweyo

[1] i-MCM: million cubic metres

[2] i-Sc 69 ngumboniso oquka ulwakhiwo lwamadama eprojrkhthi yamanzi iMzimvubu, oko kukuthi idama iNtabelanga nedama iLalini

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I-RQOs zendawo yokuphilisana ne-biota ziboniswe njengamabakala eendawo zokuphilisana. Kukho amabalana aqhelekileyo neeRQOs ezibalekayo ezinxulumene namaBakala eeNdawo zokuphilisana. uTafile 3 uyakuchaza oku ngeBakala leeNdawo yokuPhilisana nganye ebandayeka kwimilambo. UTafile 4 ubonisa iiRQOs zendawo yokuphilisana ne-biota nge -IUA nganye yeeRUs zongxamiseko oluphezulu emilanjeni.

UTafile 3 iiRQOs eziqhelekileyo nezinebali ezingqamene naMabakala eeNdawo zokuPhilisana OMLAMBO

iBakala leNdawo yokuphilisana	iRQO eqhelekileyo nebalisayo	iRQO ebalisayo yangaphakathi emjelweni nakwiindawo zokuphilisana eziselunxwemeni	Intlanzi, izilwanyana ezingenamathambo ezinkulu neRQO kwiindawo zokuphilisana eziselunxwemeni	iRQO yobalo
A	Ayitshintshanga, phantse ibe yeyendalo	Ifana kakhulu neemeko zendalo	Iimpawu zengqokelela zinjengoko zixeliwe	≥ A (≥ 92%)
A/B				≥ A/B (≥ 88%)
B	Yeyendalo ikakhulu, luncinci kakhulu utshintsho.	Yeyendalo ikakhulu, luncinci kakhulu utshintsho. Indlela yokuhamba kwamanzi itshintshe nje kancinci futhi ukungcola kuphelela kwiintlenge zomhlaba. Lukho utshintsho oluncinci kwiindawo zokuphila zendalo. Kodwa ke indlela eziqhuba ngayo iimeko zokuphilisana azitshintshanga.	Iimpawu zengqokelela zinjengoko zixeliwe	≥ B (≥ 82%)
B/C				≥ B/C (≥ 78%)
C	Utshintsho luphakathi nje.	Utshintsho luphakathi nje. Indawo yokuphila ibulahleka futhi itshintshile, iibiota zenzekile,kodwa ke indlela eziqhuba ngayo iimeko zokuphilisana azitshintshanga. .	Iimpawu zengqokelela zinjengoko zixeliwe	≥ C (≥ 62%)
C/D				≥ C/D (≥58%)
D	Itshintshe kakhulu.	Itshintshe kakhulu. Indawo yokuphila, ibiota nemisebenzi esisiseko yendawo yokuphilisana zilahleke kakhulu.	Iimpawu zengqokelela zinjengoko zixeliwe	≥ D (≥ 42%)
D/E				≥ D/E (≥ 38%)
E	Itshintshe ngokungathandekiyo	Itshintshe ngokungathandekiyo. Indawo yokuphila, ibiota nemisebenzi esisiseko yendawo yokuphilisana zilahleke ngendlela engathandekiyo.	Iimpawu zengqokelela zinjengoko zixeliwe	20-39%
F	Itshintshe ngokupheleleyo.	Itshintshe kakubi ngokupheleleyo. Utshintsho lufikelele kumanqanaba amabi futhi iyonke nje imeko itshintshe ngokupheleleyo, notshintsho oluthande ukuba lukhulu lwendawo yokuphila ne-biota. Kwiimeko ezimbi kwaphela imisebenzi esisiseko yendawo yokuphilisana zitshabalele futhi utshintsho alunakuncedwa.	Iimpawu zengqokelela zinjengoko zixeliwe	0-19%

UTafile 4 IMILAMBO: IiRQOs zemfezeko yendawo yokuphila, utyani lwaselunxwemeni, ukwakheka komhlaba, izilwanyana ezingenamathambo ezinkulu neentlanzi kwiiRUs zongxamo oluphezulu

I-IUA	Uhlelo lwemijelo yamanzi	INdawo yoboniselo yexesha elithile	I-RU	Indawo yendibano yendalo	Umlambo	Imfezeko yendawo yokuphila ngaphakathi emjelweni	Imfezeko yendawo yokuphila elunxwemeni	Iintlanzi	izilwanyana ezingenamathambo ezinkulu	utyani lwaselunxwemeni	ukwakheka komhlaba
T35_d	II	T35E	MRU Tsitsa_Ca	MzimEWR 1	Tsitsa	B/C	C	C	C	C/D	C
T34_b	II	T34J	MRU Thina_C	MzimEWR 2	Thina	C	C	B/C	C	C/D	C
T33_b	II	T33G	MRU Kinira	MzimEWR 3	Kinira	C	C	C	C	C/D	C
T36_a	I	T36A	MRU Mzim	MzimEWR 4	Mzimvubu	B/C	C	C	C	C/D	C

UTafile 5 ubonisa iiRQOs zekwaliti yamanzi nge-IUA nganye kwiiRUs zongxamo oluphezulu, imelwe zizikhundla zeEWR ezivavanywe kufundo lokuhlelwa koMzimvubu (oluboniswe ngobhalo olungqindilili) okanye zezikhundla ze-3(WQ) ne4(WQ) zongxamo oluphezulu. Qaphela ukuba ikwaliti yamanzi iquka zombini iinjongo zeTEC nezomsebenzisi-manzi njengeeRQOs zobalo.

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UTafile 5 IiRQOs ZEMILAMBO ngekwaliti yamanzi (ezeendawo nezabasebenzisi bamanzi) kwiiRUs zongxamo oluphezulu ezi ze -EWR okanye izikhundla ze- 3(WQ)/ 4(WQ)

I-IUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile[4]	I-RU[5]	Umjelo wamanzi	I-TEC	Icandelo	Icandelwana	Isalathisi	I-RQO	
									Yobaliso	Yobalo
IUA T32_a: Mzintlava	II	T32C	RU T32-6: T32C-05273	Mzintlava		Ikwaliti yamanzi omlambo	Izondlo	I-Orthophosphate	Vumelekile	i-50th percentile yeenkcukhaca zolwazi mayibe ngaphantsi kwe 0.025 mg/L PO_4-P (umqhubi weempilo zasemanzini).
						Ikwaliti yamanzi omlambo	Iityhefu		Nqweneleka	i-95th percentile yeenkcikhaca zolwazi mayibe ngaphakathi kwe TWQR yeetyhefu. Ubuncinane bobalo buyafumaneka kwa DWAF (1996) nakwaDWAF (2008).
						Ikwaliti yamanzi omlambo	Iintsholongwane	Iimpawu zobukho beekaka emanzini (i-*E.coli*)	yolonwabo (ngokugcweleyo okanye isiqephu nje)	Hlangabeza iinjongo zolonwabo/eminye imisebenzi *.
	II	T32C, T32D	RU T32-9: T32D-05352	Mzintlava		Ikwaliti yamanzi omlambo	Izondlo	I-Orthophosphate	Nyamezeleka	i-50th percentile yeenkcukhaca zolwazi mayibe ngaphantsi kwe 0.125 mg/L PO_4-P (umqhubi weempilo zasemanzini).
						Ikwaliti yamanzi omlambo	Iityhefu		Nqweneleka	i-95th percentile yeenkcikhaca zolwazi mayibe ngaphakathi kwe TWQR yeetyhefu.. Ubuncinane bobalo buyafumaneka kwa DWAF (1996) nakwaDWAF (2008).
							Iintsholongwane	Iimpawu zobukho beekaka emanzini	yolonwabo (ngokugcweleyo okanye isiqephu nje)	Hlangabeza iinjongo zolonwabo/eminye imisebenzi *.

[4] I-Quaternary catchment imele ummandla omkhulu wee RU njengoko iiRUs zinokubetha ngaphaya kwemida yeendawo zoboniselo zamaxesha athile

[5] Qaphela, iRU nganye imelwe yindawo yendibano yendalo enegama elifanayo neleRU. Apho i-RU iquka isikhundla seEWR, igama lesikhundla seEWR lilandela igama leRU kwizivala-zikhewu.Umzobo weRU ukwadwelisa iindawo zoboniselo zamaxeshana athile apho designation also lists sub-quaternary (SQ) catchments ii RQOs zekwaliti yamanzi zisebenza khona.

I-IUA	Ihlelo lomjelo wamanzi	Indawo yobonisel o yexesha elithile	I-RU	Umjelo wamanzi	I-TEC	ICandelo	Icandelwana	Isalathisi	i-RQO	
									Yobaliso	Yobalo
IUA T32_b: Mzintlava	II	T32D	RU T32-10: T32D-05373	Mzintlava		Ikwaliti yamanzi omlambo	Izondlo	I-Orthophosphate	Nyamezeleka	i-50th percentile yeenkcukhaca zolwazi mayibe ngaphantsi kwe 0.125 mg/L PO_4-P (umqhubi wempilo yasemanzini
						Ikwaliti yamanzi omlambo	lityhefu		Nqweneleka	i-95th percentile yeenkcukhaca zolwazi mayibe ngaphakathi kwe TWQR yeetyhefu. Ubuncinane bobalo buyafumaneka kwa DWAF (1996) nakwaDWAF (2008).
						Ikwaliti yamanzi omlambo	lityuwa	Ukutsala umbane	Vumelekile	i-95th percentile yeenkcukhaca zolwazi mayibe ngaphakathi kwe – okanye ilingane ne55 mS/m (umqhubi wempilo yasemanzini).
						Ikwaliti yamanzi omlambo	lintsholongwane	Iimpawu zobukho bekaka (*i-E.coli)*	yolonwabo (ngokugcweleyo okanye isiqephu nje)	Hlangabeza iinjongo zolonwabo/eminye imisebenzi *.
	II	T32E, T32F	RU T32-11: T32F-05464	Mvalweni		Ikwaliti yamanzi omlambo	Izondlo	I-Orthophosphate	Vumelekile	i-50th percentile yeenkcukhaca zolwazi mayibe ngaphantsi kwe 0.125 mg/L PO_4-P (umqhubi wempilo yasemanzini).
						Ikwaliti yamanzi omlambo	Izondlo	I-Nitrogen engeyoyendalo iyonke	Vumelekile	i-50th percentile yeenkcukhaca zolwazi mayibe ngaphantsi kwe 1.0 mg/L TIN-N (umqhubi wempilo yasemanzini).
						Ikwaliti yamanzi omlambo	lityhefu		Nqweneleka	i-95th percentile yeenkcukhaca zolwazi mayibe ngaphakathi kwe TWQR yeetyhefu. Ubuncinane bobalo buyafumaneka kwa DWAF (1996) nakwaDWAF (2008).
						Ikwaliti yamanzi omlambo	lityuwa	Ukutsala umbane	Nqweneleka	i-95th percentile yeenkcukhaca zolwazi mayibe ngaphakathi kwe – okanye ilingane ne30 mS/m (umqhubi wempilo yasemanzini).
						Ikwaliti yamanzi omlambo	Iintlenge ezirhoxisiwe yo	Ubukho bodaka /ukucaca okanye amanqanaba eTSS.	Vumelekile	Utshintsho oluphakathi ukusuka kolwendalo, nomthwalo wentlenge ophezulu okwethutyana nobukho bodaka ngethuba lokuhamba (umqhubi wempilo yasemanzini).
						Ikwaliti yamanzi omlambo	lintsholongwane	Iimpawu zobukho bekaka (*i-E.coli)*	yolonwabo (ngokugcweleyo okanye isiqephu nje)	Hlangabeza iinjongo zolonwabo/eminye imisebenzi *.

odd

I-IUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile	I-RU	Umjelo wamanzi	I-TEC	ICandelo	Icandelwana	Isalathisi	i-RQO	
									Yobaliso	Yobalo
IUA T33_a: Kinira	II	T33A	RU T33-3: T33A-04990, T33A-04991	Kinira		Ikwaliti yamanzi omlambo	Izondlo	I-Orthophosphate	Vumelekile	i-50th percentile yeenkcukhaca zolwazi mayibe ngaphantsi kwe 0.025 mg/L PO_4-P (umqhubi wempilo yasemanzini
						Ikwaliti yamanzi omlambo	Iintlenge	Ubukho bodaka /ukucaca okanye amanqanaba eTSS	Vumelekile	Utshintsho oluphakathi ukusuka kolwendalo, nomthwalo wentlenge ophezulu okwethutyana nobukho bodaka ngethuba lobukho bamanzi emvula (umqhubi wempilo yasemanzini).
						Ikwaliti yamanzi omlambo	Iintsholongwane	Iimpawu zobukho bekaka (*i-E.coli*)	yolonwabo (ngokugcweleyo okanye isiqephu nje)	Hlangabeza iinjongo zolonwabo/eminye imisebenzi *.
IUA T33_b: Kinira	II	T33G	**MRU Kinira (MzimEWR3):** T33E-05213, T33F-05326, T33G-05395	Kinira	**B/C**	Ikwaliti yamanzi omlambo	Iintlenge ezirhoxisiweyo	Ubukho bodaka /ukucaca okanye amanqanaba eTSS	Nyamezeleka	Luninzi utshintsho ukusukela kwindalo, apho ukhukuliseko lubonwa njengonobangelo wobukho obubaxekileyo beentlenge nodaka ngendlela engaqhelekanga . Indawo yokuphilisana iithiwe wambu ziintlenge kodwa ethubeni zihlambeke (umqhubi wempilo yasemanzini).

I-IUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile	I-RU	Umjelo wamanzi	I-TEC	ICandelo	Icandelwana	Isalathisi	i-RQO	
									Yobaliso	Yobalo
IUA T34_b: Thina	II	T34D	RU T34-6: T34D-05463	Tokwana		Ikwaliti yamanzi omlambo	Izondlo	I-Orthophosphate	Vumelekile	i-50th percentile yeenkcukhaca zolwazi mayibe ngaphantsi kwe 0.025 mg/L PO_4-P (umqhubi wempilo yasemanzini
							ilityhefu		Nqweneleka	i-95th percentile yeenkcukhaca zolwazi mayibe ngaphakathi kwe TWQR yeetyhefu. Ubuncinane bobalo buyafumaneka kwa DWAF (1996) nakwaDWAF (2008).
							Iintsholongwane	Iimpawu zobukho bekaka (*i-E.coli*)	Yolonwabo (ngokugcweleyo okanye isiqephu nje)	Hlangabeza iinjongo zolonwabo/eminye imisebenzi *.
IUA T34_b: Thina	II	T34J, T34K	**MRU Thina_C (MzimEWR2):** T34H-05772, T34H-05838, T34K-05835	Thina	**B**	Ikwaliti yamanzi omlambo	Iintlenge ezirhoxisiweyo	Ubukho bodaka /ukucaca okanye amanqanaba eTSS	Vumelekile	Utshintsho oluphakathi ukusuka kolwendalo, nomthwalo wentlenge ophezulu okwethutyana nobukho bodaka ngethuba lobukho bamanzi emvula (umqhubi wempilo yasemanzini).
							Izondlo	I-Orthophosphate	Vumelekile	i-50th percentile yeenkcukhaca zolwazi mayibe ngaphantsi kwe 0.025 mg/L PO_4-P (umqhubi wempilo yasemanzini

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I-IUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile	I-RU	Umjelo wamanzi	I-TEC	ICandelo	Icandelwana	Isalathisi	i-RQO	
									Yobaliso	Yobalo
IUA T35_a: Tsitsa	I	T35C, T35D	RU T35-4: T35C-05874	Mooi		Ikwaliti yamanzi omlambo	Izondlo	I-Orthophosphate	Vumelekile	i-50th percentile yeenkcukhaca zolwazi mayibe ngaphantsi kwe 0.025 mg/L PO_4-P (umqhubi wempilo yasemanzini).
							ilityhefu		Nqweneleka	i-95th percentile yeenkcukhaca zolwazi mayibe ngaphakathi kwe TWQR yeetyhefu. Ubuncinane bobalo buyafumaneka kwa DWAF (1996) nakwaDWAF (2008).
							lintsholongwane	limpawu zobukho bekaka (i-*E.coli*)	Yolonwabo (ngokugcweleyo okanye isiqephu nje)	Hlangabeza iinjongo zolonwabo/eminye imisebenzi *.
IUA T35_b: Tsitsa	I	T35H	MRU Inxu (EWR1): T35F-06020	Inxu		Ikwaliti yamanzi omlambo	Izondlo	I-Orthophosphate	Vumelekile	i-50th percentile yeenkcukhaca zolwazi mayibe ngaphantsi kwe 0.075 mg/L PO_4-P (umqhubi wempilo yasemanzini).
							ilityhefu		Nqweneleka	i-95th percentile yeenkcukhaca zolwazi mayibe ngaphakathi kwe TWQR yeetyhefu. Ubuncinane bobalo buyafumaneka kwa DWAF (1996) nakwaDWAF (2008).
							lintsholongwane	limpawu zobukho bekaka (i-*E.coli*)	Yolonwabo (ngokugcweleyo okanye isiqephu nje)	Hlangabeza iinjongo zolonwabo/eminye imisebenzi *.
IUA T35_c: Tsitsa	II	T35K	RU T35-14: T35K-06167	Xokonxa		Ikwaliti yamanzi omlambo	Izondlo	I-Orthophosphate	Nyamezeleka	i-50th percentile yeenkcukhaca zolwazi mayibe ngaphantsi kwe 0.125 mg/L PO_4-P (umqhubi wempilo yasemanzini).

		Iityhefu		Nqweneleka	i-95th percentile yeenkcukhaca zolwazi mayibe ngaphakathi kwe TWQR yeetyhefu. Ubuncinane bobalo buyafumaneka kwa DWAF (1996) nakwaDWAF (2008).
		Iintsholongwane	Iimpawu zobukho bekaka (i-*E.coli*)	Yolonwabo (ngokugcweleyo okanye isiqephu nje)	Hlangabeza iinjongo zolonwabo/eminye imisebenzi *.

I-IUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile	I-RU	Umjelo wamanzi	I-TEC	ICandelo	Icandelwana	Isalathisi	i-RQO	
									Yobaliso	Yobalo
IUA T35_d: Tsitsa	II	T35K	**MRU Tsitsa_Ca (MzimEWR1):** T35E-05977, T35K-06037, T35K-06098, T35L-05976	Tsitsa	**B**	Ikwaliti yamanzi omlambo	Izondlo	I-Orthophosphate	Vumelekile	i-50th percentile yeenkcukhaca zolwazi mayibe ngaphantsi kwe 0.015 mg/L PO_4-P (umqhubi wempilo yasemanzini).
							Iintlenge ezirhoxisiweyo	Ubukho bodaka /ukucaca okanye amanqanaba eTSS	Vumelekile	Phakathi -Luninzi utshintsho ukusukela kwindalo, apho ukhukuliseko namanzi emvula ebonwa njengonobangelo wobukho obubaxekileyo beentlenge nodaka ngendlela engaqhelekanga . Indawo yokuphilisana iithiwe wambu ziintlenge kodwa ethubeni zihlambeke (umqhubi wempilo yasemanzini).
IUA T36_a: Mzimvubu	I	T36A	**MRU Mzim (MzimEWR4):** T36A-06250, T36A-06354, T36B-06391	Mzimvubu	**A/B**	Ikwaliti yamanzi omlambo	Iintlenge ezirhoxisiweyo	Ubukho bodaka /ukucaca okanye amanqanaba eTSS	Vumelekile	Utshintsho oluphakathi ukusukela kwindalo apho iingqumba ezinkulu zeentlenge nobukho bodaka ngethuba lamanzi emvula Imisebenzi yasezidolophini nosetyenziso lomhlaba lubangele iingqumba ezinkulu zeentlenge.

TWQR = (Target Water Quality Range (DWAF, 1996a).
DWAF (1996): South African Water Quality Guidelines: Volume 7: Aquatic Ecosystems.
DWAF (2008): Methods for determining the water quality component of the Ecological Reserve for rivers.

* Qaphela ukuba zonke iindidi zeekaka emilanjeni neenjongo malunga nobukho beekaka kwimihlaba egcweleyo okanye kwiziqephu nje zidweliswe ngokwemiqathango yezakhelo nemingcipheko yezempilo yeNkqubo yeSizwe yoHlolo lweeNtsholongwane yeSA ngokobalo /100 mL, ngale ndlela ilandelayo:

Low	Medium	High
<600	600 - 2 000	> 2 000

Kukhutshwa izakhelo xa iinkcukhaca zolwazi lwemisebenzi yoomandla zingekho.

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Amabakala eendawo zokuphilisana emachwebeni omlambo amele zombini iiRQO zobalo nobaliso, ngokwezakhelo ezikuTafile Table 6. Ngokubhekiselele kwezi zakhelo, amaBakala eeNdawo zokuphilisana neeRQO ezibandakanyekayo ngechweba lomlambo ngokwendlela ahamba ngayo amanzi, ikwaliti yamanzi, utshintshatshintsho lweentlenge, utyani, izityalo zasemanzini, izilwanyana ezingenamathambo, iintlanzi neentaka ngokokulandelelana kwazo ngeenjongo zokufumana iBakala leNdawo yokuphilisana (njengoko kudwelisiwe kuTafile 1) abonisiwe kuTafile 7. Ukulungiswa kweeTECs, nokuthathwa komthamo weeRQOs, kuthathelwe phezu kolona lwazi lugqibeleleyo obelukho ngethuba lokufakwa kwesaziso sikarhulumente. IiROQs zofundo ngeemeko zokuphilisana ezimbaxa nezitshintshatshintshayo ezinjengamachweba omlambo zisenokufuna ukulungilungiswa khonukuze zihlangabezane neenjongo zamabakala eendawo zokuphilisana, ukuba ngaba oko kuboniswa zzinkqubo zohlolo zexesha elizayo (ngokwendlela yolawulo yokuziqhelanisa).

UTafile 6 IIRQOS zobalo nobaliso zodidi oluthile ezibandakanyeka kuMabakala eeNdawo zokuphilisana AMACHWEBA EMILAMBO.

IBakala leNdawo yokuphilisana	IRQO yobaliso yodidi oluthile	I-RQO yobaliso	I-RQO yobalo
A	Ayitshintshanga, phantse ibe yeyendalo	Iimpawu zomjelo mazingqinwe ziimeko zeziphazamiso zendalo ezingatshintshwayo. Makungabikho mingcipheko yamntu iya kubangela ukuba umjelo ube nefuthe kwizinto ezikuloo mmandla (eziphilayo nezingaphiliyo). Oko kukhutswa njumjelo lowo makungasetyenziswa.	> 92%
A/B			> 87%
B	Yeyendalo ikakhulu, luncinci kakhulu utshintsho.	Lukho utshintshwana olusenokuba lwenzekile kwiindawo zokuphila zendalo nakwizinto eziphila apho, kodwa yona imisebenzi yeendawo zokuphilisana ayitshintshanga kwaphela. Mayibe ngumcelimngeni nje omncinanana wokutshintsha isimo sendalo sezinto ezingaphiliyo, kungavunyelwa ukuba umgangatho womjelo ukuba ude ugqithise. Nangona nje umcelimngeni wempilo entle nokuphila ixesha elide kwezinto eziphilayo (ezinganyamezeliyo) kwiindawo ezimbalwa zokuhlala usenokubamkhulwana kunokuba kulindelekile phantsi kweemeko zendalo nje, makungabekwa esichengeni ukunyamezela nokuziqhelanisa kwezinto eziphilayo. Malincitshiswe ifuthe leziphazamisi ngokuthi kubekho imimandla yokubalekela eyaneleyo.	>78%
B/C			>72%
C	Utshintsho luphakathi nje.	Ukulahleka nokutshintsha okusisiseko kwezinto eziphilayo kwenzekile, kodwa yona imisebenzi yeendawo zokuphilisana ayitshintshanga kwaphelal. Mayibe ngumcelimngeni nje omncinanana wokutshintsha isimo sendalo sezinto ezingaphiliyo, kungavunyelwa ukuba umgangatho womjelo ukuba ude ugqithise. Nangona nje umcelimngeni wempilo entle nokuphila ixesha elide kwezinto eziphilayo (ezinganyamezeliyo) kwiindawo ezimbalwa zokuhlala usenokubamkhulwana kunokuba kulindelekile phantsi kweemeko zendalo nje, makungabekwa esichengeni ukunyamezela nokuziqhelanisa kwezinto eziphilayo. Malincitshiswe ifuthe leziphazamisi ngokuthi kubekho imimandla yokubalekela eyaneleyo.	>63%
C/D			>57%
D	Itshintshe kakhulu.	Indawo yokuphila yendalo ilahleke kakhulu, izinto eziphilayo nemisebenzi esisiseko yeemeko zokuphilisana – konke oku kwenzekile. Kukho umcelimngeni omkhulu wokutshintsha isimo sezinto ezingaphiliyo nokwedlulela kumngangatho womjelo. Ukho nomcelimngeni empilweni entle nasekunyamezeleni kwezinto eziphilayo (ezinganyamezeliyo). Ukwanda okubandakanyekayo kobuninzi beendidi ezinyamezelayo makungavunyelwa ukuba bude bufikelele kumanqanaba obunambuzane. Malincitshiswe ifuthe leziphazamisi ngokuthi kubekho imimandla yokubalekela eyaneleyo.	>43

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IBakala leNdawo yokuphilisana	IRQO yobaliso yodidi oluthile	I-RQO yobaliso	I-RQO yobalo
D/E			≥37%
E	Itshintshe ngokungathandekiyo	Ukuphelelwa kobundawo yokuphila bendalo, izinto eziphilayo nemisebenzi esisiseko yeemeko zokuphilisana kwande ngeyona ndlela	>23%
E/F	-		>17%
F	Itshintshe ngokupheleleyo	Utshintsho lufikelele kwinqanaba elingathandekiyo kwaphela futhi neemeko zokuphilisana zitshintshe ngokupheleleyo de ubundawo yokuphila nezinto eziphilayo zaphantse zaphela tu. Kwezona meko zimbi, imisebenzi esisiseko yeemeko zokuphilisana itshatyalalisiwe futhi olu tshintsho alunakujikwa	≤ 17%

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UTafile 7 **ICHWEBA LOMLAMBO IMZIMVUBU: Il-RQOs zofundo ngamanzi, utshintshatshintsho lwamanzi, ikwaliti yamanzi, utshintshatshintsho lweentlenge zomhlaba, izityalo zasemanzini, izilwanyana ezingenamathambo, iintlanzi neentaka (oku kuthathelwe kulwazi olugqibeleleyo obe lukho ngethuba lokufakwa kwesaziso sikarhulumente)**

I-IUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile	I-RU	Umjelo wamanzi	I-EC engqali weyo	ICandelo	ICandelwana Sub-	Isalathisi	I-RQO	
									Yobaliso	Yobalo
IUA T36_b	I	T36B	MRU Estuary	Ichweba lomlambo iMzimvubu	B	Hydrology	-	Khusela ummandla wamanzi ukuze uvule indawo yokuphila kweentaka, iintlanzi, izityalo zasemanzini nekwaliti yamanzi	• Utshintsho kwindlela abuyiselwa ngayo amanzi emilanjeni (oko kukuthi iimpuphuma namanzi asemgangathweni) ngaphantsi nge- 5% kulaa Mboniso 69 (oko kukuthi umboniso wamanzi angqaliweyo).	Gcina i- TEC = A (> 92%).
						Utshintshatshintsho lwamanzi	-	Gcina imeko yomlomo womlambo intle ukukhusela oko kuphila echwebeni nakwiindawo ezibandakanyekayo zokuphila iintaka, iintlanzi, izityalo zasemanzini nekwaliti yamanzi	• Umlomo lo wechweba mawungavalwa okanye ucutheke • Utshintsho kwindlela abetha ngayo amaza malungabingaphezu kwe 20% kule mo yangoku (yiya ku DWS, 2014a, 2014b no 2017).	Gcina i- TEC = A (> 92%).
						Ikwaliti yamanzi	Ubukho beetyuwa emanzini	Ikwaliti yamanzi mayifanele ukugcina iTEC ukwenzela loo macandelo axhomekeke kwizinto eziphilayo	▪ Ubukho betyuwa phaya emazantsi mabube ngaphezu kuka- 20 ukuya ubuncikane kwiinyanga 4 -6 months (oko kukuthi ziphumela kwixesha lasebusika) ▪ Ubukho betyuwa phaya emazantsi mabube ngaphezu kuka- 25, ze phaya embindini bube ngaphezu ko 15 kwisithuba senyanga 1ukuya kwezi- 2 (oko kukuthi ziphumela kwixesha lasebusika	Gcina i- TEC = A/B (> 87%).
							I-pH		Umlambo : i-pH 7.0 - 8.5 Ichweba lomlambo : i-pH 7.0 - 8.5	Gcina i- TEC = C (> 63%).
							i-oksijini enyibilikileyo		Umlambo : DO > 6 mg/ℓ Ichweba lomlambo DO > 6 mg/ℓ	

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I-HUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile	I-RU	Umjelo wamanzi	I-EC engqali weyo	ICandelo	ICandelwan a Sub-	Isalathisi	I-RQO	
									Yobaliso	Yobalo
							Ubukho bodaka		Umlambo: unodaka ngendalo Ichweba lomlambo: linodaka ngendalo	
							Izondlo		Umlambo : ▪ INitrogen (DIN) engaphiliyo enyibilikileyo < 200 µg/ℓ (i-avareji rhoqo ngenyanga) ▪ I Phosphate (DIP) engaphiliyo enyibilikileyo < 30 µg/ℓ (i-avareji rhoqo ngenyanga). Ichweba lomlambo : ▪ INitrogen (DIN) engaphiliyo) < 150 µg/ℓ (i-vareji kulo lonke ichweba) ▪ I Phosphate (DIP) engaphiliyo enyibilikileyo < 20 µg/ℓ (i-vareji kulo lonke ichweba)	
							lityhefu		▪ Ukujiya kwemethali emanzini makungadluli amaxabiso anggaliweyo ngokwe- South African Water Quality Guidelines ngamanzi aselunxwemeni (DWAF, 1995 okanye ke loo maqondo akhutshwa ngokusesikweni kwixesha elizayo) ▪ Ukujiya kwemethali kwiintlenge zomhlaba mabungadluli kumaxabiso anggaliweyo ngokwe- WIO Region guidelines (UNEP/Nairobi Convention Secretariat and CSIR, 2009 okanye ke loo maqondo akhutshwa ngokusesikweni kwixesha elizayo eMzantsi Afrika)	
							lintsholongwane		Kuloo mimandla isetyenziselwa ulonwabo echwebeni (yiya ku-DEA, 2012): ▪ Enterococci < 185 counts per 100 ml (90th percentile), and ▪ E. coli < 500 counts per 100	-

I-IUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile	I-RU	Umjelo wamanzi	I-EC engqali weyo	ICandelo	ICandelwana Sub-	Isalathisi	I-RQO	
									Yobaliso	Yobalo
									ml (90th percentile).	
						Utshintshatshintsho lweentlenge zomhlaba				Gcina i- TEC = A/B (> 87%)
						ii-Microalgae				Gcina i- TEC = C (> 63%)
						ii-Macrophytes				Gcina i- TEC = C (> 63%)
						Izilwanyana ezingenamathambo				Gcina i- TEC = A/B (> 87%)
						Iintlanzi				Gcina i- TEC = B/C (> 72%)
						Iintaka				Gcina i- TEC= C/D (> 60%).

Uluhlu lweencwadi ezisetyenzisiweyo

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UTafile 8 ubonisa iiRQOs ngomwonyo ngamnye wongxamiseko oluphezulu kwindawo yoboniselo ngamanzi iMzimvubu catchment.

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UTafile 8 Ii-RQOs zemiwonyo yongxamiseko oluphezulu ngendawo yoboniselo ngamanzi iMzimvubu

I-IUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile	I-RU	Umjelo wamanzi	I-TEC	ICandelo	Icandelwana	Isalathisi	I-RQO	
									Yobaliso	Yobalo
IUA T31	II	T31D, T31E, T31F: T31D-05076, T31E-05013, T31F-05112, T31F-05108, T31F-05111	T31-5, T31-12, T31-13	Wetlands: Mzimvubu floodplains	C	Umthamo	Ufundo ngamanzi	Inqaku lofundo ngamanzi emiwonyo uhlolo oluneenkcukhaca lofundo namanzi emiwonyo kusetyenzziswa isixhobo iPES	Umthamo nexesha lezimvo, neepethini zosasazo nogcino ngaphakathi emwonyweni emazigcinwe ukuthintela ukuphela komsebenzi womwonyo wokugcina amanzi.	
							Iimpuphuma ezingenkulu kuyaphi ngokudama	Inqaku lefuthe phakathi kwiWet-Health	Iqondo langoku lokudama ngaphakathi emwonyweni malingavunyelwa ukuba linyuke	Iqondo lomoya lokudama kummandla ozotyiweyo womwonyo mawungadluli kwi- 8.4%.
						Ikwaliti			Iinkcukhaca ezimbaxa zezalathisi zekwaliti yamanzi zalo mwonyo bezingekho futhi kungekho nazi RQOs zimbaxa ezinxulumene nekwaliti yamanzi eziye zangqinwa/ zathathwa.	
						Indawo yokuphila	Utyani nje olufumaneka emiwonyweni	Inqaku lefuthe Inqaku lotyani lwasemiwonyweni kunye nePES njengoko kuhlolwe nge Wet-Health.	Utyani lomwonyo malugcinwe ukuqinisekisa ukuba isimo sokuphilisana nemisebenzi igcinwe ngohlobo.	Imeko yangoku ngu- D (inqaku lefuthe elingu 4.7), lo gama yona iTEC ingu- C (inqaku lefuthe elingu- 3.9 okanye ngaphantsi). Iindlela zobalo mazilingane nala manani, kungenjalo ziphucule ixabiso .
							Ukuphela koqhawuqhawu kano ngenxa yemisebenzi yezolimo	Inqaku lefuthe (iqondo lomoya) njengoko kuhlolwe nge Wet-Health.	Imisebenzi ethe ngqo yezolimo nemihlaba yokukhula izityalo mayingavunyelwa ukuba yande ngokweqondo ngaphakathi kummandla womwonyo.	Iqondo lomoya lemisebenzi yezolimo nemihlaba yokukhula izityalo ngaphakathi kummandla ozotyiweyo womwonyo malingadluli kwi- 20%.

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I-IUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile	I-RU	Umjelo wamanzi	I-TEC	ICandelo	Icandelwana	Isalathisi	I-RQO	
									Yobaliso	Yobalo
						I-Biota	Ukuphela koqhawuqhawukano ngenxa yezixhobo nezakhiwo zamanzi, njengemibhobho, iifolo neziziba	Inqaku lefuthe (iqondo lomoya) njengoko kuhlolwe nge Wet-Health.	Uphuhliso olongezelelekileyo lwezixhobo nezakhiwo malungavunyelwa ngaphakathi kummandla womwonyo .	Iqondo lomoya lezixhobo nezakhiwo eziquka imibhobho, iifolo neziziba ngaphakathi kummandla ozotyiweyo womwonyo malingadluli kwi -5%.
							IPES yotyani iyonke	Inqaku lefuthe Inqaku lotyani lwasemiwonyweni kunye nePES njengoko kuhlolwe nge Wet-Health	Iyonke iPES yomwonyo,, njengoko kubonisiwe kwicandelo le Wet-Health, mayigcinwe kungenjalo iTEC mayizuzwe.	Imeko yangoku ngu- D (inqaku lefuthe elingu 4.7), lo gama yona iTEC ingu- C (inqaku lefuthe elingu- 3.9 okanye ngaphantsi). Iindlela zobalo mazilingane nala manani, kungenjalo ziphucule ixabiso .
							Iindidi zeentaka ezitshabalalayo	Imigqeku yeentaka eziliqela eziludidi olwandayo	Umthamo wamanzi, imeko yotyani nezenzo zosetyenziso lomhlaba mazigcinwe ukuze zingabangeli ukwehla kwenani lomgqeku .	Zikho zona iinkcukhaca kodwa khange zifumaneke ngethuba lolu hlolo
							Utyani olutshabalalisayo lwezityalo ezisuka kwamanye amazwe	Inqaku lefuthe (iqondo lomoya) njengoko kuhlolwe nge Wet-Health	Utyani lwezityalo ezisuka ngaphandle ezitshabalalisayo eziphakathi kummandla womwonyo maluqwalaselwe ukuze lungandi ngokweqondo lomoya..	Iqondo lomoya lotyani lwezityalo ezisuka kwamanye amazwe ezitshabalalisayo ngaphakathi kummandla ozotyiweyo womwonyo malingadluli kwi -3%.

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I-IUA	Ihlelo lomjelo wamanzi	Indawo yoboniselo yexesha elithile	I-RU	Umjelo wamanzi	I-TEC	ICandelo	Icandelwana	Isalathisi	I-RQO	
									Yobaliso	Yobalo
IUA T33_a	II	T33A: T33A-04990, T33A-04991, T33A-05011	T33-1 T33-2 T33-3	Wetlands: Matatiele Floodplains	C	Umthamo wamanzi	Ufundo ngamanzi	Inqaku lofundo ngamanzi emiwonyo uhlolo oluneenkcukhaca lofundo namanzi emiwonyo kusetyenziswa isixhobo iPES	Umthamo nexesha lezimvo, neepethini zosasazo nogcino ngaphakathi emwonyweni emaziginwe ukuthintela ukuphela komsebenzi womwonyo wokugcina amanzi.	
							Iimpuphuma ezingenkulu kuyaphi ngokudama	Inqaku lefuthe phakathi kwiWet-Health	Iqondo langoku lokudama ngaphakathi emwonyweni malingavunyelwa ukuba linyuke .	Iqondo lomoya lokudama kummandla ozotyiweyo womwonyo mawungadluli kwi- 2.2%.
						Indawo yokuphila	Utyani nje olufumaneka emiwonyweni	Inqaku lefuthe Inqaku lotyani lwasemiwonyweni kunye nePES njengoko kuhlolwe nge Wet-Health.	Utyani lomwonyo malugcinwe ukuqinisekisa ukuba isimo sokuphilisana nemisebenzi igcinwe ngohlobo.	Imeko yangoku ngu- D (inqaku lefuthe elingu 5.5), lo gama yona iTEC ingu- C (inqaku lefuthe elingu- 3.9 okanye ngaphantsi). lindlela zobalo mazilingane nala manani, kungenjalo ziphucule ixabiso .
							Ukuphela koqhawuqhawu kano ngenxa yemisebenzi yezolimo	Inqaku lefuthe (iqondo lomoya) njengoko kuhlolwe nge Wet-Health.	Imisebenzi ethe ngqo yezolimo nemihlaba yokukhula izityalo mayingavunyelwa ukuba yande ngokweqondo ngaphakathi kummandla womwonyo.	Iqondo lomoya lemisebenzi yezolimo nemihlaba yokukhula izityalo ngaphakathi kummandla ozotyiweyo womwonyo malingadluli kwi- 34%.
							Ukuphela koqhawuqhawu kano ngenxa yezixhobo nezakhiwo zamanzi, njengemibhobho, iifolo neziziba	Inqaku lefuthe (iqondo lomoya) njengoko kuhlolwe nge Wet-Health.	Uphuhliso olongezelelekileyo lwezixhobo nezakhiwo malungavunyelwa ngaphakathi kummandla womwonyo.	Iqondo lomoya lezixhobo nezakhiwo eziquka imibhobho, iifolo neziziba ngaphakathi kummandla ozotyiweyo womwonyo malingadluli kwi - 4.5%.
							IPES yotyani iyonke	Inqaku lotyani lwasemiwonyweni kunye nePES njengoko kuhlolwe nge Wet-Health.	Iyonke iPES yomwonyo., njengoko kubonisiwe kwicandelo le Wet-Health, mayigcinwe kungenjalo iTEC mayizuzwe.	Imeko yangoku ngu- D (inqaku lefuthe elingu 5.5), lo gama yona iTEC ingu- C (inqaku lefuthe elingu- 3.9 okanye ngaphantsi). lindlela zobalo mazilingane nala manani, kungenjalo

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					ziphucule ixabiso .
	I-Biota	Utyani olutshabalalisa yo lwezityalo ezisuka kwamanye amazwe	Ingaku lefuthe (iqondo lomoya) njengoko kuhlolwe nge Wet-Health.	Utyani lwezityalo ezisuka ngaphandle ezitshabalalisayo eziphakathi kummandla womwonyo maluqwalaselwe ukuze lungandi ngokweqondo lomoya.	Iqondo lomoya lotyani lwezityalo ezisuka kwamanye amazwe ezitshabalalisayo ngaphakathi kummandla ozotyiweyo womwonyo malingadluli kwi - 3%.
	Ikwaliti			linkcukhaca ezimbaxa zezalathisi zekwaliti yamanzi zalo mwonyo bezingekho futhi kungekho nazi RQOs zimbaxa ezinxulumene nekwaliti yamanzi eziye zangqinwa/ zathathwa.	

IUA	Water Resource Class	Quaternary Catchment	RU	Water Resource	TEC	Component	Sub-component	Indicator	RQO	
									Narrative	Numerical
T35_b	I	T35G: T35G-06099, T35G-06133, T35G-06118	T35-7, MRU Gat	Wetlands: Gatberg Floodplains	B	Umthamo wamanzi	Ufundo ngamanzi	Inqaku lofundo ngamanzi emiwonyo uhlolo olumbaxa lofundo namanzi emiwonyo kusetyenziswa isixhobo iPES.		Inqaku lofundo ngamanzi emiwonyo uhlolo olumbaxa lofundo namanzi emiwonyo kusetyenziswa isixhobo iPES.
							Iimpuphuma ezingenkulu kuyaphi ngokudama	Inqaku lefuthe phakathi kwiWet-Health	Iqondo lomoya lokudama kummandla ozotyiweyo womwonyo mawungadluli ku- 0%.	Inqaku lefuthe phakathi kwiWet-Health
						Indawo yokuphila	Utyani nje olufumaneka emiwonyweni	Inqaku lefuthe: Inqaku lotyani lwasemiwonyweni kunye nePES njengoko kuhlolwe nge Wet-Health.	Imeko yangoku ngu- B (inqaku lefuthe elingu 1.8). Iindlela zobalo mazilingane nala manani, kungenjalo ziphucule ixabiso	Inqaku lefuthe: Inqaku lotyani lwasemiwonyweni kunye nePES njengoko kuhlolwe nge Wet-Health.
							Ukuphela koqhawuqhawu kano ngenxa yemisebenzi yezolimo	Inqaku lefuthe (iqondo lomoya) njengoko kuhlolwe nge Wet-Health.	Iqondo lomoya lemisebenzi yezolimo nemihlaba yokukhula izityalo ngaphakathi kummandla ozotyiweyo womwonyo malingadluli kwi- 3.5%.	Inqaku lefuthe (iqondo lomoya) njengoko kuhlolwe nge Wet-Health.
							Ukuphela koqhawuqhawu kano ngenxa yamahlathi oshishino	Inqaku lefuthe (iqondo lomoya) njengoko kuhlolwe nge Wet-Health.	Iqondo lomoya lwamahlathi oshishino kummandla ozotyiweyo womwonyo malingadluli kwi-10%.	Inqaku lefuthe (iqondo lomoya) njengoko kuhlolwe nge Wet-Health.
							Ukuphela koqhawuqhawu kano ngenxa yezixhobo nezakhiwo zamanzi, njengemibhobho, iifolo neziziba	Inqaku lefuthe (iqondo lomoya) njengoko kuhlolwe nge Wet-Health.	Iqondo lomoya lezixhobo nezakhiwo eziquka imibhobho, iifolo neziziba ngaphakathi kummandla ozotyiweyo womwonyo malingadluli kwi - 2%.	Inqaku lefuthe (iqondo lomoya) njengoko kuhlolwe nge Wet-Health.

							IPES yotyani iyonke	Inqaku lotyani lwasemiwonyweni kunye nePES njengoko kuhlolwe nge Wet-Health.	Imeko yangoku ngu- B (inqaku lefuthe elingu 1.8). Iindlela zobalo mazilingane nala manani, kungenjalo ziphucule ixabiso .	Inqaku lotyani lwasemiwonyweni kunye nePES njengoko kuhlolwe nge Wet-Health.
							Iindidi zeentaka ezitshabalalayo	Imigqeku yeentaka eziliqela eziludidi olwandayo.		Imigqeku yeentaka eziliqela eziludidi olwandayo.
						I-Biota	Utyani olutshabalalisayo lwezityalo ezisuka kwamanye amazwe .	Inqaku lefuthe (iqondo lomoya) njengoko kuhlolwe nge Wet-Health.	Iqondo lomoya lotyani lwezityalo ezisuka kwamanye amazwe ezitshabalalisayo ngaphakathi kummandla ozotyiweyo womwonyo malingadluli ku-1%.	Inqaku lefuthe (iqondo lomoya) njengoko kuhlolwe nge Wet-Health.

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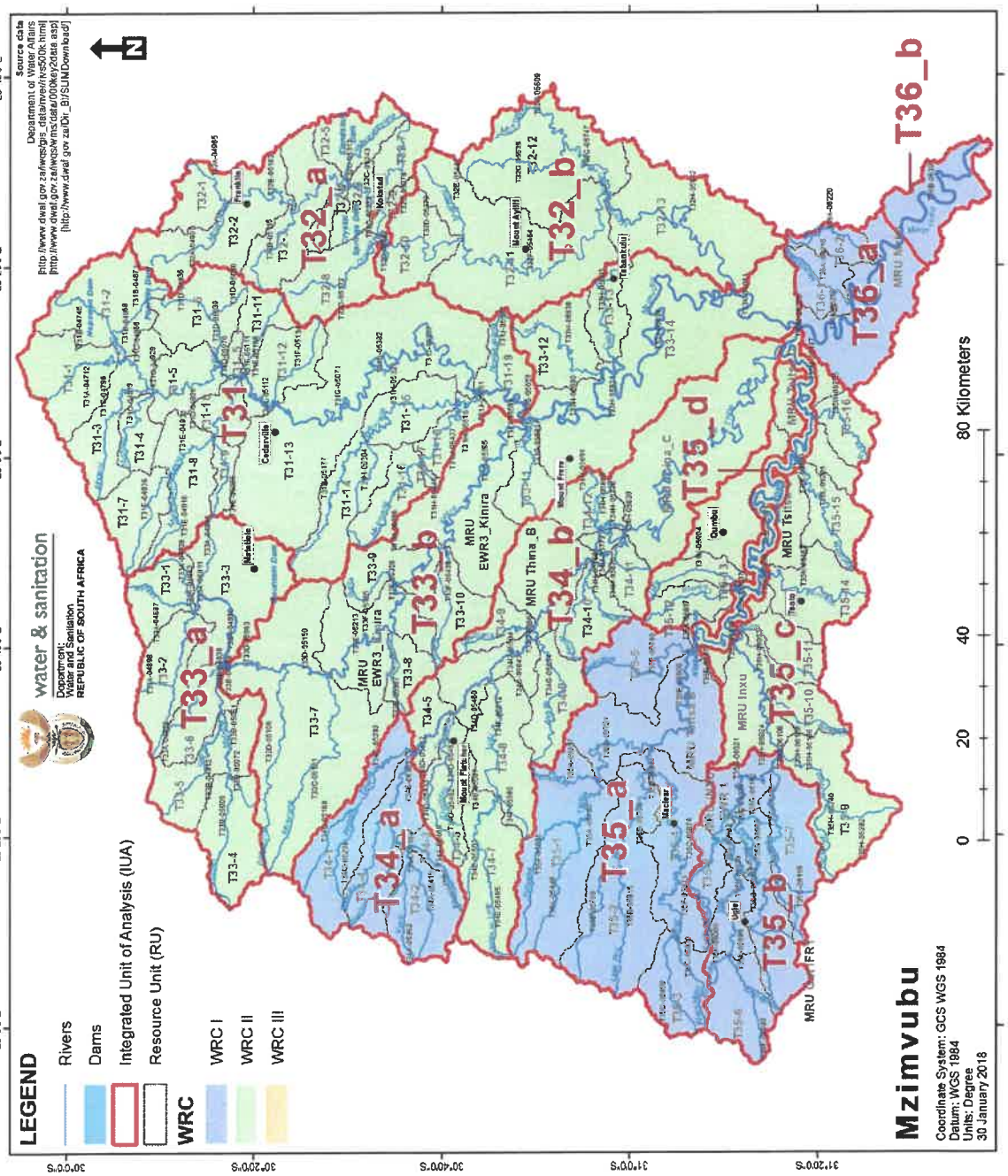

Umzobo 1 Amahlelo emijelo yamanzi ngee- IUAs zendawo yoboniselo ngamanzi iMzimvubu.

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