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REPUBLIC OF SOUTH AFRICA
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PART 1 OF 4

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

Weekly Index

No.		Page No.	Gazette No.
	GOVERNMENT NOTICE		
Agriculture, Forestry and Fisheries, Department of			
867	Plant Breeders' Rights Act (15/1976) :Receipts of Applications for Plant Breeders' Rights	15	41854
R.886	Marketing of Agricultural Products Act (47/1996) :Amendment of statutory measures for maize products and wheaten products.....	11	41855
Arts and Culture, Department of			
868	National Heritage Resources Act (25/1999) :Draft Regulations by the Minister of Arts and Culture in terms of Section 41 of the Act.....	23	41854
869	National Heritage Resources Act (25/1999) :Identified types of objects that are protected, and may not be exported withou a permit from the South African Heritage Resources Agency (SAHRA)	30	41854
Communications, Department of			
R.887	Film and Publication Act (65/1996) :Government Gazette Notice for public comment in respect of the revised classification guidelines in terms of the act.....	13	41855
Economic Development Department			
870	International Trade Administration Commission :Notice of termination of an investigation into the alleged dumping of detonating fuses and delay detonators (commonly known as shock tubes), originating in or imported from the People's Republic of China (China).....	36	41854
Energy, Department of			
897	Draft Integrated Resource Plan, 2018 :Request for comments.....	4	41865
919	Petroleum Pipelines Levies Act (28/2004) :Levy and Interest payable on Petroleum Pipelines Industry.....	4	41872
920	Gas Regulator Levies Act (75/2002) :Levy and Interest Payable on Pipes-Gas Industry	5	41872
Higher Education and Training, Department of			
895	Continuing Educatiuon and Training Act (16/2006) :Amendment to Notice relating to Establishment of the Limpopo Community Education and Training College	4	41862

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

Weeklikse Indeks

No.		Bladsy No.	Koerant No.
	GOEWERMENTSKENNISGEWINGS		
Landbou, Bosbou en Visserye, Departement van			
867	Plant Breeders' Rights Act (15/1976) :Receipts of Applications for Plant Breeders' Rights	15	41854
R.886	Marketing of Agricultural Products Act (47/1996) :Amendment of statutory measures for maize products and wheaten products.....	11	41855
Kuns en Kultuur, Departement van			
868	National Heritage Resources Act (25/1999) :Draft Regulations by the Minister of Arts and Culture in terms of Section 41 of the Act.....	23	41854
869	National Heritage Resources Act (25/1999) :Identified types of objects that are protected, and may not be exported withou a permit from the South African Heritage Resources Agency (SAHRA)	30	41854
Kommunikasie, Departement van			
R.887	Film and Publication Act (65/1996) :Government Gazette Notice for public comment in respect of the revised classification guidelines in terms of the act.....	13	41855
Ekonomiese Ontwikkeling Departement			
870	International Trade Administration Commission :Notice of termination of an investigation into the alleged dumping of detonating fuses and delay detonators (commonly known as shock tubes), originating in or imported from the People's Republic of China (China).....	36	41854
Energie, Departement van			
897	Draft Integrated Resource Plan, 2018 :Request for comments.....	4	41865
919	Petroleum Pipelines Levies Act (28/2004) :Levy and Interest payable on Petroleum Pipelines Industry.....	4	41872
920	Gas Regulator Levies Act (75/2002) :Levy and Interest Payable on Pipes-Gas Industry	5	41872
Hoër Onderwys en Opleiding, Departement van			
895	Continuing Educatiuon and Training Act (16/2006) :Amendment to Notice relating to Establishment of the Limpopo Community Education and Training College	4	41862

No.		Page No.	Gazette No.
International Relations and Cooperations, Department of			
871	Diplomatic Immunities and Privileges Act (37/2001) :Publication of Immunities and Privileges	37	41854
Labour, Department of			
R.888	Labour Relations Act, 1995 :Registration of a Trade Union	14	41855
R.889	Labour Relations Act, 1995 :National Bargaining Council for the Electrical Industry of South Africa: Extension of period of Operation of the Collective Bargaining Levy Agreement	15	41855
Rural Development and Land Reform, Department of			
872	Restitution of Land Rights Act (22/1994) :The land within Olifantshoek 106 LT, Vhembe	56	41854
873	Restitution of Land Rights Act (22/1994) :Extension 7, Delareyville	57	41854
874	Restitution of Land Rights Act (22/1994) as amended :Mr Patrick Tjale Makgatho, Lot No. 244, Zondani Street, Eastern Native Township	59	41854
South African Revenue Service			
R.896	Customs and Excise Act, 1964 :Amendment of Schedule No. 1 (No. 1/1/1607)	4	41863
Trade and Industry, Department of			
875	Co-operatives Act, 2005 :Co-operatives to be struck from the Register	60	41854
876	Co-operatives Act, 2005 :Co-operatives to be struck from the register	61	41854
877	Legal Metrology Act (9/2014) :Final Legal Metrology Regulations	62	41854
878	Co-operatives Act, 2005 :Co-operatives to be struck from the register	297	41854
879	Co-operatives Act, 2005 :Co-Operatives to be struck from the Register	298	41854
880	Co-operatives Act, 2005 :Co-operatives to be struck from the register	299	41854
881	Co-operatives Act, 2005 :Co-operatives to be struck from the register	300	41854
882	Co-operatives Act, 2005 :Co-operatives to be struck from the register	301	41854
883	Co-operatives Act, 2005 :Co-operatives to be struck from the Register	302	41854
884	Co-operatives Act, 2005 :Co-operatives to be struck from the Register	303	41854
885	Co-operatives Act, 2005 :Co-operatives to be struck from the register	304	41854

No.		Page No.	Gazette No.
Internasionale Betrekkinge en Samewerking, Departement van			
871	Diplomatic Immunities and Privileges Act (37/2001) :Publication of Immunities and Privileges	37	41854
Arbeid, Departement van			
R.888	Labour Relations Act, 1995 :Registration of a Trade Union	14	41855
R.889	Labour Relations Act, 1995 :National Bargaining Council for the Electrical Industry of South Africa: Extension of period of Operation of the Collective Bargaining Levy Agreement	15	41855
Landelike Ontwikkeling en Grondhervorming, Departement van			
872	Restitution of Land Rights Act (22/1994) :The land within Olifantshoek 106 LT, Vhembe	56	41854
873	Restitution of Land Rights Act (22/1994) :Extension 7, Delareyville	57	41854
874	Restitution of Land Rights Act (22/1994) as amended :Mr Patrick Tjale Makgatho, Lot No. 244, Zondani Street, Eastern Native Township	59	41854
Suid-Afrikaanse Inkomstediens			
R.896	Doeane- en Aksynswet, 1964 :Wysiging van Bylae No. 1 (No. 1/1/1607)	5	41863
Handel en Nywerheid, Departement van			
875	Co-operatives Act, 2005 :Co-operatives to be struck from the Register	60	41854
876	Co-operatives Act, 2005 :Co-operatives to be struck from the register	61	41854
877	Legal Metrology Act (9/2014) :Final Legal Metrology Regulations	62	41854
878	Co-operatives Act, 2005 :Co-operatives to be struck from the register	297	41854
879	Co-operatives Act, 2005 :Co-Operatives to be struck from the Register	298	41854
880	Co-operatives Act, 2005 :Co-operatives to be struck from the register	299	41854
881	Co-operatives Act, 2005 :Co-operatives to be struck from the register	300	41854
882	Co-operatives Act, 2005 :Co-operatives to be struck from the register	301	41854
883	Co-operatives Act, 2005 :Co-operatives to be struck from the Register	302	41854
884	Co-operatives Act, 2005 :Co-operatives to be struck from the Register	303	41854
885	Co-operatives Act, 2005 :Co-operatives to be struck from the register	304	41854

GENERAL NOTICE

Independent Communications Authority of South Africa

494 Electronic Communications Act (36/2005) :Inviting comments regarding the draft Radio Frequency Migration Plan 2018..... 305 41854

503 Electronic Communications Act (36/2005) :Annexure E: Notice to be published regarding confiscated equipment..... 4 41867

519 Electronic Communications Act (36/2005) :Application for the Transfer of Licences from Umzansi African Telecoms (Pty) Ltd, t/a The Office Guru to Centracom (Pty) Ltd..... 4 41873

521 Electronic Communications Act (36/2005) :Received licence renewal applications for individual sound broadcasting service licences and radio frequency spectrum licences 4 41876

Justice and Constitutional Development, Department of

495 Promotion of Access to Information Act, 2000 :Description submitted in terms of section 15 (1)..... 505 41854

Labour, Department of

496 Labour Relations Act (55/1995), as amended :Essential Services Committee - Section (71) investigation 509 41854

National Treasury

501 Draft Financial Matters Amendment Bill, 2018 :For public comment..... 4 41864

520 Public Finance Management Act, 1999 :Statement of the National Revenue, Expenditure and Borrowings as at 31 July 2018 issued by the DG NT..... 11 41875

South African Reserve Bank

497 Currency and Exchanges Act (9/1933) :Notice and Order of Forfeiture: Mr Nadim Aboobaker 510 41854

Trade and Industry, Department of

498 Standards Act, 2008 :Standards Matters .. 511 41854

502 Broad-Based Black Economic Empowerment Amendment Act (53/2003) :Codes of Good Practice on Broad Based Black Economic Empowerment..... 4 41866

Transport, Department of

499 Air Service Licensing Act (115/1990) :Application for the grant or amendment of Domestic Air Service Licence..... 516 41854

500 International Air Service Act (60/1993) :Grant/Amendment of International Air Service License 517 41854

BOARD NOTICE

96 Financial Markets Act (19/2012) :Financial Sector Conduct Authority ("FSCA"): Proposed amendments of STRATE Rules 518 41854

ALGEMENE KENNISGEWINGS

Onafhanklike Kommunikasie-owerheid van Suid-Afrika

494 Electronic Communications Act (36/2005) :Inviting comments regarding the draft Radio Frequency Migration Plan 2018..... 305 41854

503 Electronic Communications Act (36/2005) :Annexure E: Notice to be published regarding confiscated equipment..... 4 41867

519 Electronic Communications Act (36/2005) :Application for the Transfer of Licences from Umzansi African Telecoms (Pty) Ltd, t/a The Office Guru to Centracom (Pty) Ltd..... 4 41873

521 Electronic Communications Act (36/2005) :Received licence renewal applications for individual sound broadcasting service licences and radio frequency spectrum licences 4 41876

Justisie en Staatkundige Ontwikkeling, Departement van

495 Promotion of Access to Information Act, 2000 :Description submitted in terms of section 15 (1)..... 505 41854

Arbeid, Departement van

496 Labour Relations Act (55/1995), as amended :Essential Services Committee - Section (71) investigation 509 41854

Nasionale Tesourie

501 Draft Financial Matters Amendment Bill, 2018 :For public comment..... 4 41864

520 Public Finance Management Act, 1999 :Statement of the National Revenue, Expenditure and Borrowings as at 31 July 2018 issued by the DG NT..... 11 41875

Suid-Afrikaanse Reserwebank

497 Currency and Exchanges Act (9/1933) :Notice and Order of Forfeiture: Mr Nadim Aboobaker 510 41854

Handel en Nywerheid, Departement van

498 Standards Act, 2008 :Standards Matters .. 511 41854

502 Broad-Based Black Economic Empowerment Amendment Act (53/2003) :Codes of Good Practice on Broad Based Black Economic Empowerment..... 4 41866

Vervoer, Departement van

499 Air Service Licensing Act (115/1990) :Application for the grant or amendment of Domestic Air Service Licence..... 516 41854

500 International Air Service Act (60/1993) :Grant/Amendment of International Air Service License 517 41854

RAADSKENNISGEWINGS

96 Financial Markets Act (19/2012) :Financial Sector Conduct Authority ("FSCA"): Proposed amendments of STRATE Rules 518 41854

No.		Page No.	Gazette No.
97	Construction Industry Development Board, 2004 (as amended) :Findings and sanctions of the investigating committee as set out in the Schedule	519	41854

No.		Page No.	Gazette No.
97	Construction Industry Development Board, 2004 (as amended) :Findings and sanctions of the investigating committee as set out in the Schedule	519	41854

IMPORTANT NOTICE:

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NO FUTURE QUERIES WILL BE HANDLED IN CONNECTION WITH THE ABOVE.

Contents

No.		Gazette No.	Page No.
GOVERNMENT NOTICES • GOEWERMENTSKENNISGEWINGS			
Basic Education, Department of/ Basiese Onderwys, Departement van			
926	General and Further Education and Training Quality Assurance Act (58/2001): Approval of the Council for General and Further Education and Training Quality Assurance ("Umalusi's") Policy for the Quality Assurance of Private Colleges for Continuing Education and Training, offering qualifications registered on the General and Further Education and Training Qualifications Sub-Framework, and the Accreditation of Private Assessment Bodies	41887	16
Higher Education and Training, Department of/ Hoër Onderwys en Opleiding, Departement van			
927	Higher Education Act (101/1997): Amended Institutional Statute: University of the Western Cape	41887	70
Home Affairs, Department of/ Binnelandse Sake, Departement van			
928	Births and Deaths Registration Act (51/1992): Alteration of Forenames	41887	112
Rural Development and Land Reform, Department of/ Landelike Ontwikkeling en Grondhervorming, Departement van			
929	Restitution of Land Rights Act (22/1994): Kameelputs Farm No. 156	41887	121
930	Restitution of Land Rights Act (22/1994): Lot No. 25, Eastwood	41887	122
Trade and Industry, Department of/ Handel en Nywerheid, Departement van			
931	Co-operatives Act, 2005: Co-operatives to be struck from the register	41887	123
Water and Sanitation, Department of/ Water en Sanitasie, Departement van			
932	National Water Act, 1998 (36/1998): Reserve Determination of water resources for the Olifants and Letaba Catchments	41887	124
GENERAL NOTICES • ALGEMENE KENNISGEWINGS			
Agriculture, Forestry and Fisheries, Department of/ Landbou, Bosbou en Visserye, Departement van			
534	Marketing of Agricultural Products Act (47/1996): Press Release - Potato Industry: Application for the continuation of statutory measures	41887	386
535	Marketing of Agricultural Products Act: Press release: Potato Industry–Application for the continuation of statutory measures	41887	388
536	National Forests Act (84/1998): Notice of the list of protected tree species under the Act	41887	390
Labour, Department of/ Arbeid, Departement van			
537	Labour Relations Act (66/1995), as amended: List of Private Agencies that have been Accredited by the CCMA for Conciliation and/or Arbitration and/or Inquiry by Arbitrator, with the terms of Accreditation attached for the period 1 August 2018 to 31 August 2018	41887	393
538	Employment Services Act (4/2014): Notice of the Productivity SA Annual General Meeting (AGM)	41887	396
Rural Development and Land Reform, Department of/ Landelike Ontwikkeling en Grondhervorming, Departement van			
539	Restitution of Land Rights Act (22/1994) as amended: Previous owners and tenants have lodged individual claims on various erven	41887	397
South African Reserve Bank/ Suid-Afrikaanse Reserwebank			
540	The Banks Act (94/1990): Withdrawal of consent granted in terms of section 34 of the Act to maintain a representative office of a Foreign Institution in the Republic of South Africa: Bank One Limited	41887	403
541	Mutual Banks Act (124/1993): Registration–Bank Zero Mutual Bank	41887	403
542	Banks Act (94/1990): Withdrawal of consent granted in terms of section 34 of the Banks Act to maintain a representative office of a foreign institution in the Republic of South Africa: Novo Banco, S.A.	41887	404
Tourism, Department of/ Toerisme, Departement van			
543	Tourism Act (3/2014): Regulations in respect of the National Tourism Information and Monitoring System	41887	405
Trade and Industry, Department of/ Handel en Nywerheid, Departement van			
544	Standards Act (8/2008): Standards Matters	41887	419
Transport, Department of/ Vervoer, Departement van			
545	Air Service Licensing Act (115/1990): Application for the grant or amendment of domestic air service licence	41887	422
546	Air Service Licensing Act (115/1990): Grant/amendment of international air service license	41887	423

BOARD NOTICES • RAADSKENNISGEWINGS

100	Restitution of Land Rights Act (22/1994), as amended: Erven 24819 (portion of Erf 21866), Remainder of Erf 21866, 21864, 21865 and 21945, Cape Town at Maitland	41887	424

Closing times for **ORDINARY WEEKLY** *GOVERNMENT GAZETTE* 2018

*The closing time is **15:00** sharp on the following days:*

- **28 December 2017,** Thursday for the issue of Friday **05 January 2018**
- **05 January,** Friday for the issue of Friday **12 January 2018**
- **12 January,** Friday for the issue of Friday **19 January 2018**
- **19 January,** Friday for the issue of Friday **26 January 2018**
- **26 January,** Friday for the issue of Friday **02 February 2018**
- **02 February,** Friday for the issue of Friday **09 February 2018**
- **09 February,** Friday for the issue of Friday **16 February 2018**
- **16 February,** Friday for the issue of Friday **23 February 2018**
- **23 February,** Friday for the issue of Friday **02 March 2018**
- **02 March,** Friday for the issue of Friday **09 March 2018**
- **09 March,** Friday for the issue of Friday **16 March 2018**
- **15 March,** Thursday for the issue of Friday **23 March 2018**
- **22 March,** Thursday for the issue of Thursday **29 March 2018**
- **28 March,** Wednesday for the issue of Friday **06 April 2018**
- **06 April,** Friday for the issue of Friday **13 April 2018**
- **13 April,** Friday for the issue of Friday **20 April 2018**
- **19 April,** Thursday for the issue of Thursday **26 April 2018**
- **25 April,** Wednesday for the issue of Friday **04 May 2018**
- **04 May,** Friday for the issue of Friday **11 May 2018**
- **11 May,** Friday for the issue of Friday **18 May 2018**
- **18 May,** Friday for the issue of Friday **25 May 2018**
- **25 May,** Friday for the issue of Friday **01 June 2018**
- **01 June,** Friday for the issue of Friday **08 June 2018**
- **08 June,** Friday for the issue of Friday **15 June 2018**
- **15 June,** Friday for the issue of Friday **22 June 2018**
- **22 June,** Friday for the issue of Friday **29 June 2018**
- **29 June,** Friday for the issue of Friday **06 July 2018**
- **06 July,** Friday for the issue of Friday **13 July 2018**
- **13 July,** Friday for the issue of Friday **20 July 2018**
- **20 July,** Friday for the issue of Friday **27 July 2018**
- **27 July,** Friday for the issue of Friday **03 August 2018**
- **02 August,** Thursday for the issue of Friday **10 August 2018**
- **10 August,** Friday for the issue of Friday **17 August 2018**
- **17 August,** Friday for the issue of Friday **24 August 2018**
- **24 August,** Friday for the issue of Friday **31 August 2018**
- **31 August,** Friday for the issue of Friday **07 September 2018**
- **07 September,** Friday for the issue of Friday **14 September 2018**
- **14 September,** Friday for the issue of Friday **21 September 2018**
- **20 September,** Thursday for the issue of Friday **28 September 2018**
- **28 September,** Friday for the issue of Friday **05 October 2018**
- **05 October,** Friday for the issue of Friday **12 October 2018**
- **12 October,** Friday for the issue of Friday **19 October 2018**
- **19 October,** Friday for the issue of Friday **26 October 2018**
- **26 October,** Friday for the issue of Friday **02 November 2018**
- **02 November,** Friday for the issue of Friday **09 November 2018**
- **09 November,** Friday for the issue of Friday **16 November 2018**
- **16 November,** Friday for the issue of Friday **23 November 2018**
- **23 November,** Friday for the issue of Friday **30 November 2018**
- **30 November,** Friday for the issue of Friday **07 December 2018**
- **07 December,** Friday for the issue of Friday **14 December 2018**
- **13 December,** Thursday for the issue of Friday **21 December 2018**
- **19 December,** Wednesday for the issue of Friday **28 December 2018**

LIST OF TARIFF RATES

FOR PUBLICATION OF NOTICES

COMMENCEMENT: 1 APRIL 2018

NATIONAL AND PROVINCIAL

Notice sizes for National, Provincial & Tender gazettes 1/4, 2/4, 3/4, 4/4 per page. Notices submitted will be charged at R1008.80 per full page, pro-rated based on the above categories.

Pricing for National, Provincial - Variable Priced Notices		
Notice Type	**Page Space**	**New Price (R)**
Ordinary National, Provincial	1/4 - Quarter Page	252.20
Ordinary National, Provincial	2/4 - Half Page	504.40
Ordinary National, Provincial	3/4 - Three Quarter Page	756.60
Ordinary National, Provincial	4/4 - Full Page	1008.80

EXTRA-ORDINARY

All Extra-ordinary National and Provincial gazette notices are non-standard notices and attract a variable price based on the number of pages submitted.

The pricing structure for National and Provincial notices which are submitted as **Extra ordinary submissions** will be charged at R**3026.32** per page.

GOVERNMENT PRINTING WORKS - BUSINESS RULES

The **Government Printing Works** (**GPW**) has established rules for submitting notices in line with its electronic notice processing system, which requires the use of electronic *Adobe* Forms. Please ensure that you adhere to these guidelines when completing and submitting your notice submission.

Closing Times for Acceptance of Notices

1. The *Government Gazette* and *Government Tender Bulletin* are weekly publications that are published on Fridays and the closing time for the acceptance of notices is strictly applied according to the scheduled time for each gazette.

2. Please refer to the Submission Notice Deadline schedule in the table below. This schedule is also published online on the Government Printing works website www.gpwonline.co.za

   All re-submissions will be subject to the standard cut-off times.
   All notices received after the closing time will be rejected.

Government Gazette Type	Publication Frequency	Publication Date	Submission Deadline	Cancellations Deadline
National Gazette	Weekly	Friday	Friday 15h00 for next Friday	Tuesday, 15h00 - 3 working days prior to publication
Regulation Gazette	Weekly	Friday	Friday 15h00 for next Friday	Tuesday, 15h00 - 3 working days prior to publication
Petrol Price Gazette	Monthly	Tuesday before 1st Wednesday of the month	One day before publication	1 working day prior to publication
Road Carrier Permits	Weekly	Friday	Thursday 15h00 for next Friday	3 working days prior to publication
Unclaimed Monies (Justice, Labour or Lawyers)	January / September 2 per year	Last Friday	One week before publication	3 working days prior to publication
Parliament (Acts, White Paper, Green Paper)	As required	Any day of the week	None	3 working days prior to publication
Manuals	Bi- Monthly	2nd and last Thursday of the month	One week before publication	3 working days prior to publication
State of Budget (National Treasury)	Monthly	30th or last Friday of the month	One week before publication	3 working days prior to publication
Extraordinary Gazettes	As required	Any day of the week	*Before 10h00 on publication date*	*Before 10h00 on publication date*
Legal Gazettes A, B and C	Weekly	Friday	One week before publication	Tuesday, 15h00 - 3 working days prior to publication
Tender Bulletin	Weekly	Friday	Friday 15h00 for next Friday	Tuesday, 15h00 - 3 working days prior to publication
Gauteng	Weekly	Wednesday	Two weeks before publication	3 days **after** submission deadline
Eastern Cape	Weekly	Monday	One week before publication	3 working days prior to publication
Northern Cape	Weekly	Monday	One week before publication	3 working days prior to publication
North West	Weekly	Tuesday	One week before publication	3 working days prior to publication
KwaZulu-Natal	Weekly	Thursday	One week before publication	3 working days prior to publication
Limpopo	Weekly	Friday	One week before publication	3 working days prior to publication
Mpumalanga	Weekly	Friday	One week before publication	3 working days prior to publication

GOVERNMENT PRINTING WORKS - BUSINESS RULES

Government Gazette Type	Publication Frequency	Publication Date	Submission Deadline	Cancellations Deadline
Gauteng Liquor License Gazette	Monthly	Wednesday before the First Friday of the month	Two weeks before publication	3 working days **after** submission deadline
Northern Cape Liquor License Gazette	Monthly	First Friday of the month	Two weeks before publication	3 working days **after** submission deadline
National Liquor License Gazette	Monthly	First Friday of the month	Two weeks before publication	3 working days **after** submission deadline
Mpumalanga Liquor License Gazette	Bi-Monthly	Second & Fourth Friday	One week before publication	3 working days prior to publication

Extraordinary Gazettes

3. *Extraordinary Gazettes* can have only one publication date. If multiple publications of an *Extraordinary Gazette* are required, a separate Z95/Z95Prov *Adobe* Forms for each publication date must be submitted.

Notice Submission Process

4. Download the latest *Adobe* form, for the relevant notice to be placed, from the **Government Printing Works** website www.gpwonline.co.za.

5. The *Adobe* form needs to be completed electronically using *Adobe Acrobat* / *Acrobat Reader*. Only electronically completed *Adobe* forms will be accepted. No printed, handwritten and/or scanned *Adobe* forms will be accepted.

6. The completed electronic *Adobe* form has to be submitted via email to submit.egazette@gpw.gov.za. The form needs to be submitted in its original electronic *Adobe* format to enable the system to extract the completed information from the form for placement in the publication.

7. Every notice submitted **must** be accompanied by an official **GPW** quotation. This must be obtained from the *eGazette* Contact Centre.

8. Each notice submission should be sent as a single email. The email **must** contain **all documentation relating to a particular notice submission**.

   8.1. Each of the following documents must be attached to the email as a separate attachment:

      8.1.1. An electronically completed *Adobe* form, specific to the type of notice that is to be placed.

         8.1.1.1. For National *Government Gazette* or *Provincial Gazette* notices, the notices must be accompanied by an electronic Z95 or Z95Prov *Adobe* form

         8.1.1.2. The notice content (body copy) **MUST** be a separate attachment.

      8.1.2. A copy of the official **Government Printing Works** quotation you received for your notice. *(Please see Quotation section below for further details)*

      8.1.3. A valid and legible Proof of Payment / Purchase Order: **Government Printing Works** account customer must include a copy of their Purchase Order**. Non-Government Printing Works** account customer needs to submit the proof of payment for the notice

      8.1.4. Where separate notice content is applicable (Z95, Z95 Prov and TForm 3, it should **also** be attached as a separate attachment. *(Please see the Copy Section below, for the specifications)*.

      8.1.5. Any additional notice information if applicable.

GOVERNMENT PRINTING WORKS - BUSINESS RULES

9. The electronic *Adobe* form will be taken as the primary source for the notice information to be published. Instructions that are on the email body or covering letter that contradicts the notice form content will not be considered. The information submitted on the electronic *Adobe* form will be published as-is.

10. To avoid duplicated publication of the same notice and double billing, Please submit your notice **ONLY ONCE.**

11. Notices brought to **GPW** by "walk-in" customers on electronic media can only be submitted in *Adobe* electronic form format. All "walk-in" customers with notices that are not on electronic *Adobe* forms will be routed to the Contact Centre where they will be assisted to complete the forms in the required format.

12. Should a customer submit a bulk submission of hard copy notices delivered by a messenger on behalf of any organisation e.g. newspaper publisher, the messenger will be referred back to the sender as the submission does not adhere to the submission rules.

QUOTATIONS

13. Quotations are valid until the next tariff change.

    13.1. ***Take note:*** **GPW**'s annual tariff increase takes place on ***1 April*** therefore any quotations issued, accepted and submitted for publication up to ***31 March*** will keep the old tariff. For notices to be published from 1 April, a quotation must be obtained from **GPW** with the new tariffs. Where a tariff increase is implemented during the year, **GPW** endeavours to provide customers with 30 days' notice of such changes.

14. Each quotation has a unique number.

15. Form Content notices must be emailed to the *eGazette* Contact Centre for a quotation.

    15.1. The *Adobe* form supplied is uploaded by the Contact Centre Agent and the system automatically calculates the cost of your notice based on the layout/format of the content supplied.

    15.2. It is critical that these *Adobe* Forms are completed correctly and adhere to the guidelines as stipulated by **GPW**.

16. **APPLICABLE ONLY TO GPW ACCOUNT HOLDERS**:

    16.1. **GPW** Account Customers must provide a valid **GPW** account number to obtain a quotation.

    16.2. Accounts for **GPW** account customers **must** be active with sufficient credit to transact with **GPW** to submit notices.

        16.2.1. If you are unsure about or need to resolve the status of your account, please contact the **GPW** Finance Department prior to submitting your notices. (If the account status is not resolved prior to submission of your notice, the notice will be failed during the process).

17. **APPLICABLE ONLY TO CASH CUSTOMERS:**

    17.1. Cash customers doing **bulk payments** must use a **single email address** in order to use the **same proof of payment** for submitting multiple notices.

18. The responsibility lies with you, the customer, to ensure that the payment made for your notice(s) to be published is sufficient to cover the cost of the notice(s).

19. Each quotation will be associated with one proof of payment / purchase order / cash receipt.

    19.1. This means that **the quotation number can only be used once to make a payment.**

GOVERNMENT PRINTING WORKS - BUSINESS RULES

COPY (SEPARATE NOTICE CONTENT DOCUMENT)

20. Where the copy is part of a separate attachment document for Z95, Z95Prov and TForm03

20.1. Copy of notices must be supplied in a separate document and may not constitute part of any covering letter, purchase order, proof of payment or other attached documents.

The content document should contain only one notice. (You may include the different translations of the same notice in the same document).

20.2. The notice should be set on an A4 page, with margins and fonts set as follows:

Page size = A4 Portrait with page margins: Top = 40mm, LH/RH = 16mm, Bottom = 40mm; Use font size: Arial or Helvetica 10pt with 11pt line spacing;

Page size = A4 Landscape with page margins: Top = 16mm, LH/RH = 40mm, Bottom = 16mm; Use font size: Arial or Helvetica 10pt with 11pt line spacing;

CANCELLATIONS

21. Cancellation of notice submissions are accepted by **GPW** according to the deadlines stated in the table above in point 2. Non-compliance to these deadlines will result in your request being failed. Please pay special attention to the different deadlines for each gazette. Please note that any notices cancelled after the cancellation deadline will be published and charged at full cost.

22. Requests for cancellation must be sent by the original sender of the notice and must accompanied by the relevant notice reference number (N-) in the email body.

AMENDMENTS TO NOTICES

23. With effect from 01 October 2015, **GPW** will not longer accept amendments to notices. The cancellation process will need to be followed according to the deadline and a new notice submitted thereafter for the next available publication date.

REJECTIONS

24. All notices not meeting the submission rules will be rejected to the customer to be corrected and resubmitted. Assistance will be available through the Contact Centre should help be required when completing the forms. (012-748 6200 or email info.egazette@gpw.gov.za). Reasons for rejections include the following:

24.1. Incorrectly completed forms and notices submitted in the wrong format, will be rejected.

24.2. Any notice submissions not on the correct *Adobe* electronic form, will be rejected.

24.3. Any notice submissions not accompanied by the proof of payment / purchase order will be rejected and the notice will not be processed.

24.4. Any submissions or re-submissions that miss the submission cut-off times will be rejected to the customer. The Notice needs to be re-submitted with a new publication date.

GOVERNMENT PRINTING WORKS - BUSINESS RULES

APPROVAL OF NOTICES

25. Any notices other than legal notices are subject to the approval of the Government Printer, who may refuse acceptance or further publication of any notice.

26. No amendments will be accepted in respect to separate notice content that was sent with a Z95 or Z95Prov notice submissions. The copy of notice in layout format (previously known as proof-out) is only provided where requested, for Advertiser to see the notice in final Gazette layout. Should they find that the information submitted was incorrect, they should request for a notice cancellation and resubmit the corrected notice, subject to standard submission deadlines. The cancellation is also subject to the stages in the publishing process, i.e. If cancellation is received when production (printing process) has commenced, then the notice cannot be cancelled.

GOVERNMENT PRINTER INDEMNIFIED AGAINST LIABILITY

27. The Government Printer will assume no liability in respect of—

27.1. any delay in the publication of a notice or publication of such notice on any date other than that stipulated by the advertiser;

27.2. erroneous classification of a notice, or the placement of such notice in any section or under any heading other than the section or heading stipulated by the advertiser;

27.3. any editing, revision, omission, typographical errors or errors resulting from faint or indistinct copy.

LIABILITY OF ADVERTISER

28. Advertisers will be held liable for any compensation and costs arising from any action which may be instituted against the Government Printer in consequence of the publication of any notice.

CUSTOMER INQUIRIES

Many of our customers request immediate feedback/confirmation of notice placement in the gazette from our Contact Centre once they have submitted their notice – While **GPW** deems it one of their highest priorities and responsibilities to provide customers with this requested feedback and the best service at all times, we are only able to do so once we have started processing your notice submission.
GPW has a 2-working day turnaround time for processing notices received according to the business rules and deadline submissions.
Please keep this in mind when making inquiries about your notice submission at the Contact Centre.

29. Requests for information, quotations and inquiries must be sent to the Contact Centre ONLY.

30. Requests for Quotations (RFQs) should be received by the Contact Centre at least **2 working days** before the submission deadline for that specific publication.

GOVERNMENT PRINTING WORKS - BUSINESS RULES

Payment of cost

31. The Request for Quotation for placement of the notice should be sent to the Gazette Contact Centre as indicated above, prior to submission of notice for advertising.

32. Payment should then be made, or Purchase Order prepared based on the received quotation, prior to the submission of the notice for advertising as these documents i.e. proof of payment or Purchase order will be required as part of the notice submission, as indicated earlier.

33. Every proof of payment must have a valid **GPW** quotation number as a reference on the proof of payment document.

34. Where there is any doubt about the cost of publication of a notice, and in the case of copy, an enquiry, accompanied by the relevant copy, should be addressed to the Gazette Contact Centre, **Government Printing Works**, Private Bag X85, Pretoria, 0001 email: info.egazette@gpw.gov.za before publication.

35. Overpayment resulting from miscalculation on the part of the advertiser of the cost of publication of a notice will not be refunded, unless the advertiser furnishes adequate reasons why such miscalculation occurred. In the event of underpayments, the difference will be recovered from the advertiser, and future notice(s) will not be published until such time as the full cost of such publication has been duly paid in cash or electronic funds transfer into the **Government Printing Works** banking account.

36. In the event of a notice being cancelled, a refund will be made only if no cost regarding the placing of the notice has been incurred by the **Government Printing Works**.

37. The **Government Printing Works** reserves the right to levy an additional charge in cases where notices, the cost of which has been calculated in accordance with the List of Fixed Tariff Rates, are subsequently found to be excessively lengthy or to contain overmuch or complicated tabulation.

Proof of publication

38. Copies of any of the *Government Gazette* or *Provincial Gazette* can be downloaded from the **Government Printing Works** website www.gpwonline.co.za free of charge, should a proof of publication be required.

39. Printed copies may be ordered from the Publications department at the ruling price. The **Government Printing Works** will assume no liability for any failure to post or for any delay in despatching of such *Government Gazette*(s)

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Pretoria	0001	**Branch Code:** 632-005

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	Tel: 012-748 6200
Contact person for subscribers: Mrs M. Toka:	**E-mail:** subscriptions@gpw.gov.za
	Tel: 012-748-6066 / 6060 / 6058
	Fax: 012-323-9574

DEPARTMENT OF BASIC EDUCATION

NO. 926 **07 SEPTEMBER 2018**

GENERAL AND FURTHER EDUCATION AND TRAINING QUALITY ASSURANCE ACT, 2001 (ACT NO. 58 OF 2001)

APPROVAL OF THE COUNCIL FOR GENERAL AND FURTHER EDUCATION AND TRAINING QUALITY ASSURANCE ("UMALUSI'S") POLICY FOR THE QUALITY ASSURANCE OF PRIVATE COLLEGES FOR CONTINUING EDUCATION AND TRAINING, OFFERING QUALIFICATIONS REGISTERED ON THE GENERAL AND FURTHER EDUCATION AND TRAINING QUALIFICATIONS SUB-FRAMEWORK, AND THE ACCREDITATION OF PRIVATE ASSESSMENT BODIES

1. I, Grace Naledi Mandisa Pandor, Minister of Higher Education and Training, hereby, in terms of *sections 17A(1)* and *17A(2)(a)* of the *General and Further Education and Training Quality Assurance Act, 2001 (Act No. 58 of 2001)*, approve the *General and Further Education and Training Quality Assurance Council ("Umalusi's") Policy for the Quality Assurance of Private Colleges for Continuing Education and Training, offering Qualifications registered on the General and Further Education and Training Qualifications Sub-framework, and the Accreditation of Private Assessment.*

2. The document referred to in paragraph 1 is available on the Umalusi website:

www.umalusi.org.za

G.N.M. Pandor

GRACE NALEDI MANDISA PANDOR, MP

MINISTER OF HIGHER EDUCATION AND TRAINING

DATE: 8 – 3 – 2018

POLICY FOR THE QUALITY ASSURANCE OF PRIVATE [ADULT LEARNING CENTRES, FURTHER EDUCATION AND TRAINING COLLEGES] COLLEGES FOR CONTINUING EDUCATION AND TRAINING, OFFERING QUALIFICATIONS REGISTERED ON THE GENERAL AND FURTHER EDUCATION AND TRAINING QUALIFICATIONS SUB-FRAMEWORK, AND THE ACCREDITATION OF PRIVATE ASSESSMENT BODIES

ISBN:

***Policy for the Quality Assurance of Private Adult Learning Centres, Private Further Education and Training Colleges and the Accreditation of Private Assessment Bodies,* published as *Government Notice No 528 in Government Gazette No. 33237* of 28 May 2010 and amended as-**

UMALUSI
37 General van Ryneveld Street
Persequor Technopark
PRETORIA
PO Box 151
Persequor Technopark
Pretoria

South Africa
Tel: +27 12 349 1510
Fax: +27 12 349 1511

http://www.umalusi.org.za

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TABLE OF CONTENTS

Abbreviations and Acronyms **6**

Chapter 1

Definitions, Purpose and Application **7**

1. Definitions 7
2. Purpose 13
3. Application 16

Chapter 2

Legislative Context **17**

4. Underpinning legislation 17
5. Functions assigned to Umalusi 20
6. Supplementary documents 20

Chapter 3

Qualifications on the General and Further Education and Training Qualifications Sub-framework **22**

7. Qualifications on the General and Further Education and Training Qualifications Sub-framework (GFETQSF) 22

Chapter 4

Quality Assurance of Private Colleges **23**

8. Quality Assurance process 23
9. Quality Assurance of Private Colleges 24

This gazette is also available free online at **www.gpwonline.co.za**

Chapter 5

The Registration and Accreditation of Private Colleges 26

10. Registration process 26
11. Accreditation process 27
12. Accreditation process criteria 28

Chapter 6

Criteria for the Quality Assurance, Accreditation and Monitoring of Private Colleges to offer a Qualification registered on the GFETQSF 30

13. Minimum compliance standard for accreditation of Private Colleges 30
14. Criteria for Quality Assurance, Accreditation and Monitoring of Private Colleges 31

Chapter 7

Quality Assurance of Private Assessment Bodies 34

15. Accreditation requirement 34
16. Accreditation status 34
17. Accreditation process to be followed by the applicant 36
18. Umalusi's role in the accreditation process 38
19. Provisional accreditation 39
20. Accreditation of Private Assessment Bodies 39
21. Functions of Private Assessment Bodies 40
22. Registration of examination centres 40

This gazette is also available free online at **www.gpwonline.co.za**

Chapter 8

Criteria for the accreditation and Monitoring of Private Assessment Bodies **42**

23. Standard of compliance 42
24. Criteria for the Accreditation and Monitoring of Private Assessment Bodies to assess a qualification on the GFETQSF 42

Chapter 9

Withdrawal of Accreditation **47**

25. Rationale 47
26. Procedures to be followed in the event of non-compliance by Private Assessment Bodies 47
27. Procedures to be followed in the event of non-compliance by Private Colleges 48
28. Appeals procedure 49

Chapter 10

Funding **50**

29. Provision for funding by the Council 50

Chapter 11

Transitional Arrangements and Commencement of Policy **51**

30. Transitional arrangements 51
31. Short Title 51

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ABBREVIATIONS AND ACRONYMS

ABET	Adult Basic Education and Training
AET	Adult Education and Training
CET	Continuing Education and Training
DG	Director General of the Department of Higher Education and Training
DHET	Department of Higher Education and Training
GENFET	General and Further Education and Training
GFETQSF	General and Further Education and Training Qualifications Sub-framework
NQF	National Qualifications Framework
QC	Quality Council
SAQA	South African Qualifications Authority
TVET	Technical Vocational Education and Training

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CHAPTER 1

DEFINITIONS, PURPOSE AND APPLICATION

1. Definitions

The purpose of these definitions is to define the terminology used in developing this Policy.

In this Policy-

(a) any word or expression to which meaning has been assigned in the *National Qualifications Framework Act, 2008 (Act No. 67 of 2008)* and the *General and Further Education and Training Quality Assurance Act 2001, (Act No. 58 of 2001)*, shall have the meaning so assigned to it, unless the context otherwise indicates-

(b) the singular shall include the plural and *vice versa*-

"acknowledgement of receipt of application for accreditation" – means Umalusi has received a completed self-evaluation report from a private college;

"accreditation" – means the outcome of a quality assurance process of evaluating-

(a) a private assessment body to determine whether its capacity, systems, processes and products are of the appropriate quality to deliver valid, reliable, fair and credible assessments and

(b) a private college to determine whether it has, in accordance with the policy and criteria for quality assurance as set out in this Policy, the capacity to offer a qualification or part-qualifications or programmes leading to a qualification on the General and Further Education and Training Qualifications Sub-framework;

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"assessment" - means the process of identifying, gathering and interpreting information about a learner's achievement in order to-

(a) assist the learner's development and improve the process of learning and teaching; and

(b) evaluate and certify competence in order to ensure qualification credibility. Assessment includes national examinations and site-based assessment;

"assessment body" - means a juristic body accredited by Umalusi Council to quality assure internal assessment and conduct external examinations, or a department of education;

"assessed curriculum" – means the part of the intended curriculum which features in assessment or examinations;

"certification" - means the formal recognition by Umalusi Council of a qualification or part-qualification awarded to a successful learner;

"college" – means

(a) a public college that is established or declared in terms of the *CET Act* as-

(i) a technical and vocational education and training college; or

(ii) community education and training college; or

(b) a private college offering Adult Education and Training and/or Further Education and Training programmes leading towards the achievement of a qualification or part-qualification on the General and Further Education and Training Qualifications Sub-framework;

"continuing education and training" – means all post-school learning and training programmes leading to qualifications or part-qualifications on the General and Further Education and Training Qualifications Sub-framework;

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"Council" – refers to Umalusi, the Quality Council for General and Further Education and Training; as contemplated in the *National Qualifications Framework Act, 2008 (Act No. 67 of 2008),* and the *General and Further Education and Training Quality Assurance Act 2001, (Act No. 58 of 2001)*;

["curriculum" – means the necessary underpinning framework documentation provided for a qualification or part qualification to facilitate a more general understanding of its implementation in an educational system. The curriculum for a qualification or part-qualification provides a more detailed description of what is required for the purpose of the qualification or part-qualification to be fulfilled through its enactment. Syllabi for the necessary units of learning/subjects form an integral part of the curriculum.]

"curriculum" - means a statement which encompasses three components: intended curriculum, enacted curriculum and assessed curriculum;

"Department of Education" – means the Department of Higher Education;

"Director-General" – means the Director-General of the Department;

"education institution" – means an education institution which has been established, declared or registered under the-

(a) *South African Schools Act, 1996 (Act No. 84 of 1996);* and

(b) *Continuing Education and Training Act, 2006 (Act No. 16 of 2006);*

["enacted curriculum" – means everything taught and learned in an educational institution;]

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"examination centre" – means a private college registered and managed by a private accredited or public assessment body as a venue for their candidates to write examinations;

"exit point" - means a point in General and Further Education and Training at which a learner is required to demonstrate competence with a view to obtaining a documentary proof of proficiency;

"external assessment" - means assessment conducted by a public or **accredited** private assessment body, the outcomes of which count towards the achievement of a qualification or part-qualification, and means the same as external examination;

"external moderation" – means the authentication of internal and external assessment conducted by Umalusi;

"Further Education and Training" - means all learning and training programmes leading to qualifications or part-qualifications on Levels 2, 3 and 4 of the National Qualifications Framework (NQF);

"General and Further Education and Training Qualifications Sub-framework" - means the Sub-framework of the NQF for General and Further Education and Training that is developed and managed by Umalusi;

"General Education and Training" – means all learning and training programmes leading to a qualification or part-qualification on level 1 of the National Qualifications Framework;

["intended curriculum" – means the description of the skills and content and values to be taught and learned, how these are to be enacted in practice, and how they should be assessed;]

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"Internal assessment" – means any assessment, conducted by an education institution, the outcomes of which count towards the achievement of a qualification or part-qualification;

"learner" - means any person receiving or obliged to receive education at any education institution within the general and further education and training sectors;

"learning programme" – means a structured and purposeful set of learning experiences that leads to a qualification or part-qualification;

"Letter of intent" – means the private college or private assessment body's indication of its intent to apply for accreditation;

"Minister" - means the Minister of Higher Education and Training;

"moderation" – means a process which ensures that assessment of the outcomes described in the National Qualifications Framework standards or qualifications is fair, valid and reliable;

"National Qualifications Framework" (NQF) means the national qualifications **f**ramework contemplated in the *National Qualifications Framework Act, 2008*;

"part-qualification" – means an assessed unit of learning with a clearly defined purpose that is, or will be, registered as part of a qualification on the National Qualifications Framework (NQF);

"private college" – means any college that provides continuing education and training on a full-time, part-time or distance basis and which is registered or provisionally registered as a private college in terms of *Chapter 6* of the *Continuing Education and Training Act, 2006;*

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"private education institution" as contemplated in the *General and Further Education and Training Quality Assurance Act, 2001 (Act No. 58 of 2001*);

"programme" – means the same as curriculum in the Act and in this Policy;

"provisional accreditation" - means the granting of accreditation for a limited time to a private college or private assessment body that has applied for accreditation to enable such private college or private assessment body to comply with the requirements to offer or assess respectively, a qualification or part-qualification or programmes leading to a qualification or part-qualification on the General and Further Education and Training Qualifications Sub-framework;

"public college" – means any college that provides continuing education and training on a full-time, part-time or distance basis which is-

(a) established or regarded as being established as a public college under section 3 of the *Continuing Education and Training Act, 2006; or*

(b) declared as a public college under section 4 of the *Continuing Education and Training Act, 2006;*

"qualification" – as contemplated in the *National Qualifications Act, 2008 (Act No.67 of 2008)*;

"quality" – means meeting the set criteria, standards and requirements;

"quality assurance" - means the process of measuring, evaluating and reporting on quality against standards, and monitoring for ongoing improvement in the qualification or part-qualification, the curriculum, the assessment, the implementation and delivery of the curriculum and the

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capacity of the institution or assessment body to offer and/or assess the qualification or part-qualification;

"Quality Council (QC)" - as contemplated in the *National Qualifications Framework Act, 2008 (Act No.67 of 2008)*;

"registered qualification" – means a qualification registered on the National Qualifications Framework in terms of *section 13(1)(h)* of the *National Qualifications Framework Act, 2008 (Act No. 67 of 2008);*

"Registrar" – means the Director-General of the Department of Higher Education and Training;

"requirements" - means requirements as established by this Policy as determined by Council in respect of the quality assurance of private **[education and training centre]**, colleges for continuing education and training, **[further education and training college]** and accreditation of an assessment body;

"Umalusi" – means, the Quality Council for General and Further Education and Training established by the *General and Further Education and Training Quality Assurance Act, 2001 (Act No. 58 of 2001*). In terms of the *National Qualifications Framework Act, 2008 (Act No. 67 of 2008*), it is tasked to support the achievement of the objectives of the NQF and to develop and manage the General and Further Education and Training Qualifications Sub-framework.

2. [Background] Purpose

[The *General and further Education and Training Quality Assurance Act, 2001 (No 58 of 2001)* assigns responsibility for quality assurance of general and further education and training in South Africa to Umalusi, the Quality Council (QC) for Quality Assurance in General and Further Education and Training. It was established

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with the purpose of maintaining norms and standards in general and further education and training and as such its mandate includes the following:

- **Developing and maintaining a sub-framework of qualifications for general and further education and training;**
- **Quality assurance of all exit point assessment of such qualifications;**
- **Certification of learner achievements;**
- **Quality promotion amongst education institutions;**
- **Quality assurance of private adult learning centres and private further education and training colleges; and**
- **Accreditation of assessment bodies other than departments of education.]**

The *National Qualifications Framework Act, 2008 (Act No. 67 of 2008)* states that the Council must, in respect of quality assurance, do the following:

(i) develop and implement policy for quality assurance;

(ii) ensure the integrity and credibility of quality assurance;

(iii) ensure that quality assurance as is necessary for the sub-framework is undertaken.]

(1) The *General and Further Education and Training Quality Assurance Act, 2001 (Act No. No. 58 of 2001)* (hereafter referred to as the *GENFETQA Act)*, enables Umalusi to-

(a) Develop policy and criteria for the quality assurance, accreditation and monitoring of private education institutions; including private colleges as contemplated in the *Continuing Education and Training Act, 2006 (Act No. 16 of 2006)*, hereafter referred to as the *CET Act*.

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(b) Develop policy for the accreditation of assessment bodies other than departments of education as contemplated in the *CET Act*.

(c) Monitor private assessment bodies in accordance with a set of regulated accreditation criteria.

(2) The *National Qualifications Framework Act, 2008 (Act No. 67 of 2008)* (hereafter referred to as the *NQF Act)* provides for the establishment of Umalusi as a Quality Council that is responsible for the development and management of a Sub-framework of qualifications at Levels 1-4 of the National Qualifications Framework and the related quality assurance processes.

(3) In accordance with *sections 17A(2)(a), (b)* and *(c), 23(1), 23(2)(b) and (c)* and *24(1)(a)* of the *GENFETQA Act*, to be read with *section 27(i)(i)* of the *NQF Act,* the purpose of this Policy is to-

(a) **[set requirements for the]** develop policy and criteria for quality assurance of **[private adult learning centres and private further education and training colleges]** private colleges registered in terms of the *Continuing Education and Training Act, 2006 (Act No. 16 of 2006)*;

(b) develop policy for the accreditation and monitoring of assessment bodies **[in respect of general and further education and training]** other than the Department of Higher Education and Training and submit it to the Minister of Higher Education and Training to be regulated;

(c) accredit assessment bodies, subject to the outcome of the accreditation process as contemplated in *sub-paragraph (b)* above; and

(d) affirm or withdraw the accreditation status of the private college concerned.

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[In order to certify learning achievements with confidence, private adult learning centres, private further education and training colleges and assessment bodies must be inextricably linked.]

3. Application

(1) This Policy applies to-

(a) private colleges registered in terms of the *Continuing Education and Training Act, 2006 (Act No. 16 of 2006)*, *(*hereafter referred to as the *CET Act)* as amended by the *Further Education and Training Colleges Amendment Act, 2013 (Act No. 1 of 2013),* and offering qualifications or part-qualifications which are registered on the GFETQSF;

(b) private assessment bodies that quality assure formal internal assessment and conduct external examinations in accordance with the regulatory framework outlined in the national policies that govern the qualifications or part-qualifications they assess.

(2) In the event of a conflict between the *NQF Act*, the *Higher Education Act*, *1997 (Act No 101 of 1997),* the *Continuing Education and Training Act, 2006 (Act No. 16 of 2006)* as amended by the *Further Education and Training Colleges Amendment Act, 2013 (Act No. 1 of 2013),* the *Skills Development Act, 1998 (Act No 97 of 1998)* and the *GENFETQA Act*, the *NQF Act*, must be given preference.

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CHAPTER 2

LEGISLATIVE CONTEXT

4. Underpinning legislation

(1) **[This document takes as its legal framework the following]** The Policy is premised on the following acts-

(a) The *Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)*;

(b) *NQF Act, 2008;*

(c) *GENFETQA Act, 2001*; and

[The Adult Basic Education and Training Act, 2000 (Act N0. 52 of 2000)]

[The Further Education and Training Colleges Act, 2006 (Act No. 16 of 2006)]

(d) *CET Act, 2006.*

(2) *Section 4* of the *Constitution of the Republic of South Africa, 1996* stipulates that everyone has the right to establish and maintain, at their own expense, independent educational institutions that-

(a) do not discriminate on the basis of race;

(b) are registered with the state; and

(c) maintain standards that are not inferior to standards at comparable public educational institutions.

(3) The *NQF Act* provides for the establishment of Umalusi as a Quality Council that is responsible for the development and management of a Sub-framework of qualifications at Levels 1-4 of the National Qualifications Framework and the related quality assurance processes.

(a) The said Act determines that the Quality Council must, in respect of quality assurance within its Sub-framework-

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(i) develop and implement policy for quality assurance;
(ii) ensure the integrity and credibility of quality assurance; and
(iii) ensure that quality assurance as is necessary for the Sub-framework is undertaken.

(b) In order to determine and maintain the standard of qualifications or part-qualifications registered on the GFETQSF, Umalusi as Quality Council must ensure-
(i) that qualifications or part-qualifications are registered on the GFETQSF, in terms of both the *NQF Act* and the *GENFETQA Act*;
(ii) that private colleges that offer provision towards the achievement of such qualifications or part-qualifications are quality assured and accredited to offer the curriculum that supports such qualifications or part-qualifications;
(iii) that assessment bodies and systems that externally examine such qualifications or part-qualifications are accredited to do so and monitored; and
(iv) the conduct of national external examinations for qualifications or part-qualifications on the GFETQSF is monitored and moderated.

(4) The *GENFETQA Act* stipulates that the Council must in terms of *sections 17A(2), 23(1)* and *24* respectively, develop policy and criteria for-
(a) the accreditation of assessment bodies other than departments of education; and
(b) the quality assurance of private colleges offering qualifications or part-qualifications on the GFETQSF.

(5) The *CET Act* which commenced on 11 December 2006, repealed the *Further Education and Training Act, 1998 (Act No. 98 of 1998)*

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and the *Adult Education and Training Act, 2000 (Act No. 52 of 2000)* to determine the following-

(a) Institutions offering qualifications or part-qualifications on the GFETQSF -

(i) Technical Vocational Education and Training Colleges;

(ii) Community Education and Training Colleges;

(iii) Private Colleges as defined in terms of this Policy.

(b) In terms of the *NQF Act*, Umalusi is responsible for the following qualifications listed on the GFETQSF-

(i) National Certificate (Vocational) NC(V), *Government Gazette, No. 28677 of 29 March 2006*;

(ii) Reports 190/191 PART 1: Engineering Studies (N1-3) programmes, *Report 191 Government Gazette, No. 38029 of 29 September 2014, Part 1: N1-N3*, Department of Education, *(2001/08)*;

(iii) National Senior Certificate for Adults (NASCA), *Government Gazette, No. 33805 of 26 November 2010*;

(iv) General Education and Training Certificate, ABET Level 4;

(v) General Education and Training Certificate for Adults (GETCA), *Government Gazette, No. 39218 of 18 September 2015*.; and

(vi) future qualifications or part-qualifications registered on the GFETQSF to be offered at private colleges.

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5. Functions assigned to Umalusi

In line with the aim of the *NQF Act*, namely, to develop and manage the GFETQSF, Umalusi has been mandated in accordance to *sections 17A(1), (2), (3)* and *(6),* and *23(2)(b)* of the *GENFETQA Act* to-

(1) develop policy and criteria for the quality assurance and accreditation of private colleges for the offering of qualifications or part-qualifications registered on the GFETQSF with the aim of ensuring compliance with these requirements;

(2) quality assure all exit point assessment of the qualifications or part-qualifications contemplated in *sub-paragraph (1)*;

(3) perform the external moderation of assessment of all assessment bodies;

(3) certify learner achievements;

(4) develop policy for the accreditation of assessment bodies other than departments of education; and

(5) accredit assessment bodies in accordance with the policy, contemplated in *sub-paragraph (4).*

6. Supplementary documents

This Policy must be read **[and understood]** in conjunction with the following policy documents-

[(a) *Developing and maintaining the GENFETQA sub-framework (Umalusi Council, Dec 2008)*;

(b) Other related legislation as appropriate to the various education sectors Umalusi is mandated to work in;

(c) QC policies and directives on the conduct, administration and management of the assessment for the qualifications and part qualifications on the sub-framework, as well as other qualifications identified and registered by the SAQA in consultation with the QC;

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(d) The regulations that are developed by the Department of Higher Education and Training and gazette by the Minister on assessment policies; and

(e) Any other relevant policies and directives issued by the QC.]

(1) General and Further Education and Training Qualifications Sub-framework, promulgated in *Government Gazette No. 36006* of 14 December 2012, as amended in *Government Gazette No. 36803* of 30 August 2013, and published on 8 September 2014;

(2) Standard Setting and Quality Assurance of the General and Further Education and Training Qualifications Sub-framework, Umalusi, 2014;

(3) A Policy for the Management of Qualifications on the General and Further Education and Training Qualifications Framework, a Sub-framework of the National Qualifications Framework;

(4) *National Policy on the Conduct, Administration and Management of the Assessment of the National Certificate (Vocational), Government Gazette No. 30287 of 12 September 2007*;

(5) *Internal Continuous Assessment (ICASS) Guidelines for Report 191 Programmes in TVET Colleges implementation January 2017;*

(6) *Internal Continuous Assessment (ICASS) Guidelines for the NC(V) Qualifications in TVET Colleges implementation January 2017;* and

(7) National Policy on the Examination of Formal Technical College Instructional Programmes.

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CHAPTER 3

QUALIFICATIONS ON THE GENERAL AND FURTHER EDUCATION AND TRAINING QUALIFICATIONS SUB-FRAMEWORK

7. Qualifications on the General and Further Education and Training Qualifications Sub-framework (GFETQSF)

(1) In terms of *section 3* of the *National Qualifications Framework Act, 2008 (Act No. 67 of 2008)*, every qualification or part-qualification, offered in the Republic by education institutions, must be registered on the NQF in accordance with the said Act.

(2) In accordance with the aim of the *NQF Act* Umalusi's mandate is limited to qualifications and part-qualifications which are registered on the GFETQSF at Levels 1-4 of the NQF.

(3) The qualifications and part-qualifications are used as benchmarks of quality in the education and training system. Standards are embedded in qualifications or part-qualifications, their related curricula/programme and assessment requirements, and in the type and extent of knowledge, skills and competence that the learner is expected to acquire as expressed in these documents.

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CHAPTER 4

QUALITY ASSURANCE OF PRIVATE COLLEGES

8. Quality Assurance process

(1) Umalusi Council is required to quality assure private colleges which means that such private colleges are required to participate in a process that measures against standards, the college's capacity to deliver a qualification or part-qualification and its supporting curriculum/programme, and the quality of the implementation of such, at the required standard.

(2) If the private college meets the standards as contemplated in *sub-paragraph (1)*, the private college is accredited for a period of 7 (seven) years to offer the specific qualification or part-qualification registered on the General and Further Education and Training Qualifications Sub-framework (GFETQSF).

(3) Private colleges that are granted provisional accreditation are required to address areas of partial compliance within a period not exceeding two years.

(4) However, should the private college fail to comply with the standards as contemplated in *sub-paragraph (1)*, it will not be accredited.

(5) Accredited private colleges are monitored to ensure continued meeting of the standards, as contemplated in *sub-paragraph (1).*

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(6) Quality assurance of private colleges, as contemplated in *sub-paragraph (1),* is carried out through processes that include-

(a) application for accreditation to offer a qualification or part-qualification on the GFETQSF;

(b) self-evaluation by the private college to enhance an internal culture of quality management and ongoing improvement;

(c) a desktop evaluation of the self-evaluation report;

(d) external validation to ensure that the private college, including the premises and facilities, meets the regulated criteria, national policy and regulations and to ensure a benchmarked standard of provision and college improvement. In this respect, Umalusi may take photographs and do whatever it deems necessary for proper record keeping and reporting purposes;

(e) granting of accreditation or provisional accreditation or no accreditation by Umalusi; and

(f) periodic monitoring to ensure maintenance of standards and continued improvement.

9. Quality Assurance of Private Colleges

(1) Any institution that is required to register as a private college must in terms of *section 23* of the *GENFETQA Act*, comply with the policy and criteria for quality assurance developed by Umalusi.

(2) In terms of *section 3* of the *NQF Act*, every qualification or part-qualification, offered in South Africa by education institutions, must be registered on the NQF in accordance with the said *Act*.

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(3) In accordance with the aim of the *NQF Act* Umalusi's mandate is limited to qualifications and part-qualifications which are registered on the GFETQSF at Levels 1-4 of the NQF.

(4) Quality assurance of private colleges must in terms of *section 43(2)* of the *CET Act* be conducted by Umalusi in terms of the *GENFETQA Act*.

(5) The criteria for the accreditation of private colleges, as contemplated in Chapter 6 of this Policy, are intended to assess, *inter alia* the effectiveness of the implementation of the curriculum/programme of a qualification or part-qualification on the GFETQSF and includes its internal assessment.

(6) Based on the outcome of the quality assurance process as contemplated in paragraph *2(1)(a)* of this Policy, and subject to the compliance with the criteria for accreditation contemplated in *Chapter 6* of this Policy, accreditation for a period of 7 (seven) years to offer a registered qualification or part-qualification on the GFETQSF and the related curriculum/programme may be granted to a private college by Umalusi.

(7) Private colleges that are granted provisional accreditation are required to address areas of partial compliance within a period not exceeding two years.

(8) The official register of accredited private colleges is available on Umalusi's website.

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CHAPTER 5

THE REGISTRATION AND ACCREDITATION OF PRIVATE COLLEGES

10. Registration process

(1) Private colleges are only able to operate legally in South Africa subject to registration by the Department of Higher Education and Training.

(2) Private colleges obtain registration in terms of the conditions as determined by the Department of Higher Education and Training, before applying for accreditation with Umalusi.

(3) In accordance with *sections 28* and *29* of the *CET Act*-
No person other than a public college or any organ of the state may provide continuing education and training unless that person is-
(a) incorporated or recognised as a company in terms of the *Companies Act, 2008 (Act No. 71 of 2008)*; and
(b) registered or provisionally registered as a private college in terms of the CET Act.

(4) An application for registration as a private college must be made to the registrar, which is the Director-General for Higher Education and Training, in a manner determined by the registrar.

(5) The registrar must register an applicant as a private college if the registrar has reason to believe that the applicant-
(a) is financially capable of satisfying its obligations to prospective learners; and
(b) with regard to all its continuing education and training qualifications or part-qualifications-

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(i) will maintain acceptable standards that are not inferior to standards at comparable public colleges;
(ii) will comply with the requirements of Umalusi; and
(iii) complies with any other reasonable requirement prescribed by the Minister of Higher Education and Training.

(6) In terms of the *Further Education and Training Colleges Amendment Act, 2013 (Act No. 1 of 2013)*, any college that is in existence immediately before the commencement of the *CET Act* continues to exist as a vocational and continuing education and training college and is deemed to have been established as a technical and vocational education and training college in terms of *section 3(1)(a)* of the Principal Act as amended by the *CET Act*.

(7) A private AET Centre registered in terms of *sections 26* and *27* of the *AET Act*, which registration is still valid immediately before the commencement of the *CET Act*, is deemed to be provisionally registered in terms of the principal Act as amended by the *CET Act* for the duration of the registration period set in terms of the *AET Act*.

(8) Notwithstanding the afore-mentioned *sub-paragraph (7)*, a private adult education and training centre referred to above, must within 12 months from the date of commencement of the *CET Act* or such extended period as the Minister may determine by notice in the *Government Gazette*, and apply to be registered in terms of the principal Act as amended by the *CET Act*.

11. Accreditation process

(1) Private colleges offering a qualification or part-qualification on the GFETQSF that received registration, as contemplated in *paragraph 10*, must apply to Umalusi for accreditation within **one year** after registration, subject to certain requirements to be met

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within a specified period, has been granted by the Department of Higher Education and Training.

(2) Accreditation is considered within a period of **one year** after the date of receipt of the application for accreditation.

(3) Umalusi will advise the Registrar on the outcome of the application of the private college for accreditation.

(4) In order for a private college to administer external examinations for a qualification or part-qualification on the GFETQSF, such a private college must be-

(a) registered by the Department of Higher Education and Training as a private college;

(b) accredited to offer a registered qualification or part-qualification; and

(c) registered as an examination centre with a public or an accredited private assessment body.

12. Accreditation process criteria

(1) The quality assurance of **[private adult learning centres and private further education and training colleges]** private colleges has as its key focus the enactment of curriculum through-

(a) mission directed leadership and management that enables curriculum implementation;

(b) teaching proficiency, including appropriate pedagogy and methodology;

(c) quality internal assessment;

(d) learner learning and support; and

(e) quality assurance measures in support of the continuous improvement of results.

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(2) The quality assurance of a **[private adult learning centre or a private further education and training college]** private college entails the recognition of the **[private adult learning centre or private further education and training college]** private college to offer the specific qualification or part-qualification on the GFETQSF. A **[private adult learning centre or a private further education and training college]** private college must have-

(a) a mission in line with national goals and appropriate to the sector;

(b) sufficient resources, programmes, and services to accomplish and sustain the mission;

(c) clearly specified educational objectives consistent with the mission;

(d) quality assurance practices that will ensure continuous improvement in terms of the enactment of the curriculum through teaching, learning and assessment;

(e) the capacity to use assessment results (internal and external) to diagnose and, if required, remedy teaching, learning and assessment; and

(f) the ability to take responsibility for the conduct and standard of internal continuous assessment, as well as undertake external **[assessment]** examinations, as per the directives, policies and regulations of the QC and the relevant qualification or part-qualification.

(3) If the private college meets the standards as contemplated in the afore-mentioned *sub-paragraph (2)*, the private college is accredited to offer the specific qualification or part-qualification registered on the GFETQSF. However, should the private college fail to comply with the standards as contemplated in *sub-paragraph (2)*, the institution will not be accredited.

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CHAPTER 6

CRITERIA FOR THE QUALITY ASSURANCE, ACCREDITATION AND MONITORING OF [PROGRAMMES OFFERED BY A PRIVATE ADULT LEARNING CENTRE AND PRIVATE FURTHER EDUCTION AND TRAINING COLLEGE] PRIVATE COLLEGES TO OFFER A QUALIFICATION REGISTERED ON THE GFETQSF

13. Minimum compliance standard for accreditation of private colleges

The set of criteria for the accreditation of private colleges constitutes the minimum standard that private colleges are expected to comply with. The standard is evaluated in three inter-related areas, namely-

(1) Input criteria that focus on the standard of input factors which include management and leadership, resources and all other enablers of a conducive environment for effective teaching and learning.

(2) Process criteria which are used to assess the effectiveness of internal quality management and standards of curriculum implementation and assessment as well as any other processes that are intended to lead to the achievement of the private college's stated goals.

(3) Output criteria that focus on the quality of assessment outcomes or results as well as other indicators of success.

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14. Criteria for Quality Assurance, Accreditation and Monitoring of [Private Learning Centres and Private Further Education and Training Colleges] Private Colleges

(1) A **[private adult learning centre and private further education and training college]** private college is accredited to offer specific qualifications or part-qualifications and their associated curricula registered on the GFETQSF.

(2) **[The criteria cover several key areas pertinent to the accreditation of learning programmes offered by a private adult learning centre or private further education and training college.]** The criteria for the accreditation of a private college to offer a qualification or part-qualification on the GFETQSF are-

(a) Criterion 1: Mission Directed Leadership and Management

(i) Mission directed leadership and management are concerned with-

(aa) the attainment of the vision and mission as informed by-

(aaa) its legal framework and context;

(bbb) national priorities;

(ccc) strategic leadership and effective governance structures and strategies; and

(ddd) the effectiveness with which the qualification or part-qualification mix and provision is selected, planned, managed, quality assured and improved;

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(bb) **[Resources are appropriately allocated and used]** the appropriate allocation of resources to ensure that the institution is viable and sustainable;

(cc) a reflection of the institutional commitment to monitor and evaluate in order to improve quality; and

(dd) the establishment of the required infrastructure and processes to ensure quality provision.

(b) Criterion 2: Teaching, Learning and Training

(i) The private college is professionally staffed to support the qualifications or part-qualifications it offers.

(ii) Learning and assessment are at the core of the enactment of the curriculum.

(iii) The private college implements the curriculum and assessment requirements at the required standard and in accordance with the directive, policy and regulation requirements of the qualifications or part-qualifications registered on the GFETQSF.

(iv) The curriculum is enacted to reflect appropriate instructional approaches that support learning in respect of qualifications or part-qualifications the institution is accredited to offer.

(v) Suitable learning programmes and materials in support of the qualifications or part-qualifications offered are developed.

(vi) Teaching proficiency is increased through the development of appropriate pedagogy and methodology by means of staff development.

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(c) Criterion 3: Assessment and Results

(i) The private college manages and conducts internal continuous assessment of an acceptable standard and in line with directives, policies and regulations of the qualification and provides developmental feedback to learners.

(ii) The private college is registered as an examination centre that undertakes external **[assessment]** examinations in compliance with the directives, policies and regulations of Umalusi and the relevant qualification.

(iii) Quantitative and qualitative data are used to track learner achievement and improve learner success.

(d) Criterion 4: Learner Support

Learner support is evident through-

(i) academic guidance and support; and

(ii) career guidance and support.

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CHAPTER 7

QUALITY ASSURANCE OF PRIVATE ASSESSMENT BODIES

15. Accreditation requirement

(1) In terms of *section 17A(2)(a)* of the *GENFETQA Act*, the Council must develop policy for the accreditation of assessment bodies other than the departments of education for Ministerial approval.

(2) Subsequent to *sub-paragraph (1)* above, the Minister must in terms of *section 17A(2)(b)* of the said *Act* make regulations in which the policy for accreditation is set out and in accordance with these regulations the Council must accredit a private assessment body.

16. Accreditation status

(1) The accreditation of an assessment body entails the recognition of the private assessment body to assess the qualification or part-qualification on the GFETQSF.

(2) Considering the afore-mentioned *sub-paragraph (1)*, private assessment bodies are required to obtain accreditation with Umalusi to assess a qualification or part-qualification on the GFETQSF.

(3) An assessment body must have-

(a) clearly defined goals that are in line with national policies and that relate to the assessment of national qualifications or part-qualifications;

(b) sufficient resources to realise their goals;

(c) demonstrated evidence of achieving their goals; and

(d) demonstrated capacity to fulfil their functions; and

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(e) provide sufficient reason for the QC to believe that they can continue to achieve its goals.

(4) Accreditation is granted to a private assessment body if such assessment body-

(a) has the capacity to manage or coordinate national examinations and assessment of learner achievement in respect of qualifications or part-qualifications it offers.

(b) demonstrates the capacity to conduct, administer and manage national examinations and assessments of learner achievement in respect of qualifications or part-qualifications they offer as stipulated in the Directives of Umalusi; and

(c) assesses a qualification or part-qualification on the GFETQSF which includes all the processes involved in the setting and administration of external examinations and internal assessment for the full period of the qualification or part-qualification as required by the policies and regulations that govern such a qualification or part-qualification.

(5) An accredited private assessment body must perform the functions with regard to external examinations as set out in *section 18* of the *GENFETQA Act*.

(6) Private assessment bodies will be monitored and reported on annually to ensure ongoing compliance with policies and regulations, improvement and maintenance of standards.

(7) A private assessment body which fails to comply with the accreditation requirements set out in the afore-mentioned *sub-paragraph (3)* will be regarded as not accredited and may therefore not operate as an assessment body.

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17. Accreditation process to be followed by the applicant

(1) The accreditation of private assessment bodies is a process of evaluating a private assessment body to determine whether its capacity, systems, processes and products are of the appropriate quality to deliver valid, reliable, fair and credible assessments and examinations.

(2) The assessment system is a key driver of quality in the education and training system and sets the standards for general and further education and training. As such, assessment bodies must meet the requirements of this Policy through-

(a) quality assuring internal assessment and designing, conducting and managing external examinations as prescribed in a particular curriculum;

(b) undertaking internal moderation of assessment instruments;

(c) ensuring external moderation of assessment instruments;

(d) supplying the QC with marks and/or other records of assessment conducted, as specified by the QC;

(e) taking adequate measures to ensure the security and integrity of the assessment process, including combatting irregularities;

(f) publishing assessment results on approval by the QC;

(g) developing a cadre of competent assessment personnel, including but not limited to examiners, moderators, markers and invigilators;

(h) undertaking development and research that will enhance the achievement of educational outcomes; and

(i) fulfilling any other functions as stipulated in the *GENFETQA Act* and any relevant policies and directives issued by Umalusi.

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(3) The accreditation process comprises the following procedures to be followed by private assessment bodies-

(a) submitting an application for accreditation to assess a qualification or part-qualification registered on the GFETQSF which will only be processed if the applicant-

(i) complies with the following-

(aa) is a juristic person independent of any provision of education and training and is registered as a company in terms of the *Companies Act 2008 (Act No 71 of 2008)*;

(bb) is able to provide proof that its income is sufficient to sustain its assessment regime as based on criteria determined by Umalusi;

(cc) has a stable financial position that will enable it to maintain operational continuity;

(dd) can provide proof that it has established financial surety or guarantee to ensure that it is able to meet its obligations to the learners registered for its examinations and assessment services; and

(ee) has sufficient professional expertise in education and assessment in order to provide assessment services for the qualification or part-qualification it is seeking to offer; and

(ii) adheres to the following requirements-

(aa) lodges an expression of intent to seek accreditation to assess a qualification part-qualification registered on the GFETQSF at least 18 months before the pilot examination is envisaged;

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(bb) establishes the need for an assessment body to assess such qualification or part-qualification and motivating the need through a feasibility study;

(b) submitting a self-evaluation report and supporting evidence to Umalusi;
(c) undertaking a site verification conducted by Umalusi;
(d) conducting an exit examination pilot study;
(e) receiving provisional or no accreditation;
(f) applying for accreditation;
(g) conducting a full exit examination; and
(h) receiving accreditation or no accreditation.

18. Umalusi's role in the accreditation process

(1) Umalusi must evaluate the applicant's capacity to conduct, administer and manage examinations. This will include a policy framework, assessment systems and standards, through a desktop evaluation of the self-evaluation report, state of readiness evaluation and verification of site visits.

(2) Umalusi must determine the competence of the applicant in the development of assessment products and administration of an examination at the required standard, demonstrated through a pilot study.

(3) Based on the outcome of Umalusi's evaluation as contemplated in *sub-paragraphs (1) and (2)*, Umalusi may award either provisional accreditation or no accreditation.

(4) After provisional accreditation has been granted by Umalusi, the applicant must commence with immediate planning for a

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lead time of 12 months before the first formal examination is conducted.

(5) Umalusi must conduct monitoring to ensure credible, fair and valid internal and external assessment of learner achievement at exit points.

19. Provisional accreditation

(1) Private assessment bodies that have successfully completed their pilot may be granted provisional accreditation for a period of three years during which time the assessment body must meet all the requirements of accreditation.

(2) Provisional accreditation of an assessment body may be extended by Umalusi Council on reasonable grounds.

(3) If the assessment body fails to meet all the requirements of accreditation as contemplated in the afore-mentioned *sub-paragraph (1)*, it will be awarded a status of "no accreditation" and it may not continue to offer national examinations for qualifications or part-qualifications registered on the GFETQSF.

20. Accreditation of Private Assessment Bodies

(1) Accreditation is granted to a private assessment body to assess a qualification or part-qualification on the GFETQSF which includes all the processes involved in the setting and administration of external examinations and quality assuring internal assessment for the full period of the qualification part-qualification as required by the policies that govern the qualification or part-qualification.

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(2) Private assessment bodies will be monitored and reported on annually to ensure ongoing compliance with policies and regulations, improvement and maintenance of standards.

(3) To ensure consistency in the national assessment system, Umalusi sets common criteria for the state and private assessment bodies.

(4) An accredited private assessment body must perform the functions with regard to external **[assessment]** examinations as set out in *section 18* of the *GENFETQA Act.*

21. Functions of Private Assessment Bodies

(1) An assessment body conducts formal, externally quality assured assessment for qualifications or part-qualifications on the GFETQSF and quality assures any internal continuous assessment relevant to the qualification or part-qualification.

(2) The assessment system may have different forms of delivery and conception in respect of the development of assessment instruments and assessment items, quality assurance measures and approaches.

22. Registration of examination centres

Public or accredited private assessment bodies may register examination centres on condition that they-

(1) comply with the registration requirements as determined by the relevant education department and accreditation by Umalusi;

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(2) assess a qualification or part-qualification on the General and Further Education and Training Sub-framework of qualifications;

(3) have met all the requirements of regulations pertaining to the conduct, administration and management of the qualification or part-qualification to be assessed.

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CHAPTER 8

CRITERIA FOR THE ACCREDITATION AND MONITORING OF PRIVATE ASSESSMENT BODIES

23. Standard of compliance

(1) The quality of national external examinations is critical in determining standards in public and private education and training. The quality assurance and monitoring of assessment systems of such examinations are central to upholding the standards embodied in national qualifications or part-qualifications. These roles are undertaken by both the state and private assessment bodies.

(2) Accreditation is granted to private assessment bodies where such organisations satisfy the requirements for accreditation as indicated in this Policy and such supporting policies and directives as established by Umalusi.

(3) Should a private assessment body that has obtained accreditation in terms of the requirements set out in *paragraph 17(3)*, fails to adhere to, or disregard them, accreditation will be withdrawn, as contemplated in p*aragraph 27(3)*.

24. Criteria for the Accreditation and Monitoring of Private Assessment Bodies to assess a qualification on the GFETQSF

(1) The quality assurance and monitoring of assessment structures are central to the quality assurance of national external examinations which form the basis for the determination of standards in public and private general and further education and training.

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(2) **[Several broad criteria pertinent to the accreditation, quality assurance and monitoring of assessment bodies have been developed. The criteria are grouped into three focus areas.]** The criteria for the accreditation of private assessment bodies to offer a qualification or part-qualification on the GFETQSF are grouped into the following three focus areas -

(a) strategic leadership and management;

(b) assessment standards; and

(c) administration of assessment.

(3) The set of criteria for the accreditation and monitoring of private assessment bodies is outlined as follows-

(a) Criterion 1: Leadership, Planning and Management

(i) The assessment body's leadership is instructive and provides strategic direction and governance oversight based on acceptable practices.

(ii) The strategic initiatives, interventions, policies and procedures of the assessment body promote fair, valid and reliable assessments.

(iii) The assessment body is sustainable and financially viable.

(iv) The assessment body demonstrates commitment to quality improvement in providing feedback annually to the institutions that are its examination centres.

(v) The assessment body is sufficiently and professionally staffed.

(vi) The leadership and management identify and manage the organisational risks effectively.

(b) Criterion 2: Assessment Standards

(i) The assessment body's assessment approach and systems are credible in that assessments are administered against the policy requirements and

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standards of qualifications or part-qualifications registered on the General and Further Education and Training Qualifications Framework and their intended curricula.

(ii) The assessment body produces assessment products of an acceptable standard and ensures the credibility and quality of internal and external assessment of all its registered examination centres.

(iii) Assessment standards and practices are benchmarked and quality assured.

(iv) Standards of assessment are maintained and improved through appropriate and effective monitoring and moderating mechanisms.

(c) Criterion 3: Research and Development

(i) The work of the assessment body is informed by appropriate research and assessment approaches are innovative, benchmarked and fit for purpose.

(ii) Research findings are used to improve assessment products, systems and approaches as well as to provide meaningful feedback and guidance to education institutions in order to drive the improvement of teaching, learning and internal assessment.

(iii) The capacity of professional and administrative staff employed in the assessment process is developed.

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(d) Criterion 4: The Conduct and Administration of Examinations and/or Assessment

[That includes all the administrative and logistical processes associated with the conduct of examinations and/or assessments, such as the setting, translation, editing, printing and moderation of assessment materials; the registration of candidates and examination centres; the establishment of marking centres; data capturing of learner records and security systems; and security, is efficient and reliable with a low tolerance of irregularities and ensures a credible internal assessment/examinations.]

(i) The private assessment body conducts credible external examinations in that it is effective and efficient in the management of all administrative and logistical processes associated with the conduct of examinations.

(ii) Learners are registered for the examination at the commencement of the qualification or part-qualification.

(iii) Security systems with a low tolerance for irregularities are implemented and irregularities are reported and dealt with as required in Umalusi policy.

(iv) The assessment body meets all Umalusi's requirements in respect of the registration, resulting and certification system and is able to submit learner datasets that meet Umalusi specifications.

(v) The assessment body has efficient and reliable systems for the capture, storage and management of learner achievement data, and is ethical in

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reporting and safeguarding the accuracy and security of learner results.

(vi) The assessment body ensures that it has full ownership of its data from inception.

(vii) All the requirements of regulations pertaining to the conduct, administration and management of an examination in respect of a qualification or part-qualification are applied and are met.

(viii) Delivery of the examination is monitored and evaluated with the purpose of supporting continuous improvement.

(e) Criterion 5: Resulting Systems and Processes

The assessment body-

(i) encapsulates the reliable and accurate processing and issuing of results; and

(ii) complies with policy to maintain the integrity of the system.

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CHAPTER 9

WITHDRAWAL OF ACCREDITATION

25. Rationale

(1) Private assessment bodies accredited in terms of the policy developed by Umalusi and approved by the Minister of Higher Education and Training in terms of *section 17A2(a)* of the *GENFETQA Act*, must be monitored by Umalusi Council in terms of *section 25(1)* of the said *Act*, to ensure continued compliance as contemplated in this Policy.

(2) Where a private assessment body is found to be non-compliant, Umalusi Council reserves the right in terms of *section 25(2)* of the GENFETQA Act to place the assessment body under close monitoring.

(3) Umalusi may withdraw accreditation if the assessment body is found to be non-compliant with the requirements of this Policy.

26. Procedures to be followed in the event of non-compliance by Private Assessment Bodies

(1) In the event of non-compliance with this Policy as contemplated in *paragraph 25(2)*, Umalusi will-

(a) determine a reasonable period within which the private assessment body must comply with this Policy;

(b) evaluate at the expiry of the period the remedial steps taken by the private assessment body;

(c) based on the decision taken in terms of s*ub-paragraph (1)(a)*, Umalusi may affirm or withdraw accreditation of the private assessment body; and

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(d) in withdrawing accreditation, serve notice of administrative action to withdraw the accreditation of the private assessment body concerned at an appropriate time so as to minimise implications for learners;

(2) Once a decision to withdraw accreditation has been made and communicated, the private assessment body will not be permitted to register learners for the next examination cycle.

(3) The private assessment body must notify its clients of the decision with immediate effect and ensure that all past and present learner data and records are secured and transferred to Umalusi in the manner prescribed by Umalusi.

27. Procedures to be followed in the event of non-compliance by private colleges

(1) In terms of *section 16(5)* of the *GENFETQA Act,* the Council must perform any function consistent with the said *Act* that the Minister may determine, and must therefore in the case of non-compliance with this Policy by a private college-

(a) notify the private college in writing and set out the nature and extent of the failure; and

(b) determine a reasonable period within which the private college must comply with the policy set out in this document.

(2) At the expiry period contemplated in *sub-paragraph (1)(b)*, the Council must-

(a) evaluate the steps taken by the private college; and

(b) affirm or withdraw accreditation of the private college.

(3) Accreditation may be withdrawn if the private college-

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(a) is found to be non-compliant with the requirements as stipulated in this Policy; or

(b) fails to pay the required accreditation or monitoring fees; or

(c) is implicated in recurrent irregularities.

(4) Before the Umalusi Council withdraws an accreditation, it must notify the Director-General of Higher Education and Training, who is the Registrar, in terms of *section 24(1)* of the *GENFETQA Ac*t of its intention to withdraw the accreditation and the date of the intended withdrawal.

28. Appeals procedure

The withdrawal of accreditation status may be appealed through a formal appeals process established by Umalusi.

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CHAPTER 10

FUNDING

29. Provision for funding by the Council

S*ection 13(1)(c)* of the *GENFETQA Act,* makes provision for funds received by the Council in respect of fees charged for services. Accordingly, Umalusi determines annual quality assurance fees for all its services including accreditation and related processes.

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CHAPTER 11

TRANSITIONAL ARRANGEMENTS AND SHORT TITLE

30. Transitional arrangements

(1) The *Policy for the Quality Assurance of Private Colleges for Continuing Education and Training, offering qualifications registered on the General and Further Education and Training Qualifications Sub-framework, and the Accreditation of Private Assessment Bodies* developed in accordance with *sections 17(2)(a)* and *23* of the *GENFETQA Act*, replaces the *Policy for the Quality Assurance of Private Adult Learning Centres, Private Further Education and Training Colleges and the Accreditation of Private Assessment Bodies, Government Gazette No. 33237* of 28 May 2010, and will after promulgation in the *Government Gazette*, be implemented with immediate effect.

(2) Until such time the Minister has promulgated the *Policy for the Quality Assurance of Private Colleges for Continuing Education and Training, offering qualifications registered on the General and Further Education and Training Qualifications Sub-framework, and the Accreditation of Private Assessment Bodies*, Umalusi's current *Policy for the Quality Assurance of Private Adult Learning Centres, Private Further Education and Training Colleges and the Accreditation of Private Assessment Bodies, Government Gazette No. 33237* of 28 May 2010 will apply to all Private Colleges offering qualifications or part-qualifications registered on the GEFETQSF.

31. Short Title

This Policy may be cited as the *Policy for the Quality Assurance of Private Colleges for Continuing Education and Training, offering qualifications registered on the General and Further Education and*

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Training Qualifications Sub-framework, and the Accreditation of Private Assessment Bodies, and will commence on the day of its promulgation in the *Government Gazette.*

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DEPARTMENT OF HIGHER EDUCATION AND TRAINING

NO. 927 **07 SEPTEMBER 2018**

HIGHER EDUCATION ACT, 1997 (Act No. 101 of 1997)

AMENDED INSTITUTIONAL STATUTE

UNIVERSITY OF THE WESTERN CAPE

I, Mrs GNM Pandor, Minister of Higher Education and Training, in accordance with section 33 (1) of the Higher Education Act, 1997 (Act No. 101 of 1997, as amended), hereby publish the amended Institutional Statute of the University of the Western Cape set out in the Schedule hereto.

G.N.M. Pandor

Mrs GNM Pandor, MP

Minister of Higher Education and Training

Date: 26 – 8 – 2018

THE STATUTE OF THE UNIVERSITY OF THE WESTERN CAPE

The Council of the University of the Western Cape has made this Statute set out in the Schedule hereto, in accordance with section 32 of the Higher Education Act, 1997 (Act No. 101 of 1997), which is, in terms of the provisions of section 33 of the said Act, hereby published with the approval of the Minister of Higher Education and Training and which comes into operation on the date of this publication.

SCHEDULE

STATUTE OF THE UNIVERSITY OF THE WESTERN CAPE

CONTENTS

		paragraph
CHAPTER 1:	**Definitions**	**1**
CHAPTER 2:	**Structure, purpose and seat**	**2.1 – 2.2**
CHAPTER 3:	**Status and proprietary capacity**	**3.1 – 3.2**
CHAPTER 4:	**Constitution of the University**	**4**
CHAPTER 5:	**Chancellor**	**5.1 – 5.15**
CHAPTER 6:	**Senior management**	**6.4**
CHAPTER 7:	**Executive management**	**7.1 – 7.5**
CHAPTER 8:	**Council**	**8.1 – 8.69**
CHAPTER 9:	**Senate**	**9.1 – 9.33**
CHAPTER 10:	**Institutional Forum**	**10.1 – 10.22**
CHAPTER 11:	**Committees**	**11.1 – 11.5**
CHAPTER 12:	**Convocation**	**12.1 – 12.31**
CHAPTER 13:	**Donors**	**13.1 – 13.4**
CHAPTER 14:	**Vacancies do not affect powers**	**14**
CHAPTER 15:	**Students' Representative Council**	**15.1 – 15.8**
CHAPTER 16:	**Student discipline**	**16.1 – 16.2**
CHAPTER 17:	**Employees**	**17.1 – 17.8**
CHAPTER 18:	**Faculties, academic departments and schools**	**18**
CHAPTER 19:	**Institutes and centres**	**19.1 – 19.4**
CHAPTER 20:	**Admission**	**20.1 – 20.8**
CHAPTER 21:	**Examinations and other tests**	**21**
CHAPTER 22:	**Language policy**	**22**
CHAPTER 23:	**Student support services**	**23**
CHAPTER 24:	**Degrees, diplomas and certificates**	**24.1 – 24.4**
CHAPTER 25:	**Honorary degrees**	**25.1 – 25.6**
CHAPTER 26:	**General Assembly**	**26**
CHAPTER 27:	**Repeal**	**27**
CHAPTER 28:	**Transitional arrangements**	**28.1 – 28.2**

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CHAPTER 1
Definitions

1 In this Statute any word or expression to which a meaning has been assigned by the Higher Education Act, 1997 (Act no. 101 of 1997), has the meaning so assigned to it, and unless the context indicate otherwise –

"academic employees" means those persons employed by the University primarily to teach and/or to do research, including the Vice-Chancellor/Rector, the Deputy Vice-Chancellor(s)/Vice-Rector(s), and the Deans;

"Act" means the Higher Education Act, 1997 (Act No. 101 of 1997), as amended, and includes any regulations promulgated in terms thereof;

"Chancellor" means a person as contemplated in paragraph 5.1;

"Convocation" means the assembly of persons contemplated in paragraph 12.1;

"Council" means the governing body of the University as contemplated in paragraph 8.2;

"day" means weekdays including Saturday, Sunday and any public holiday;

"Deputy Vice-Chancellor/Vice-Rector" means a person or persons appointed by the Council for purposes of assisting the Vice-Chancellor/Rector as contemplated in paragraph 6.2, and includes a vice-principal as contemplated in the Act;

"donors" means those persons or organisations determined in accordance with paragraph 13.1;

"due process" means a process compliant with the provisions of the Promotion of Administrative Justice Act, 2000 (Act No. 3 of 2000) and the Promotion of Access to Information Act, 2000 (Act No. 2 of 2000) as well as the principles of natural justice;

"electronic communication" means electronic communication as contemplated in the Electronic Communications and Transactions Act, 2002 (Act No. 25 of 2002), and when employed at a meeting such communication ordinarily enables all members participating in the meeting to communicate concurrently with each other without an intermediary, and to participate reasonably effectively in the meeting, and for the avoidance of doubt such communication shall include communication by teleconference and e-mail, as contemplated in the Electronic Communications and Transactions Act, 2002 (Act No. 25 of 2002), or any legislation which replaces it;

"executive management" means those persons contemplated in paragraph 7.2;

"Institutional Forum" means the Institutional Forum of the University contemplated in paragraph 10.2;

"management" means senior management and the professional, support or administrative staff members of the University designated by the Council as managers;

"Minister" means the Minister responsible for higher education;

"professional, support or administrative staff members" mean those members of staff who are not employed on academic terms and conditions and who provide professional, administrative and support services to the University;

"professor" means a person appointed as a professor by the Council, after

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consultation with the Senate, but does not include an adjunct, associate, emeritus, extraordinary or honorary professor;
"qualification" means a registered national qualification as defined in the National Qualifications Framework Act 67 of 2008;
"Registrar" means the Registrar of the University, or if more than one Registrar has been appointed, the Registrar designated by the Council to perform the function contemplated in section 26(4)(b) of the Act;
"Returning Officer" means the Registrar or a person appointed by the Registrar to conduct and preside at an election;
"rules" means the institutional rules of the University made in terms of section 32 of the Act, and includes all policies and standing orders approved by the Council;
"Senate" means the Senate of the University contemplated in paragraph 9.2;
"senior management" means the executive management, the Deans and other senior managers as determined by the Vice-Chancellor/Rector, after consultation with the executive management, from time to time;
"Statute" means the institutional statute of the University;
"student" means a person registered for a qualification offered by the University;
"the graduates" means persons who have graduated from the University with a degree or a diploma;
"University" means the University of the Western Cape;
"urgent matter" means a matter, which, if not addressed before the next ordinary or special meeting of the Council or the Senate, could cause irreversible harm or prejudice to the University, its employees or students;
"UWC Gold Medal for Commitment to Community Service" means the award to be bestowed on individuals in the community who have made a significant and extraordinary contribution to the upliftment of the community through exceptional leadership, community involvement and related activities; and
"Vice-Chancellor/Rector" means a person as contemplated in paragraph 6.1, and includes a principal as contemplated in section 30 of the Act.

CHAPTER 2
Structure, purpose and seat

2.1 The University is constituted in the manner, exists for the purposes, and has the rights, powers, privileges and duties, provided for in the Act and in this Statute.

2.2 The seat of the University is in Bellville in the Western Cape Province.

CHAPTER 3
Status and proprietary capacity

3.1 The University is, subject to the provisions of the Act, a juristic person.

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3.2 Notwithstanding paragraph 3.1 the University may not without the concurrence of the Minister dispose of or alienate in any manner, any immovable property acquired with the financial assistance of the State or grant to any person any real right therein or servitude thereon.

CHAPTER 4
Constitution of the University

4 The University consists of –

4.1 a Chancellor;
4.2 a Vice-Chancellor/Rector;
4.3 a Deputy Vice-Chancellor/Vice-Rector or, if more than one Deputy Vice-Chancellor/Vice-Rector has been appointed, the Deputy Vice-Chancellors/Vice-Rectors;
4.4 a Registrar, or if more than one Registrar has been appointed, the Registrars;
4.5 an Executive Director or, if more than one Executive Director has been appointed, the Executive Directors;
4.6 a Council;
4.7 a Senate;
4.8 an Institutional Forum;
4.9 a Students' Representative Council;
4.10 the academic employees of the University;
4.11 the professional, support or administrative staff members of the University;
4.12 a Convocation; and
4.13 the students of the University.

CHAPTER 5
Chancellor

Titular head

5.1 The Chancellor is the titular and ceremonial head of the University and, subject to the provisions of the Act and this Statute, confers degrees on behalf of the University.
5.2 The Chancellor has no executive authority or executive powers.

Election

5.3 Whenever the Council has to elect a Chancellor, the Registrar must notify the members of the Council in writing at least six weeks before the election and call for nominations to be submitted to him or her.
5.4 Nominations must be in writing and must reach the Registrar at least three weeks before the date of election.
5.5 Each nomination must contain the signatures of at least two members of the Council and the written acceptance of the nomination by the nominee.

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5.6 A list of duly nominated persons must be sent to the members of the Council at least ten days before the meeting of the Council where voting will take place.

5.7 Voting shall take place by ballot, but where members of the Council cannot attend the meeting in person, they may participate in the meeting and vote by electronic communication.

5.8 The nominee receiving a majority of the votes of the members of the Council holding office at the date of the meeting must be declared by the Chairperson to be the duly elected Chancellor.

5.9 In the case of no nominee receiving such a majority of votes, the nominee receiving the lowest number of votes or, where applicable, more than one nominee together receiving less than half plus one of the votes must be eliminated, and the election must be repeated until one of the nominees receives a majority of the votes as contemplated in paragraph 5.8.

5.10 When the office of Chancellor becomes vacant, the Council must as soon as practicable thereafter elect a new Chancellor.

5.11 After the Council has elected the Chancellor, the name of the Chancellor is announced by the Chairperson of the Council.

Term of office

5.12 The Chancellor holds office for a period of five years, and is eligible for re-election.

5.13 If the Chancellor is unable, for any reason, to perform the functions of his or her office, or if the office of Chancellor becomes vacant, the Vice-Chancellor/Rector or acting Vice-Chancellor/Rector performs the functions of the Chancellor.

Termination/removal from office

5.14 The term of office of the Chancellor is terminated in the event of –

5.14.1 death;

5.14.2 incapacity;

5.14.3 resignation; or

5.14.4 removal from office by the Council.

5.15 The Chancellor may only be removed from office by the Council after following due process, by means of a resolution, passed by at least two-thirds of the members of the Council present at the meeting, whether present in person or by electronic communication.

CHAPTER 6
Senior management

6.1 Vice-Chancellor/Rector

Functions and duties

6.1.1 The Vice-Chancellor/Rector is the chief executive officer of the University and is, subject to paragraph 8.19, responsible for, *inter alia*, the day-to-day management, administration and operations of the University, and is vested with all the managerial, administrative and operational powers necessary to perform

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these functions.

6.1.2 In the absence of the Chancellor or at his or her request, the Vice-Chancellor/Rector performs the functions of the Chancellor.

6.1.3 The Vice-Chancellor/Rector is by virtue of his or her office a member of all committees and joint committees of the Council and of the Senate.

6.1.4 The Vice-Chancellor/Rector, in accordance with the directives and policies of the Council and the Senate, exercises general managerial, administrative and operational authority over the University.

6.1.5 The Vice-Chancellor/Rector may establish a committee of members of the executive management to assist him or her with the day-to-day management, administration and operations of the University.

6.1.6 The composition, manner of election, functions, quorum and procedure at meetings of any such committee must be determined by the Vice-Chancellor/Rector, and provided for in the rules.

Process of selection and appointment

6.1.7 The Vice-Chancellor/Rector is selected by the Council from the names of candidates put forward to the Council by the Senate and the Institutional Forum.

6.1.8 The procedure regarding the advertisement of the vacancy, recruitment of candidates and interviewing of candidates shall be determined by the Council after consultation with the Senate and the Institutional Forum.

6.1.9 The Senate and the Institutional Forum must, independently from each other, submit to the Council a maximum of three names of candidates from the list of eligible candidates who applied, or who were recruited in accordance with the determination of the Council contemplated in paragraph 6.1.7, in order of priority, whom they consider to be persons fit and proper for appointment as Vice-Chancellor/Rector.

6.1.10 If the Senate or the Institutional Forum is of the opinion that none of the applicants are persons fit and proper for appointment as Vice-Chancellor/Rector, they must advise the Council accordingly whereupon the Council may allow such further period it deems fit for re-advertisement of the vacancy and/or for recruitment.

6.1.11 Voting in the Council shall be by ballot, but where members of the Council cannot attend the meeting in person, they may participate in the meeting and vote by electronic communication. The candidate receiving a majority of the votes of the members of the Council holding office at the date of the meeting is declared by the Chairperson to be duly selected for appointment as Vice-Chancellor/Rector of the University.

6.1.12 If no candidate receives such a majority of votes, the candidate who has received the lowest number of votes must be eliminated and the voting process shall be repeated until one of the candidates receives a majority of the votes.

6.1.13 Voting in the Senate and the Institutional Forum to determine the candidates whose names are to be put forward to Council, takes place in the manner provided for in paragraphs 6.1.11 and 6.1.12.

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Term of office

6.1.14 The Vice-Chancellor/Rector is appointed by the Council for such period of office as may be agreed upon between the Vice-Chancellor/Rector and the Council, provided that the initial period of office of the Vice-Chancellor/Rector shall not be more than five years, and any additional periods of office shall not in total exceed five years.

6.1.15 A Vice-Chancellor/Rector is eligible, on application to the Council, to apply for re-appointment to serve for a second term of office.

6.1.16 Should the Vice-Chancellor/Rector elect to apply for re-appointment in terms of paragraph 6.1.15, the application must be submitted to the Council at least eighteen (18) months prior to the date of conclusion of his or her contract of employment as Vice-Chancellor/Rector.

6.1.17 Subject to the provisions of paragraph 8.20.3, the Council may, after consultation with the Senate and Institutional Forum, waive the requirements and provisions contained in paragraphs 6.1.7 to 6.1.13.

6.1.18 Should the Vice-Chancellor/Rector:

6.1.18.1 not apply for re-appointment in terms of paragraph 6.1.15; or

6.1.18.2 apply for re-appointment in terms of paragraph 6.1.15 and his or her application is unsuccessful; or

6.1.18.3 complete his or her second term of office after being successfully re-appointed in terms of paragraph 6.1.15,

he or she may, notwithstanding the provisions of paragraph 6.1.14, serve an additional term of office if he or she is selected and appointed as Vice-Chancellor/Rector, in accordance with the process contemplated in paragraphs 6.1.7 to 6.1.13.

6.1.19 The Vice-Chancellor/Rector may resign at any time on six months' notice to the Council, unless the Council, after consultation with the Senate and after having obtained advice from the Institutional Forum, dispenses with such notice period.

6.1.20 The appointment of the Vice-Chancellor/Rector may be terminated by the Council at any time, by a majority vote consisting of not less than three quarters of the number of members present at the meeting, whether present in person or by electronic communication, and not less than half of the members holding office at the date of the meeting, after following due process, and after consultation with the Senate and after having obtained advice from the Institutional Forum.

Absence of Vice-Chancellor/Rector

6.1.21 In the event of the Vice-Chancellor/Rector being absent for a period less than one month, he or she may appoint, after consultation with the executive management, a member of the executive management as acting Vice-Chancellor/Rector.

6.1.22 In the event of the Vice-Chancellor/Rector being absent for a period in excess of one month but less than six months, he or she, after consultation with the Executive Committee of the Council, must appoint a member of executive management as acting Vice-Chancellor/Rector.

6.1.23 While the appointment of a Vice-Chancellor/Rector is pending or if the Vice-

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Chancellor/Rector is absent for a period in excess of six months, the Deputy Vice-Chancellor/Vice-Rector, or, if more than one Deputy Vice-Chancellor/Vice-Rector has been appointed, the Deputy Vice-Chancellor/Vice-Rector designated by the Council after consultation with the Senate and Institutional Forum, shall be the acting Vice-Chancellor/Rector.

6.2 Deputy Vice-Chancellor/Vice-Rector(s)

Functions and duties

6.2.1 The Deputy Vice-Chancellor/Vice-Rector(s) is responsible for, *inter alia*, assisting the Vice-Chancellor/Rector in the management, administration and operations of the University and has the powers and duties conferred upon him or her by the Council.

6.2.2 The Deputy Vice-Chancellor/Vice-Rector(s) is further responsible for any specific managerial, administrative and operational functions delegated to him or her by the Vice-Chancellor/Rector, from time to time.

Selection and appointment

6.2.3 The provisions of paragraphs 6.1.7 to 6.1.13 apply, with the necessary changes, to the selection and appointment of a Deputy Vice-Chancellor/Vice-Rector.

Term of office

6.2.4 The provisions of paragraphs 6.1.14 to 6.1.20 apply, with the necessary changes, to the term of office of a Deputy Vice-Chancellor/Vice-Rector.

Absence of Deputy Vice-Chancellor/Vice-Rector/vice-rector

6.2.5 In the event of the Deputy Vice-Chancellor/Vice-Rector being absent for a period less than one month, the Vice-Chancellor/Rector may appoint, after consultation with the executive management, a member of the senior management as acting Deputy Vice-Chancellor/Vice-Rector.

6.2.6 In the event of a Deputy Vice-Chancellor/Vice-Rector being absent for a period in excess of one month but less than six months, the Vice-Chancellor/Rector, after consultation with the Executive Committee of the Council, must appoint an acting Deputy Vice-Chancellor/Vice-Rector.

6.2.7 Pending the appointment of a Deputy Vice-Chancellor/Vice-Rector, or if a Deputy Vice-Chancellor/Vice-Rector is absent for a period in excess of six months, the Vice-Chancellor/Rector, after consultation with the Council, shall appoint a member of Senior Management or a professor of the University as an acting Deputy Vice-Chancellor/Vice-Rector, or, in the case of two Deputy Vice-Chancellors/Vice-Rectors in office prior to the contemplated period of absence, designate the other Deputy Vice-Chancellor/Vice-Rector to assume the role and responsibility of the absent Deputy Vice-Chancellor/Vice-Rector.

6.3 Registrar(s) and Executive Director(s)

Functions and duties

6.3.1 The Registrar, or, if more than one Registrar has been appointed, the Registrars

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and the Executive Director, or if more than one Executive Director has been appointed, the Executive Directors, support the Vice-Chancellor/Rector in managing and administering the University.

6.3.2 A Registrar and an Executive Director perform such other functions and duties as determined by the Vice-Chancellor/Rector, from time to time.

6.3.3 The Registrar:

6.3.3.1 is, by virtue of his or her office, the secretary to the Council and the Senate and the committees of the Council and the Senate;

6.3.3.2 is not a member of the Council;

6.3.3.3 acts as the compliance officer of the University;

6.3.3.4 acts as the returning officer at all meetings of the Council, the Senate and the Convocation;

6.3.3.5 acts as the electoral officer of the University;

6.3.3.6 maintains the Convocation Roll of the University;

6.3.3.7 is the holder of the records of the University;

6.3.3.8 may designate any other administrative staff member to assist him or her;

6.3.3.9 provides administrative support to the governance structures of the University, which includes, but is not limited to –

(a) keeping the minutes of the Council and the Senate meetings;

(b) keeping the minutes of the meetings of all committees of the Council and the Senate; and

(c) keeping a register of all resolutions adopted by the Council and the Senate, and providing access to the register to members of the Council and the Senate respectively;

6.3.3.10 is accountable through the office of the Vice-Chancellor/Rector for his or her governance support responsibilities; and

6.3.3.11 is responsible for the academic administration support functions of the University.

6.3.4 In the absence of the Registrar, his or her powers must be exercised and his or her functions performed by a person designated by the Vice-Chancellor/Rector.

6.3.5 Employees designated in terms of subparagraph 6.3.3.8 have the same fiduciary duties and obligations as the Registrar.

Selection and appointment

6.3.6 Subject to the provisions of paragraph 8.20.3, the appointment of a Registrar or Executive Director takes place in accordance with the procedure determined by the Council.

Term of office

6.3.7 The Registrar(s) and any Executive Director(s) may be appointed permanently, or on a fixed term basis in terms of paragraph 6.3.6, as determined by the Council.

6.3.8 The provisions of paragraphs 6.1.14 to 6.1.20 apply, with the necessary changes, to the term of office of a Registrar and Executive Director not appointed on a

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permanent basis.

6.4 Dean(s)

Functions and duties

6.4.1 The functions and duties of a Dean are determined by the Council, after consultation with the Senate.

6.4.2 A Dean performs such other functions and duties as determined by the Vice-Chancellor/Rector, from time to time.

Selection and appointment

6.4.3 Subject to the provisions of paragraph 8.20.3, the appointment of a Dean takes place in accordance with the procedure decided upon by the Council, after consultation with the Senate.

Term of office

6.4.4 The provisions of paragraphs 6.1.14 to 6.1.20 apply, with the necessary changes, to the term of office of a Dean.

CHAPTER 7
Executive management

Functions and duties

7.1 Subject to the provisions of the Act and this Statute, in particular paragraph 6.1.1, the executive management assists the Vice-Chancellor/Rector with the day-to-day management, administration and operations of the University.

Composition

7.2 The executive management consists of –

7.2.1 the Vice-Chancellor/Rector;

7.2.2 the Deputy Vice-Chancellor/Vice-Rector, or if more than one Deputy Vice-Chancellor/Vice-Rector has been appointed, the Deputy Vice-Chancellors/Vice-Rectors;

7.2.3 the Registrar, or if more than one Registrar has been appointed, the Registrars; and

7.2.4 the Executive Director, or if more than on Executive Director has been appointed, the Executive Directors.

Committees of executive management

7.3 The Vice-Chancellor/Rector may establish committees consisting of the members of the executive management, and such other persons as may be determined by him or her, provided that at meetings of any committee of the executive management such person shall not have the right to vote.

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7.4 Decisions of committees of executive management are subject to the policy and decisions of the Council and the Senate and ratification or otherwise by the executive management.

7.5 The composition, manner of election, functions, quorum and procedure at meetings of any committee, must be determined by the Vice-Chancellor/Rector, in consultation with the executive management, and provided for in the rules.

CHAPTER 8
Council

Functions and duties

8.1 Subject to the provisions of the Act and this Statute, the Council governs the University by exercising a general oversight responsibility over the institution as contemplated in s27(1) of the Act.

Composition

8.2 The Council of the University shall consist of not more than thirty members of which at least 60 percent must be members who are not registered students or employees of the university, including –

8.2.1 the Vice-Chancellor/Rector and the Deputy Vice-Chancellor/Vice-Rector, or if more than one Deputy Vice-Chancellor/Vice-Rector has been appointed, the Deputy Vice-Chancellors/Vice-Rectors, provided that should the total number of the members of the Council exceed the maximum number allowed by the Act, or the internal membership of the Council exceed 40 percent of the total number of members as a result of the number of Deputy Vice-Chancellors/Vice-Rectors appointed by the University, the Vice-Chancellor/Rector must designate the Deputy Vice-Chancellor(s)/Vice-Rector(s) that may serve on the Council;

8.2.2 five persons appointed by the Minister;

8.2.3 two members of the Senate who are not student representatives, elected by the Senate;

8.2.4 one academic employee of the University, not being a member in terms of paragraph 8.2.3, elected in the manner provided for in paragraphs 8.28 to 8.34, by the academic employees;

8.2.5 one professional, support or administrative staff member of the University, not being a member in terms of paragraph 8.2.3, elected in the manner provided for in paragraph 8.36, elected by the professional, support or administrative staff members;

8.2.6 two registered students of the University, one of whom may be the President of the Students' Representative Council, elected by the Students' Representative Council;

8.2.7 two persons, elected in the manner provided for in paragraphs 12.17 and 12.20 to 12.26, by the Convocation from among its members;

8.2.8 two persons who are donors as determined in accordance with paragraphs 13.1 to 13.3, and appointed as members in accordance

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with paragraph 13.4;

8.2.9 one member of the Council of the City of Cape Town, elected by such Council;

8.2.10 one person designated by the Premier of the Western Cape Province;

8.2.11 one member of organised business in the Western Cape Province, elected by such organisation, provided that if more than one such organisation exists, the Council may determine which of such organisations may elect such person;

8.2.12 one member of organised business in the the Republic of South Africa, elected by such organisation, provided that if more than one such organisation exists, the Council may determine which of such organisations may elect such person;

8.2.13 one member of organised labour in the Western Cape Province, elected by such organisation, provided that if more than one such organisation exists, the Council may determine which of such organisations may elect such person;

8.2.14 one member of organised labour in the Republic of South Africa, elected by such organisation, provided that if more than one such organisation exists, the Council may determine which of such organisations may elect such person;

8.2.15 not more than five additional members having special knowledge or expertise, as may be determined in terms of paragraphs 8.23 to 8.26;

8.2.16 If 60 per cent of the members of the Council, not being persons in the employ or students of the University, vacate their office, it is deemed that the Council has resigned; and

8.2.17 A member of the Council may not without prior written notice to the Council serve on the Council of another university.

8.3 Members contemplated in paragraphs 8.2.2 and 8.2.8 to 8.2.15, may not be persons who are employees of the University.

8.4 The members of the Council owe a fiduciary duty to the University, and in this regard the members must –

8.4.1 be persons with knowledge and experience relevant to the objects and governance of the University;

8.4.2 adhere to the standards of conduct and behaviour prescribed in a code of conduct applicable to members of the Council as contemplated in section 27(7E) of the Act, and such code of conduct must be provided for in the rules; and

8.4.3 participate in the deliberations of the Council with unfettered discretion and in the best interests of the University,

8.4.4 must be eligible to serve on the Council at all times in accordance with the provisions of the Act and the rules of the University.

Term of office

8.5 The term of office of members of the Council is as follows –

8.5.1 members contemplated in paragraphs 8.2.2 to 8.2.5, and 8.2.7 to 8.14, three years;

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8.5.2 members contemplated in paragraph 8.2.6, one year;

8.5.3 members contemplated in paragraph 8.2.15, a minimum of one year and a maximum of three years; and

8.5.4 all other members for as long as they hold the particular office.

8.6 Members, whose terms of office have expired, may be re-elected or reappointed for a second term only.

8.7 Where applicable and notwithstanding anything to the contrary contained in this Statute, any member re-elected or reappointed in terms of paragraph 8.6 to serve a second term shall not be automatically entitled to resume his or her service on the Senate, Institutional Forum or any other committee, unless specifically elected or appointed to serve, pursuant to his or her re-election or re-appointment.

Termination and vacating of office

8.8 A casual vacancy on the Council caused by the death of, or the vacating of his or her office by a member must, with due regard to the provisions of paragraph 8.2, be filled for the unexpired portion of the period of office of such member.

8.9 A member of the Council, other than the Vice-Chancellor/Rector and any Deputy Vice-Chancellor/Vice-Rector, vacates his or her office if he or she –

8.9.1 resigns from the Council or has his or her membership terminated in writing by the entity who appointed or elected the member to the Council;

8.9.2 is absent from two consecutive ordinary meetings of the Council without apology;

8.9.3 is declared by a court of law to be insolvent or otherwise incapable of attending to his or her own affairs;

8.9.4 has been declared by a High Court with jurisdiction to be mentally ill;

8.9.5 has at any time been removed from an office of trust on account of a breach of fiduciary duties or due to misconduct involving dishonesty;

8.9.6 is convicted of an offence and is sentenced to imprisonment without the option of a fine;

8.9.7 subject to paragraph 8.2.16, accepts an appointment as a member of the Council of, or an offer of employment in an executive managerial capacity at another higher education institution;

8.9.8 accepts a permanent appointment as an employee at the University or registers as a student at the University, except in the case of members contemplated in paragraphs 8.2.3, 8.2.4 and 8.2.5; or

8.9.9 after due process has been followed, is removed from the Council by a sanction imposed on him or her by the Council by reason of a contravention of the code of conduct contemplated in paragraph 8.4.2.

8.10 The Council has the power to take disciplinary action against any member of the Council who fails to adhere to, or comply with, any of the functions, duties,

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including fiduciary duties, responsibilities or standards of conduct and behaviour prescribed herein or in any other code of conduct or set of rules that are applicable to members of the Council from time to time. Such disciplinary action shall include, but shall not be limited to, suspending a member from attending meetings of the Council and suspending or terminating a member's membership of the Council, on such terms as the Council may in its sole and absolute discretion determine.

Chairperson, Vice-Chairpersonand secretary

8.11 The Council must elect one of its members as Chairperson and one of its members as Vice-Chairperson, provided that such persons may not be employees, students, members of the Senate or members of any other constituency of the University.

8.12 In the absence of the Chairperson, or on his or her request, the Vice-Chairperson performs the functions of the Chairperson.

8.13 Whenever both the Chairperson and Vice-Chairperson are absent from a meeting of the Council, the members present must elect a person from among their number to preside at that meeting.

8.14 The Chairperson and Vice-Chairperson shall hold office for the duration of their respective terms as members of the Council and may be re-elected for a second term, provided that they have also been re-elected as members of the Council, and provided further that they were not removed from office by a resolution of the Council.

8.15 The Registrar or if more than one Registrar has been appointed, the Registrar designated by the Council is the secretary of the Council, provided that he or she may designate one or more of the employees of the University to assist him or her in the performance of his or her duties or to take his or her place as secretary in his or her absence.

Quorum

8.16 At all meetings of the Council one more than half the number of members envisaged in paragraphs 8.2.1 to 8.2.15, present in person or by electronic communication, constitutes a quorum.

8.17 In the event of there being no quorum fifteen minutes after the time determined for the meeting, the meeting shall adjourn without motion or vote, for fifteen minutes, after which the members present, whether present in person or by electronic communication, shall be deemed to constitute the requisite quorum.

8.18 Matters that require a decision must be communicated to members of Council with the request for approval within a timeframe determined by the Registrar.

Responsibilities of the Council

8.19 The Council has particular oversight responsibility for –

8.19.1 strategic governance;

8.19.2 financial governance;

8.19.3 student discipline, in accordance with Chapter 16;

8.19.4 staff matters, in accordance with Chapter 17; and

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8.19.5 formulating overall policy for the University.

8.20 The Council receives and considers written advice from the Institutional Forum before taking decisions on the following matters –

8.20.1 the implementation of the national higher education policy;

8.20.2 policy regarding race, gender, disability and employment equity;

8.20.3 the selection or appointment of persons to senior management positions;

8.20.4 codes of general conduct as well as procedures for mediation and dispute resolution; and

8.20.5 the establishment of a positive academic environment and an institutional culture to promote human rights .

8.21 The Council –

8.21.1 shall ensure and exercise oversight over the proper keeping of the accounting records of the assets, liabilities, income, expenditure and other financial transactions of the University and its substructures; and

8.21.2 is responsible for the submission of reports, financial and otherwise, to the Minister as may be required in terms of the Act.

Delegation

8.22 In accordance with section 68(2) of the Act, the Council may, on such conditions as it may determine, delegate any of its powers, except the power to –

8.22.1 make an institutional statute;

8.22.2 enter into an agreement contemplated in section 40(2) of the Act; or

8.22.3 perform an action contemplated in section 40(3) of the Act,

and may, on such conditions as it may determine, assign any of its duties, to any other internal structure(s), the Vice-Chancellor/Rector or any other employee(s) of the University.

Appointment of additional members

8.23 Nominations for persons to be appointed as additional members of the Council in terms of the provisions of paragraph 8.2.15 must be submitted to the Registrar at least two weeks before the meeting of the Council.

8.24 Nominations in writing may be submitted by any person or body having an interest in the University and must contain the nominee's full particulars as well as his or her written acceptance of the nomination.

8.25 At the meeting of the Council all the nominations must be scrutinized with a view to determine the expertise or representation of particular interests each of the nominees may bring to the Council.

8.26 Decisions as to the number of additional members to be appointed are taken by an ordinary majority vote of members of the Council present at the meeting, whether present in person or by electronic communication.

8.27 Decisions as to which of the nominees are to be appointed to the Council as additional members and as to their respective periods of office, are taken by an ordinary majority vote of the Council members holding office at the date of the meeting.

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Election of academic employees and professional, support or administrative staff members

8.28 In order for the academic employees of the University to elect a member of the Council in terms of the provisions of paragraph 8.2.4, the Registrar must invite such employees, by way of a notice in writing which must either be mailed or sent by electronic communication to their campus addresses, to nominate, within a period of at least fourteen days, one academic employee to serve as a member of the Council.

8.29 Each nomination must be in writing and signed by two academic employees and countersigned by the nominee to signify his or her acceptance of such nomination.

8.30 If on the expiry of the period referred to in paragraph 8.28, the number of persons nominated does not exceed one in number, the Registrar must immediately declare such person to be duly elected.

8.31 In the event of more than one person being nominated, the Registrar must, within a period of fourteen days after the period referred to in paragraph 8.28, mail or send by electronic communication to each academic employee a ballot, in the form determined by the Council, bearing the names of the duly nominated candidates in alphabetical order and informing the academic employees of the date by which completed ballots must reach the Registrar's office.

8.32 A ballot that is not completed in accordance with the instructions on such ballot is invalid.

8.33 The Registrar acts as returning officer and he or she may be assisted by one or more members of his or her staff.

8.34 The candidate who received the highest number of votes must be declared to be duly elected by the Registrar.

8.35 Where the number of votes recorded for two or more candidates is equal and affects the result of the election, the Registrar must announce a re-election between the candidates who received the equal number of votes, and the candidate who receives the highest number of votes in such re-election must be declared duly elected.

8.36 The election of a professional, support or administrative staff member to serve as a member of the Council in terms of paragraph 8.2.5, takes place, with the necessary changes, in the manner provided for in paragraphs 8.28 to 8.35.

Meetings of the Council

8.37 At least two ordinary meetings of the Council must be held each semester.

8.38 At least ten calendar days before the date set for an ordinary meeting, the Registrar must notify each member in writing of the time and place of the meeting as well as of the matters to be considered at the meeting.

8.39 The Chairperson of the Council, may after consultation with the Vice-Chairperson of the Council, and must at the request in writing by at least ten members of the Council, call a special meeting.

8.40 For a special meeting at least three days written notice must be given to every member of the Council and in such notice the Registrar must state the time and place of the meeting and the business for which the meeting is called.

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Agenda of ordinary meetings of the Council

8.41 Subject to paragraph 8.42, the Council may at a meeting deal only with those matters which appear on the agenda and of which notice has been given to members.

8.42 Any member of the Council who desires to have a matter placed on the agenda must notify the Registrar accordingly in writing at least three days before the date on which the Registrar must give notice of the meeting.

8.43 With the consent of at least two-thirds of the members present at the meeting, whether present in person or by electronic communication, any member may at an ordinary meeting table a motion of an urgent nature without prior notice.

8.44 A matter may not be withdrawn or removed from the agenda without the consent of a majority of the members present at the meeting, whether present in person or by electronic communication, and any matter so withdrawn or removed may not be tabled as a motion or otherwise discussed at such meeting.

Procedure at meetings of the Council

8.45 When an ordinary meeting of the Council has been constituted, the minutes of the previous meeting and of any special meetings held subsequent thereto must be read and confirmed under the signature of the Chairperson.

8.46 The meeting may take the minutes as read if a copy thereof has been forwarded to each member at least ten days before the meeting.

8.47 Any objections to the minutes must be raised and dealt with before the confirmation thereof.

8.48 A motion, or any amendment thereof, must be seconded and, should the Chairperson so direct, must be in writing.

8.49 No motion may be withdrawn without the consent of the meeting.

8.50 After a quorum has been established and save as otherwise provided for in this Statute, a resolution of the majority of the members present at the time of voting, whether present in person or by electronic communication, is deemed to be a resolution of the Council, provided that in the case of an equality of votes, the Chairperson has a casting vote in addition to his or her deliberative vote.

8.51 The number of members voting for and against a motion must be recorded in the minutes.

8.52 At the request of a member, the Chairperson must direct that the vote of such member be recorded in the minutes.

8.53 The opinion of a member who is unable to attend a meeting either in person or by electronic communication must, if it has been put in writing, be laid before the meeting, but, save as provided for in Chapter 25, may not count as such member's vote.

8.54 Without the consent of the Chairperson no member may speak more than once to a motion or an amendment thereto, but the mover of the motion or amendment may reply to any discussion thereon.

8.55 The ruling of the Chairperson on any question of order or procedure at meetings for which no provision is made in the Act or this Statute, is final, unless immediately challenged by a member, upon which the matter must be put before

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the meeting, without any further discussion, for a final decision.

8.56 The Registrar must keep minutes of the proceedings at all meetings of the Council.

Executive Committee of the Council

8.57 The Council must establish an Executive Committee consisting of –

8.57.1 the Chairperson of the Council, who is the Chairperson;

8.57.2 the Vice-Chairperson of the Council;

8.57.3 four members of the Council, not being employees or students of the University, elected by the Council;

8.57.4 the Vice-Chancellor/Rector;

8.57.5 the Deputy Vice-Chancellor/Vice-Rector, or if more than one Deputy Vice-Chancellor/Vice-Rector has been appointed, a Deputy Vice-Chancellor/Vice-Rector designated by the Vice-Chancellor/Rector;

8.57.6 one of the representatives of the Senate on the Council, designated by the Senate for that purpose;

8.57.7 the person being a member of the Council in terms of paragraph 8.2.4;

8.57.8 the person being a member of the Council in terms of paragraph 8.2.5;

8.57.9 one person being a member of the Council in terms of paragraph 8.2.6 designated by the Students' Representative Council; and

8.57.10 if the Council so decides, a maximum of three other members of the Council, not being employees or students of the University, elected annually from its own ranks.

8.58 The time, place and agenda for meetings are determined by the Chairperson after consultation with the Vice-Chairperson and the Vice-Chancellor/Rector.

Quorum

8.59 At all meetings of the Executive Committee of the Council one more than half of the members, present in person or by electronic communication, constitutes a quorum, provided that at least two of such members must be persons not being in the employ or students of the University.

8.60 Subject to the proviso to paragraph 8.59, in the event of there being no quorum fifteen minutes after the time fixed for the meeting, the meeting shall adjourn without motion or vote, for fifteen minutes, after which the members present, whether present in person or by electronic communication, shall be deemed to constitute the requisite quorum.

8.61 The provisions of paragraph 8.50 apply, with the necessary changes, to meetings of the Executive Committee of the Council.

8.62 The Executive Committee of the Council may take any decision with regard to urgent matters in the interest of the University and matters delegated to the committee by the Council, provided that the Council must be informed at the earliest opportunity of such decisions in writing, and provided further that the

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Council may not revoke decisions taken on an urgent basis and decisions taken on account of delegated authority that are already implemented.

Term of office

8.63 The term of office of members of the Executive Committee of Council is as follows –

8.63.1 members contemplated in paragraphs 8.57.1 to 8.57.3, and 8.57.6 to 8.57.8, three years;

8.63.2 member contemplated in paragraph 8.57.9, one year;

8.63.3 members contemplated in paragraph 8.57.10, one year; and

8.63.4 all other members for as long as they hold the particular office.

8.64 Members, whose terms of office have expired, may be re-elected or reappointed for a second term only.

8.65 Where applicable and notwithstanding anything to the contrary contained in this Statute, any member re-elected or reappointed in terms of paragraph 8.6 to serve a second term shall not be automatically entitled to resume his or her service on the Senate, Institutional Forum or any other committee, unless specifically elected or appointed to serve, pursuant to his or her re-election or re-appointment.

Allowances

8.66 The Council may decide to pay an allowance to office bearers and members of the Council, not being students or persons in the employ of the University, and may determine the amount of such allowance.

Attendance of meetings of the Council by non-members

8.67 A person who is not a member of the Council may, on the invitation of the Chairperson of the Council on behalf of the Council, attend any meeting of the Council either in person or by electronic communication and may, on the invitation of the Chairperson, address the Council on any matter, provided that such person has no vote.

Declaration of interests

8.68 A member of the Council or a member of a committee of the Council must in writing, before he or she assumes office, declare any business, commercial or financial activities undertaken for financial gain that may raise a conflict or a possible conflict of interest with the University.

8.69 A member of the Council or a member of a committee of the Council who has a direct or indirect business, commercial, financial, personal or other interest in any matter to be discussed at a meeting and which entails or may entail a conflict or possible conflict of interest must, before the meeting, declare and inform the Chairperson in writing of the conflict or possible conflict of interest.

8.70 After making the declaration contemplated in paragraph 8.68 or 8.69, such member of the Council or a committee of the Council must excuse himself or herself from the meeting during the discussion of the matter and the voting thereon, unless Council decides otherwise by a majority vote, and while absent he or she is not to be regarded as being present for purposes of paragraph 8.50.

8.71 In accordance with section 27(7E) of the Act, the Council must determine the

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procedures for an annual declaration –

8.71.1 by each member of the Council, each member of a committee of the Council and each person who exercises functions of the Council in terms of delegated authority;

8.71.2 of his or her financial interests and fiduciary roles, the latter to include but not be limited to offices, directorships of companies, memberships of close corporations and trusteeships held; and

8.71.3 of the financial interests and fiduciary roles of the members of his or her immediate family, and such procedures must be provided for in the rules.

CHAPTER 9
Senate

Functions and duties

9.1 Subject to the provisions of the Act and this Statute, the Senate is responsible and accountable to the Council, for the general academic and research functions of the University and performs such other functions as may be delegated or assigned to it by the Council.

Composition

9.2 The Senate of the University consists of –

9.2.1 the Vice-Chancellor/Rector;

9.2.2 the Deputy Vice-Chancellor/Vice-Rector, or if more than one Deputy Vice-Chancellor/Vice-Rector has been appointed, the Deputy Vice-Chancellors/Vice-Rectors;

9.2.3 two members of the Council elected by the Council;

9.2.4 the Deans;

9.2.5 the Registrar, or if more than one Registrar has been appointed, the Registrars;

9.2.6 the Executive Director, or if more than one Executive Director has been appointed, the Executive Directors;

9.2.7 such visiting, extraordinary and honorary professors attached to the University as decided upon by the Council on the recommendation of the Senate;

9.2.8 the directors of the different schools, centres and institutes of the University and such directors or heads of similar structures as decided upon by the Council on the recommendation of the Senate;

9.2.9 the Chairpersons of the different academic departments or similar academic structures;

9.2.10 the professors of the University, which, for purposes of paragraph 9.2, includes associate professors, but excludes professors contemplated in paragraph 9.2.7 and professors who are members of the Senate in terms of paragraphs 9.2.4, 9.2.8 and

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9.2.9;

9.2.11 one academic employee per faculty of the University, not being members of the Senate in terms of paragraphs 9.2.4 and 9.2.7 to 9.2.10, elected from within the relevant faculty in terms of paragraph 9.20, provided that each faculty must be represented by a person attached to the teaching or research staff of such faculty;

9.2.12 eight professional, support or administrative staff members of the University, elected in the terms of paragraph 9.20;

9.2.13 eight registered students of the University elected by the Students' Representative Council, provided that each one of the faculties must be represented by at least one student registered in such faculty;

9.2.14 the University librarian; and

9.2.15 such additional persons, but not more than eight in number, as may be decided upon by the Senate.

9.3 The provisions of paragraph 8.4 apply, with the necessary changes, to members of the Senate.

Term of office

9.4 The period of office of members of the Senate is as follows-

9.4.1 members contemplated in paragraphs 9.2.11, 9.2.12 and 9.2.15, two years;

9.4.2 members contemplated in paragraph 9.2.13, one year; and

9.4.3 all other members for as long as they hold the particular office,

unless, before the expiry of such period, a member submits his or her resignation in writing to the Senate or vacates his or her office for any other reason.

Vacancies

9.5 A casual vacancy on the Senate caused by –

9.5.1 the death of a member; or

9.5.2 the vacation of a member's office, in the manner as contemplated in paragraph 8.9 with the necessary changes applying thereto,

must, with due regard to the provisions of paragraph 9.2, be filled for the unexpired portion of the period of office of such member.

Chairperson, Vice-Chairpersonand secretary

9.6 The Vice-Chancellor/Rector is the Chairperson of the Senate.

9.7 The Deputy Vice-Chancellor/Vice-Rector is the Vice-Chairperson of the Senate, but if more than one Deputy Vice-Chancellor/Vice-Rector has been appointed, then the Senate must elect one of the Deputy Vice-Chancellors/Vice-Rectors as the Vice-Chairperson.

9.8 In the absence of the Chairperson, or on his or her request, the Vice-Chairperson performs the functions of the Chairperson, and if both the Chairperson and the Vice-Chairperson are absent from a meeting of the Senate, then the other Deputy Vice-Chancellor/Vice-Rector in office, if any, shall preside at that meeting. Should there not be another Deputy Vice-Chancellor/Vice-Rector in office as

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contemplated, then the members present at the meeting, whether present in person or by electronic communication, must elect a person from among their number to preside at that meeting, provided that such elected member must also be a member of senior management.

9.9 The Registrar, or if more than one Registrar has been appointed, the Registrar designated by the Council is the secretary of the Senate, provided that he or she may designate one or more of the employees of the University to assist him or her in the performance of his or her duties or to take his or her place as secretary in his or her absence.

9.10 The Vice-Chairperson holds office for a period of two calendar years.

Quorum

9.11 At all meetings of the Senate one more than half of the total number of members, present in person or by electronic communication, constitutes a quorum, provided that members of the Senate who are in the employ of the University and who are on approved leave are deemed not to be members of the Senate for the purpose of constituting a quorum.

9.12 In the event of there being no quorum fifteen minutes after the time fixed for the meeting, the meeting shall adjourn without motion or vote, for fifteen minutes, after which the members present, whether present in person or by electronic communication, shall be deemed to constitute the requisite quorum.

Specific functions of the Senate

9.13 Subject to the provisions paragraphs 8.1 and 8.19, the functions of the Senate include, but are not limited to –

9.13.1 the superintendence and regulation of instruction and research in the various faculties, academic departments, centres, institutes, lectures and classes of the University;

9.13.2 the organisation and control of the curricula, syllabi and examinations of the University; and

9.13.3 the performance of such other functions as may be delegated or assigned to it by the Council.

Appointment of additional members

9.14 The appointment of persons as additional members of the Senate in terms of the provisions of paragraph 9.2.15, is made by the Senate.

9.15 Nominations for additional persons to be appointed as additional members of the Senate must be submitted to the Registrar at least two weeks before the meeting of the Senate.

9.16 Nominations may be submitted by any structure of the University having an interest in the academic activities of the University and must contain the nominee's full particulars as well as his or her written acceptance of the nomination.

9.17 At the meeting of the Senate all nominations must be scrutinized with a view to determine the academic expertise or representation of particular interests each of the nominees may bring to the Senate.

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9.18 Decisions as to which of the nominees are to be recommended to the Council to be appointed as additional members of the Senate, are taken by an ordinary majority vote of the members of the Senate present at the meeting, whether present in person or by electronic communication.

9.19 Voting takes place by ballot, but where members of the Senate cannot attend the meeting, they may participate in the meeting and vote by electronic communication, and the nominees receiving the highest number of votes are deemed to be duly recommended to the Council for appointment as additional members.

Election of academic employees and professional, support or administrative staff members

9.20 The election of academic employees and professional, support or administrative staff members to serve as members of the Senate in terms of the provisions of paragraphs 9.2.11 and 9.2.12, takes place, with the necessary changes, in the manner provided for in paragraphs 8.28 to 8.35.

Meetings of the Senate

9.21 At least two ordinary meetings of the Senate must be held each semester.

9.22 At least five days before the date set for an ordinary meeting the Registrar must notify each member in writing of the time and place of the meeting as well as of the matters to be considered at the meeting.

9.23 The Chairperson of the Senate may, after consultation with the Vice-Chairperson of the Senate, and must at the request in writing by at least fifty members of the Senate, call a special meeting.

9.24 For a special meeting at least two days written notice must be given to every member of the Senate and in such notice the Registrar must state the time and place of the meeting and the business for which the meeting is called.

Procedure at meetings of the Senate

9.25 The provisions of paragraphs 8.45 to 8.54 apply, with the necessary changes, to meetings of the Senate.

Executive Committee of the Senate

9.26 At its first ordinary meeting during the calendar year the Senate must establish an Executive Committee consisting of –

9.26.1 the Vice-Chancellor/Rector, who is the Chairperson;

9.26.2 the Deputy Vice-Chancellor/Vice-Rector, or if more than one Deputy Vice-Chancellor/Vice-Rector has been appointed, the Deputy Vice-Chancellors/Vice-Rectors;

9.26.3 the Registrar, or if more than one Registrar has been appointed, the Registrars;

9.26.4 the Executive Director, or if more than one Executive Director has been appointed, the Executive Directors;

9.26.5 the Deans;

9.26.6 one person being a member of the Senate in terms of

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paragraph 9.2.11, elected by the Senate;

9.26.7 one person being a member of the Senate in terms of paragraph 9.2.12, elected by the Senate;

9.26.8 one person being a member of the Senate in terms of paragraph 9.2.13, elected by the Senate; and

9.26.9 a maximum of four other members of the Senate elected from its own number.

Term of office

9.27 The period of office of members of the Executive Committee of Senate is as follows-

9.27.1 members contemplated in paragraphs 9.26.6, 9.26.7 and 9.26.9, two years;

9.27.2 members contemplated in paragraph 9.26.8, one year; and

9.27.3 all other members for as long as they hold the particular office,

unless, before the expiry of such period, a member submits his or her resignation in writing to the Executive Committee of Senate or vacates his or her office for any other reason.

9.28 The time, place and agenda for meetings are determined by the Vice-Chancellor/Rector.

Quorum

9.29 At all meetings of the Executive Committee of the Senate one more than half of the members, present in person or by electronic communication, constitutes a quorum.

9.30 In the event of there being no quorum fifteen minutes after the time fixed for the meeting, the meeting shall adjourn without motion or vote, for fifteen minutes, after which the members present, whether present in person or by electronic communication, shall be deemed to constitute the requisite quorum.

9.31 The provisions of paragraph 8.50 apply, with the necessary changes, to meetings of the Executive Committee of the Senate.

9.32 The Executive Committee of the Senate may take any decision on behalf of the Senate with regard to urgent matters within the mandate of the Senate and matters delegated to the committee by the Senate, provided that the Senate must be informed at the earliest opportunity of such decisions in writing, and provided further that the Senate may not revoke decisions taken on an urgent basis and decisions taken on account of delegated authority that are already implemented.

Attendance of meetings of the Senate by non-members

9.33 A person who is not a member of the Senate may, on the invitation of the Chairperson of the Senate on behalf of the Senate, attend any meeting of the Senate either in person or by electronic communication and may, on the invitation of the Chairperson, address the Senate on any matter, provided that such person has no vote.

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CHAPTER 10
Institutional Forum

Functions and duties

10.1 The Institutional Forum of the University –

10.1.1 must advise the Council on issues affecting the University, including –

10.1.1.1 the implementation of the Act and state policy on higher education;

10.1.1.2 policy regarding race, gender, disability and labour equity;

10.1.1.3 the selection of candidates for senior management positions;

10.1.1.4 codes of conduct, mediation and dispute resolution procedures; and

10.1.1.5 the creating of an appropriate environment for teaching, research and learning and the fostering of a culture which promotes tolerance and respect for fundamental human rights at the University;

10.1.2 may advise the Council on any matter it deems fit; and

10.1.3 performs such other functions as may be determined by the Council.

Composition

10.2 The Institutional Forum of the University consists of –

10.2.1 three representatives of the executive management of the University, appointed by the members of the executive management;

10.2.2 three representatives of the Senate elected by the Senate;

10.2.3 three representatives of the Council elected by the Council from the members who are not employees or students of the University;

10.2.4 three representatives of the academic employees of the University elected by an organisation representing such employees and recognised by the Council as such, provided that if no such organization exists such representatives are to be elected in manner provided for in paragraphs 8.28 to 8.35;

10.2.5 three representatives of the professional, support or administrative staff members of the University elected by an organisation representing such employees and recognised by the Council as such, provided that if no such organization exists such representatives are to be elected in the manner provided for in paragraph 8.36;

10.2.6 three representatives of the registered students of the University elected by the Students' Representative Council; and

10.2.7 one or more members co-opted by the Institutional Forum for the specific purpose of assisting the Institutional Forum in respect of

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any area of expertise.

10.3 The provisions of paragraph 8.4 apply, with the necessary changes, to members of the Institutional Forum.

Term of office

10.4 The period of office of members of the Institutional Forum is as follows-

10.4.1 members contemplated in paragraph 10.2.3, three years;

10.4.2 members contemplated in paragraph 10.2.6, one year; and

10.4.3 all other members, two years,

unless, before the expiry of such period, a member submits his or her resignation in writing to the Institutional Forum or vacates his or her office for any other reason.

Vacancies

10.5 A casual vacancy on the Institutional Forum caused by –

10.5.1 the death of a member; or

10.5.2 the vacation of a member's office, in the manner as contemplated in paragraph 8.9 with the necessary changes applying thereto,

must, with due regard to the provisions of paragraph 10.2, be filled for the unexpired portion of the period of office of such member.

Chairperson, Vice-Chairperson and secretary

10.6 The Institutional Forum must elect one of its members as Chairperson and one of its members as Vice-Chairperson, provided that such persons may not be employees, students or office bearers of any other constituency of the University.

10.7 In the absence of the Chairperson, or on his or her request, the Vice-Chairperson performs the functions of Chairperson, and if both the Chairperson and the Vice-Chairperson are absent from a meeting of the Institutional Forum, then the members present must elect a person from among themselves to preside at that meeting.

10.8 The Registrar or if more than one Registrar has been appointed, the Registrar designated by the Council is the Secretary of the Institutional Forum, provided that he or she may designate one or more of the employees of the University to assist him or her in the performance of his or her duties or to take his or her place as secretary in his or her absence.

10.9 The Chairperson and Vice-Chairperson shall hold office for a period of two calendar years.

Quorum

10.10 At all meetings of the Institutional Forum one more than half of the total number of members, present in person or by electronic communication, constitutes a quorum.

10.11 In the event of there being no quorum fifteen minutes after the time fixed for the meeting, the meeting shall adjourn without motion or vote, for fifteen minutes, after which the members present, whether present in person or by electronic

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communication, shall be deemed to constitute the requisite quorum.

Meetings of Institutional Forum

10.12 At least two ordinary meetings of the Institutional Forum must be held each semester.

10.13 At least five days before the date set for an ordinary meeting the secretary to the Institutional Forum must notify each member in writing of the time and place of the meeting as well as of the matters to be considered at the meeting.

10.14 The Chairperson of the Institutional Forum may, after consultation with the Vice-Chairperson of the Institutional Forum, and must at the request in writing by at least ten members of the Institutional Forum, call a special meeting.

10.15 For a special meeting at least two days written notice must be given to every member of the Institutional Forum and in such notice the secretary must state the time and place of the meeting and the business for which the meeting is called.

10.16 The provisions of paragraphs 8.41 to 8.56 apply, with the necessary changes, to meetings of the Institutional Forum.

CHAPTER 11
Committees

11.1 The Council, the Senate and the Institutional Forum may each establish committees consisting of members of the Council, the Senate and the Institutional Forum respectively, as well as other persons to perform any of their respective functions.

11.2 The Council and the Senate may establish joint committees consisting of members of the Council and the Senate as well as other persons to perform their respective functions.

11.3 The Council, the Senate and the Institutional Forum are not divested of responsibility for the performance of any function delegated or assigned to a committee and may alter or set aside decisions of such committees.

11.4 The Council may decide to pay an allowance to anyone, not being an employee or student of the University, serving on a committee of the Council, the Senate, a joint committee of the Council and the Senate or a committee of the Institutional Forum, and may determine the amount of such allowance.

11.5 Subject to the provisions of paragraphs 8.57 to 8.61, and paragraphs 9.26 to 9.31, the composition, manner of election, functions, quorum and procedure at meetings of any committee or joint committee, must be provided for in the rules.

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CHAPTER 12
Convocation

Composition

12.1 The Convocation consists of the assembly of –

12.1.1 the academic employees whilst in the employ of the University, appointed permanently or on contract for a period of not less than one year to posts at the University;

12.1.2 the Vice-Chancellor/Rector, the Deputy Vice-Chancellor/Vice-Rector or, if more than one Deputy Vice-Chancellor/Vice-Rector has been appointed, the Deputy Vice-Chancellors/Vice-Rectors, the Registrar, or if more than Registrar has been appointed, the Registrars; the Executive Director, or if more than one Executive Director has been appointed, the Executive Directors, and the University librarian;

12.1.3 the two members of the Council elected by the Council as members of the Senate;

12.1.4 all emeritus professors of the University;

12.1.5 the graduates of the University, provided that any graduate who notifies the Council in writing that he or she does not wish to continue to be a member of the Convocation ceases to be a member upon receipt of that notice by the Council; and

12.1.6 for the avoidance of doubt but subject to the proviso to paragraph 12.1.5, all persons who were members of the Convocation at the commencement of this Statute.

President of the Convocation

12.2 The President of the Convocation is the Chairperson of the Convocation, elected from its own ranks, and has no executive authority or executive powers.

12.3 Nominations for the President of the Convocation shall be presented at the annual general meeting of the Convocation where the election shall take place, and each nomination must be supported by a substantive motivation.

12.4 The nominee receiving the majority of the votes shall be elected as the President of the Convocation, provided that such nominee is present in person at the annual general meeting where the election took place. If no nominee receives such a majority of votes, the nominee who has received the lowest number of votes must be eliminated and the voting process shall be repeated until one of the nominees receives a majority of the votes.

12.5 After the Convocation has elected a President, his or her term as President of the Convocation subsists until such time as his or her successor is appointed at the following annual general meeting.

Secretary

12.6 The Registrar is the secretary of the Convocation, provided that he or she may

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designate one or more of the employees of the University to assist him or her in the performance of his or her duties or to take his or her place as secretary in his or her absence.

Meetings of the Convocation

12.7 The Convocation shall hold an annual general meeting at the seat of the University, which meeting shall be convened by the secretary of the Convocation after consultation with the President of the Convocation.

12.8 Any notice of motion or matters for discussion must be submitted in writing to the secretary of the Convocation at least fourteen days before the date of the meetings contemplated in paragraphs 12.7 and 12.9.

12.9 A special meeting of the Convocation may at any time be convened by the President of the Convocation, and must be convened by him or her within two months of the receipt by the secretary of the Convocation of a written request signed by not less than one hundred members, stating by way of specific motion the subject for consideration at such meeting.

12.10 No business other than that for which the meeting was called may be dealt with at a special meeting.

12.11 The Convocation may discuss any matter relating to the University or referred to it by the Council, and may convey its decision thereon to the Council.

12.12 The President of the Convocation is the Chairperson at all meetings of the Convocation, and in his or her absence from a meeting of the Convocation, the members present at the meeting must elect a member from their own ranks to act as Chairperson at that meeting.

12.13 A notice of a meeting of the Convocation, with a short statement of the business to be considered, must be placed by the secretary of the Convocation, in one local and one national newspaper at least thirty days before the day appointed for such meeting, or, alternatively, and if practicable and feasible, such may be sent by the secretary of the Convocation to each member by electronic communication to the appropriate address as it appears on the roll of the Convocation, and such notice must be sent to members at least fourteen days before the date appointed for the meeting.

Quorum at meetings of the Convocation

12.14 One hundred members of the Convocation constitute a quorum.

Procedure at meetings of the Convocation

12.15 In the event of there being no quorum fifteen minutes after the time fixed for the meeting, the meeting may proceed with such formal business as the Chairperson may deem necessary for the continuity of the Convocation's activities.

12.16 Subject to the provisions of paragraphs 12.14 and 12.15, the procedure at all meetings of the Convocation is, with the necessary changes, that which is provided for in paragraphs 8.41 to 8.56.

Activities of the Convocation

12.17 Subject to the provisions of paragraphs 12.20 to 12.26, the Convocation elects

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such number of members of the Council as the Convocation is entitled to.

12.18 The Convocation discusses such matters as may have been referred to it by the Council during the period since the previous meeting of the Convocation or such matters pertaining to the University as may have come to the attention of the President of the Convocation since the previous meeting.

12.19 As soon as possible after a meeting of the Convocation, the secretary of the Convocation must send to the Chairperson of the Council, for the Council's information, and to the Chairperson of the Senate, for the Senate's information, and electronically to members of Convocation on the Convocation roll database a copy of all resolutions passed by the Convocation and a statement on any other matters on which decisions were passed by the Convocation.

Election of members of the Council

12.20 Whenever the Convocation has to elect a member of the Council in terms of paragraph 8.2.7, the secretary of the Convocation must, at least two months before the annual general meeting, invite each member of the Convocation by written invitation to nominate in writing a member of the Convocation for election as a member of the Council, and each nomination must be accompanied by a written motivation.

12.21 Each nomination, signed by not less than five members of the Convocation and countersigned by the member so nominated to signify his or her acceptance of such nomination, must be lodged with the secretary of the Convocation not less than one month before the date set for such election.

12.22 The secretary of the Convocation may, by way of the notice contemplated in paragraph 12.20, invite members of the Convocation to inform the secretary in writing, within four weeks of the date on which the notice was placed, whether they intend to, subject to the provisions of paragraph 12.21, take part in the election contemplated in paragraph 12.20.

12.23 Members of the Convocation who are not able to attend the meeting, and who have not informed the secretary of the Convocation in terms of the provisions of paragraph 12.22 of their intention to take part in the election of a member of the Council, are deemed to be members of the Convocation choosing to abstain from voting in such election, provided further that members may participate in the election via electronic means where circumstances permit , even if they have not informed the secretary of their intention to do so prior to the meeting.

12.24 If, upon the expiry of the period contemplated in paragraph 12.20, the number of persons nominated does not exceed the number of vacancies, the secretary of the Convocation immediately declares such person or persons duly elected.

12.25 In the event of more persons being nominated than the number of vacancies, the secretary of the Convocation must, not less than three weeks prior to the election date contemplated in paragraph 12.20, mail or send by electronic communication to each member of the Convocation a ballot, in the form determined by the Council, bearing the names of the duly nominated candidates in alphabetical order.

12.26 A ballot that is not completed in accordance with the instructions on such ballot is invalid.

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12.27 The secretary of the Convocation acts as a returning officer at all elections and is assisted by two scrutineers appointed by the President of the Convocation or, in the event of the President of the Convocation not appointing such scrutineers, by the Vice-Chancellor/Rector.

12.28 The candidates, equal to the number of vacancies existing, receiving the highest number of votes is declared duly elected by the secretary of the Convocation.

12.29 Where the number of votes recorded for two or more candidates is equal and affects the result of the election, the Registrar must announce a re-election between the candidates who received the equal number of votes, and the candidate, or candidates as the case may be, who receives the highest number of votes in such re-election must be declared duly elected.

Roll of the Convocation

12.30 The secretary of the Convocation must keep the Convocation roll, and a member of the Convocation is required to register his or her name and contact details, as determined by the secretary, with the secretary and to notify him or her of any change of such details.

12.31 The Convocation roll is proof that a person whose name appears thereon at the time of a meeting of, or election by, the Convocation is entitled to attend such meeting or to vote in such election, and that a person whose name does not appear therein is not so entitled.

CHAPTER 13
Donors

13.1 For purposes of this Statute, the donors shall comprise those persons or organisations, with the exception of those bodies contemplated in paragraphs 8.2.9 and 8.2.10, government departments and parastatal organisations, who made a donation to the University during a specified period, and in compliance with all criteria to be determined by the executive management after consultation with Council, from time to time.

13.2 The executive management shall be empowered to determine criteria from time to time, including the minimum donation threshold, and the period of donation, to qualify as a donor in terms of paragraph 13.1.

13.3 The executive management shall identify and compile a list of donors on the basis of the criteria determined in terms of paragraph 13.1, which list shall be maintained and kept up-to-date by the department of the University responsible for fundraising.

13.4 Subject to paragraph 8.2.8, the relevant committee responsible for membership of the Council and committees shall recommend donors to the Council, from the list of donors contemplated in paragraph 13.3, for appointment as members of the Council.

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CHAPTER 14
Vacancies do not affect powers

14 Subject to the provisions of the Act, a vacancy in the office of Chancellor or Vice-Chancellor/Rector or a deficiency in the number of the members of the Council, the Senate, the Institutional Forum or the Students' Representative Council does not affect or impair the corporate existence of the University or any of the powers, rights, duties and privileges conferred by the Act and this Statute upon the University, the Council, the Senate, the Institutional Forum, or the student's representative Council.

CHAPTER 15
Students' Representative Council

Constitution

15.1 The constitution of the Students' Representative Council, which forms part of the rules, must provide for –

15.1.1 the composition of the Students' Representative Council;

15.1.2 the election of members of the Students' Representative Council;

15.1.3 the election of office bearers of the Students' Representative Council;

15.1.4 the number of meetings of the Students' Representative Council, the quorum at meetings and meeting procedures; and

15.1.5 the general functions of the Students' Representative Council.

15.2 The Students' Representative Council is not a juristic person and is not the bearer of its own rights, except that it exists as a structure according to the provisions of the Act, with powers delegated to it by the Council.

15.3 The constitution of the Students' Representative Council will have no legal force and effect unless such constitution is, or any amendments thereto are, approved by the Council.

Composition

15.4 Only students registered for a qualification at the University are eligible to serve as members of the Students' Representative Council.

Functions and Duties

15.5 The students of the University are represented by the Students' Representative Council in matters that may affect such students.

15.6 The matters contemplated in paragraph 15.5 include –

15.6.1 liaison with the Council, the Senate, the executive management, the general public, other higher education institutions, Students' Representative Councils of other higher education institutions, national and international student organisations, unions and news media;

15.6.2 being an umbrella organisation for all student committees, clubs,

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Councils and societies, granting or withdrawing recognition of such student committees, clubs, Councils and societies as it deems appropriate;

15.6.3 the co-ordination and supervision of the use of students' facilities and all matters pertaining thereto, in conjunction with the executive management;

15.6.4 the convening and conducting of all authorised meetings of the student body and to be the managing body in all general referenda and petitions organised by the students within the University's Rules;

15.6.5 the appointment of such office-bearers and establishing of such committees as it deems necessary;

15.6.6 the organisation and promotion of extramural activities among students;

15.6.7 keeping account of all moneys paid over to it by the Council and any other moneys which may accrue to it in its capacity as representative of the students and allocating and disbursing such funds for use by students as well as making grants to approved clubs, committees, societies and Councils;

15.6.8 the responsibility for the preservation of order at student functions and meetings and the ensuring of good conduct at such functions and meetings;

15.6.9 the co-ordination of student involvement in all community projects initiated by it;

15.6.10 the responsibility for student publications;

15.6.11 the recommendation to the Council of rules to determine the conduct of its affairs;

15.6.12 the final decision making in all matters falling within its jurisdiction; and

15.6.13 such additional functions and privileges as may be specifically conferred on it by the Council.

Term of office

15.7 The term of office of the members of the Students' Representative Council is one year.

Committees

15.8 The Students' Representative Council may establish such committees as it may deem fit.

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CHAPTER 16
Student Discipline

Code of conduct

16.1 The Council, after consultation with the Senate and the Students' Representative Council, must prescribe a code for student conduct and behaviour as well as disciplinary rules and procedures where a student of the University has transgressed any provision of such code.

Disciplinary measures

16.2 Every student of the University is subject to the code of conduct and disciplinary rules and procedures contemplated in paragraph 16.1.

CHAPTER 17
Employees

Staffing establishment

17.1 The Council determines the academic as well as the professional, support or administrative staffing establishment of the University.

17.2 Academic employees as well as the professional, support or administrative staff members of the University are appointed by the Council, provided that the Council must consult with the Senate, or with a committee of the Senate appointed for that purpose or with a joint committee of the Council and the Senate appointed for that purpose, before an academic employee is appointed.

Secondment of staff

17.3 The Council, after consultation with the Senate, may second any employee of the University, with the employee's consent, to the service of any body or person for such period and on such conditions as the Council may determine in consultation with the Senate.

Conditions of service

17.4 Subject to applicable laws with regard to employment, and any regulations made thereunder, the Council must determine the conditions of service, disciplinary provisions, duties, privileges and functions of the employees of the University.

Disciplinary measures

17.5 Every academic employee and every professional, support or administrative staff member of the University is subject to such code of conduct, disciplinary measures and disciplinary procedures as may be determined by the Council, provided that such measures and procedures may only be made or amended after consultation with an organisation representing such employees and recognised by the Council as such, should such organisation exist.

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Declaration of interests

17.6 An employee of the University must, in writing –

17.6.1 before he or she assumes office, declare any business that may raise a conflict or possible conflict of interest with the University; and

17.6.2 notify the University of any conflict or possible conflict of interest before the University procures any goods or services from the employee or an organisation within which the employee holds an interest.

17.7 An employee of the University may not conduct business directly or indirectly with the University which would entail or may entail a conflict of interest with the University unless the Council is of the opinion that –

17.7.1 the goods, product or service in question are unique;

17.7.2 the supplier is a sole provider; and

17.7.3 it is in the best interests of the University.

17.8 An employee of the University may not on behalf of the University contract (as defined in section 34 of the Act) with himself or herself or any entity in which he or she has a direct or indirect financial or personal interest.

CHAPTER 18
Faculties, academic departments and schools

18 The Council may, on the recommendation of and in concurrence with the Senate, and subject to such other approvals as may be required in terms of the Act or any regulation made thereunder, establish or disestablish such faculties, academic departments or similar academic structures, centres and institutes it deems appropriate.

CHAPTER 19
Institutes and centres

19 A body created for the management of an institute or centre has the power, subject to the authority of the Council and the Senate, to –

19.1 determine the policy and programme of such institute or centre and to exercise control over the execution thereof and in particular, without derogating from the generality of the aforegoing, to undertake research, publication, training and the rendering of services to the University or to the community in connection with it and with the other activities associated with it;

19.2 make recommendations to the Council, after consultation with the Senate, on the creation of posts and the appointment of staff in such institute or centre;

19.3 prepare estimates of revenue and expenditure for such institute or centre and control the funds allocated or donated to it; and

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19.4 perform such other activities as may be necessary for the efficient management of such institute or centre.

CHAPTER 20
Admission

Admission to University

20.1 Subject to the provisions of the Act, the Council must, after consultation with the Senate, determine the admissions policy of the University and must publish such policy and make it available on request.

20.2 Subject to the provisions of the Act, the Council, with the concurrence of the Senate, must –

20.2.1 determine entrance requirements in respect of particular programmes and courses of study offered by the University;

20.2.2 determine the number of students who may be admitted to a particular programme or course of study offered by the University; and

20.2.3 determine the minimum requirements for readmission to study at the University, and may refuse readmission to any student who fails to satisfy such minimum requirements.

Award of credits and exemptions

20.3 Subject to the provisions of the admissions policy contemplated in paragraph 20.1, and to paragraphs 20.4, 20.5 and 20.6, the Senate may –

20.3.1 grant credit for a course prescribed for a degree, diploma or certificate to a student who has completed a course or courses or other work which the Senate considers equivalent at another university, or at any institution, whether in or outside the Republic of South Africa;

20.3.2 grant exemption from a course prescribed for a degree, diploma or certificate to a student who has completed a course or courses or work which the Senate considers equivalent at another university, or at any institution, whether in or outside the Republic of South Africa; and

20.3.3 accept as part of the period of attendance and registration prescribed for a degree, other than an honours degree of bachelor, diploma or certificate, a period or periods of attendance and registration, at another university, or at any institution, whether in or outside the Republic of South Africa.

20.4 Except on good cause shown by the student in question, in which case the Senate may exercise its discretion, the Senate may not grant credit for more than half of the courses prescribed for the degree, diploma or certificate in question in respect of a course, or courses, or other work completed at another university, or at any institution, whether in or outside the Republic of South Africa.

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20.5 A candidate for the granting of credit or an exemption in respect of a degree, diploma or certificate must attend and be registered as a student of the University –

20.5.1 for a one year programme, for a full academic year;

20.5.2 for a three year programme, for at least two academic years one of which must be the final year;

20.5.3 for a four year programme, for at least the final two years; or

20.5.4 for a five or six year programme, for at least three academic years including the final two years.

20.6 The combined periods of attendance and registration at the University, and at another university or institution, whether in or outside the Republic of South Africa, accepted by the Senate as contemplated in paragraph 20.3.3 must be not less than the minimum period prescribed by the Senate for the degree, diploma or certificate in question.

20.7 The Senate may –

20.7.1 grant credit for a course prescribed for a degree, diploma or certificate to a student who has completed the course, or an equivalent course, while registered at the University for another degree, diploma or certificate; and

20.7.2 accept, as part of the period of registration prescribed for the degree, diploma or certificate, all or part of a period of attendance at the University while registered for another degree, diploma or certificate, provided that where the degree, or degrees, diploma or diplomas, certificate or certificates concerned has or have been conferred or awarded the Senate may not –

20.7.2.1 grant credit for more than half of the prescribed courses except to the extent that it grants credit for courses previously completed over and above the requirements prescribed for the completed degree, diploma or certificate; or

20.7.2.2 accept as part of the prescribed period of attendance and registration –

20.7.2.2.1 for a one year programme, any period;

20.7.2.2.2 for a three year programme, more than one and a half years;

20.7.2.2.3 for a four year programme, more than two years; or

20.7.2.2.4 for a five or six year programme, more than three years.

Admission to equivalent status at University

20.8 Subject to such provisions as may be contained in the Act or this Statute, the Council may on the recommendation of the Senate –

20.8.1 admit a graduate of any other university or any institution considered by the Senate to be equivalent to the University,

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whether in or outside the Republic of South Africa, to a status at the University equivalent to that which he or she possesses at such other university or institution; and

20.8.2 admit as a candidate for the honours degree of bachelor or for the degree of master or doctor of the University any person who has passed at any other university or institution, whether in or outside the Republic of South Africa, considered by the Senate to be the equivalent to the University, such examinations as in the opinion of the Senate are equivalent to or higher than the examinations prescribed for a degree of the University which is a prerequisite for such honours degree of bachelor or degree of master or doctor of the University.

CHAPTER 21
Examinations and other tests

21 An examination or other test of the University must be conducted under the control of the Senate and in the manner determined by the Senate.

CHAPTER 22
Language policy

22 Subject to the provisions of the Act and any policy determined by the Minister, the Council, with the concurrence of the Senate, must determine the language policy of the University, publish such policy and make it available on request.

CHAPTER 23
Student support services

23 Subject to the provisions of the Act, the Council must, after consultation with the Students' Representative Council, provide for a suitable structure to advise the Council and the Senate on policy for student support services within the University.

CHAPTER 24
Degrees, diplomas and certificates

Conferment

24.1 Subject to the provisions of Act and this Statute, the University may confer such degrees in a faculty as it may deem fit.

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24.2 Subject to the provisions of Chapter 25, the University may not confer a degree upon any person who has not attained the required standard of proficiency in an examination or other test.

24.3 Subject to the provisions of the Act and this Statute, the University may award a diploma or certificate to any person who has pursued a course of study provided by the University and who has complied with the requirements for such diploma or certificate.

Withdrawal

24.4 The Council, at the request and instance of the Senate, may withdraw the award or conferment of any qualification –

24.4.1 that was awarded or conferred in error; or

24.4.2 if the recipient of such qualification had committed a dishonest or fraudulent act in connection with the obtaining thereof,

provided that –

24.4.3 the necessary due process has been followed, as prescribed in the rules; and

24.4.4 the decision to withdraw a qualification must be a resolution passed at a meeting of the Council by a majority vote, consisting of not less than three quarters of the number of members present at the meeting, whether present in person or by electronic communication.

CHAPTER 25
Honorary degrees and UWC Gold Medal

Conferring of honorary degrees and UWC Gold Medal

25.1 The University may, by resolution of the Council passed on the recommendation of the Senate, and without examination, confer an honorary degree of doctor in any faculty or a UWC Gold Medal upon any person who has rendered distinguished services in the advancement of any branch of learning, or upon any person who the Council may deem worthy of such degree or medal, provided that such person exemplifies the values and purposes of the University.

Candidates for honorary degrees and UWC Gold Medal

25.2 The procedure relating to the nomination of a candidate for the award of an honorary degree or UWC Gold Medal shall be determined by the Council after consultation with the Senate.

Voting on conferring of honorary degrees and UWC Gold Medal

25.3 Voting with regard to the conferring of an honorary degree or UWC Gold Medal shall take place by ballot.

25.4 Decisions to confer an honorary degree or UWC Gold Medal in either the Council or the Senate, as the case may be, are valid only if two-thirds of the members present at the meeting, whether present in person or by electronic communication, vote in favour of the proposal, provided that members who are

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unable to attend the meeting as contemplated may record their votes before the meeting by letter addressed to the Registrar.

Consideration of proposals

25.5 The procedure relating to the consideration of proposals to confer honorary degrees or UWC Gold Medal to be adopted by the Council and the Senate shall be determined by the Council after consultation with the Senate.

Does not entitle to practice

25.6 The award of an honorary degree to a person does not entitle that person to practise any profession nor use the title Doctor.

CHAPTER 26
General Assembly

26 A General Assembly of the University is only called under certain circumstances. It is an extraordinary event, convened on special occasions, with the aim of uniting all constituencies in a joint stance on an issue of national importance. The role of the General Assembly is to adopt resolutions reached by consensus in the University. A decision to call a General Assembly is made by the Council of the University. The Chancellor presides over the Assembly and the Vice-Chancellor/Rector or University Registrar issues the notice to convene the Assembly. The following constituencies present their statements: the Chancellor of the University; the Chairperson of Council; the Chairperson of Senate; the Chairperson of the Institutional Forum; the President of the Students' Representative Council; and the President of Convocation. Other representatives may speak at a General Assembly subject to confirmation by the University.

CHAPTER 27
Repeal

27 The Statute of the University of the Western Cape, published under Government Notice No. R.427 of 4 May 2005, is hereby repealed in its entirety.

CHAPTER 28
Transitional arrangements

28.1 Subject to the provisions of section 27(4) of the Act, no person who, at the date of the publication of this Statute in the Government Gazette, is a member of the Council in terms of paragraph 8.2 of the statute contemplated in Chapter 27 is required to vacate his or her membership of the Council before his or her term of office expires.

28.2 No person who, at the time of the publication of this Statute in the Government Gazette, is a member of the Senate in terms paragraph 9.2 of the statute

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contemplated in Chapter 27 is required to vacate his or her membership of the Senate before his or her term of office expires.

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DEPARTMENT OF HOME AFFAIRS

NO. 928 **07 SEPTEMBER 2018**

ALTERATION OF FORENAMES IN TERMS OF SECTION 24 OF THE BIRTHS AND DEATHS REGISTRATION ACT, 1992 (ACT NO. 51 OF 1992)

The Director-General has authorized the following persons to assume the forename printed in *italics*:

1. Siyabonga Charles Sogaxa - 950209 5325 086 - 18014 Zone 14, SEBOKENG, 1983 - *Siyabonga Yika*
2. Jeremia Radebe - 930922 6179 089 - 27448 Phaliso Street, Asanda, STRAND, 7140 - *Jeremiya*
3. Nongavule Ncanyelo - 720503 1169 087 - Q448 Qwesha Street, Site B, KHAYELITSHA, 7784 - *Ntombothando*
4. Tumelo Abrahm Bahurutshe - 810704 6056 086 - 2053 Phola Village, MAHIKENG, 2745 - *Tumelo Abram*
5. Deliwe Sartjie Morieë - 911114 0363 082 - 11257 Ivory Park, Extension 11, IVORY PARK, 1632 - *Lebo Sartjie*
6. Javas Lexicon Malungani - 921230 5977 086 - 940 B Humulani, LULEKANI, 1392 - *Juvenile*
7. Refiloe Josephine Jiyane - 891130 0129 087 - 7454 Ivory Park, Extension 8, MIDRAND, 1685 - *Mokgadi Josephine*
8. Zimbile Zinhle Nhlebela - 891225 0296 082 - 3768 Ngubo Street, VOSLOORUS, 1475 - *Zinhle Zimbili*
9. Sabriena Makgethoa Dolamo - 880104 0550 082 - Garthmansion Flata 14, Hillbron, Twist Vesselen, JOHANNESBURG, 2001 - *Makgethoa Sabriena*
10. Thabiso Sweetness Musa George Ntuli - 920901 5212 085 - 465 Modoba Street, Zone 7, PIMVILLE, 1809 - *Zosukum'izizwe George Musa Sweet*
11. Arinao Stella Maiwashe - 970102 0403 089 - Thohoyandou Block E, THOHOYANDOU, 0950 - *Arinao*
12. Amandla Education Maluleke - 950530 0038 089 - 5715 Sechaba Street, Ivory Park, MIDRAND, 1685 - *Amanda Dyondzo*
13. Ernest Lebogang Malo - 920922 5622 081 - 2649 Tshepisong West, Block 5, ROODEPOORT, 1724 - *Ernest Bulelani*
14. Mmaleako Raesibe Ngema - 940426 0220 087 - 567 Francis Baard Street, Arcadia, PRETORIA, 0083 - *Mmaleako Raesibe Nobantu*
15. J S M Shawane - 890820 5340 082 - 665 Canary Avenue, Eastbank, ALEXANDRA, 2090 - *James Seboko Marutla*
16. Calvin Mokgabudi - 871002 5374 089 - Stand No 76, Uitspaning A, DENNILTON, 1030 - *Calvin Sepadi*
17. Thembisani Enerst Gcwabe - 821015 5370 080 - Madliki Location, KING WILLIAMS TOWN, 5600 - *Sipho Enerst*
18. Tebogo Gabriel Maepa - 850405 6053 088 - 645 Sheshe Street, SHARPEVILLE, 1928 - *Gabriel Angelo*
19. Maphefo Mosadinyana Matsimela - 850911 0544 089 - 1766 Mmabatho Street, Extensin 2, MAMELODI EAST, 0122 - *Maphefo Masechaba*
20. Karabo Sephidi Julia Moagi - 800823 0283 082 - 76 Mbuti Cul De Sac, Lotus Gardens, ATTERIDGE VILLE, 0008 - *Lerato*
21. Gertruida Maria Anna Persons - 760904 0205 081 - 49 Charles Street, Burne Village, RICHMOND, 3780 - *Maria Anna*
22. Michael Sihle Duma - 750416 5075 080 - 576 Brickfield Road, OVERPORT, 4091 - *Taariq Sihle*
23. Mvuyisi Ngabaza - 821225 5370 085 - G C 248 Eziqhamo Street, Eziqhamo Street, MFULENI, 7100 - *Stone Mvuyisi*
24. Gontlefela Mekgwe - 930424 0491 081 - 29 Lamontania, VANDERBIJLPARK, 1911 - *Gontlefela Mmina*
25. Mbulelo Daniel Maki - 821104 5550 089 - 2290 Dimbaza, KING WILLIAMS TOWN, 5600 - *Daniel Mbulelo*
26. Buyile Monki - 871103 5561 087 - Thembeni Location, KING WILLIAMS TOWN, 5600 - *Buyile Asanda*
27. Margaret Mohamed - 780721 0231 081 - 22 Greenfield Way, Mountview, VERULAM, 4339 - *Nasimah*
28. Clifford Ngqulunga - 930830 5266 080 - 371 Fox Street, Corner Nordaunt Street, Fairview, JOHANNESBURG, 2094 - *Dumisani Clifford*
29. Lazarus Hlopheho Mofokeng - 880229 5409 081 - 594007 Zone 5, SEBOKENG, 1983 - *Mpho Lazarus*

30. Neetha Qayyum - 701228 0169 085 - 15 Silverglen Crescent, CHATSWORTH, 4000 - *Nimrah Rana*
31. Selwieha Danze - 711130 0196 084 - 31861 Coral Street, Pescodia, KIMBERLEY, 8301 - *Cynthia Sylvia*
32. Togheeda De Villiers - 711127 0006 081 - 43 Penelope Street, Avondale, ATLANIS, 2349 - *Tania*
33. Annette Mart Van Der Berg - 471202 0139 081 - 621 Steenbras Street, KNYSNA, 6570 - *Annette Mari*
34. Elizabeth Vencencie - 330627 0074 089 - 56 Kobus Road, Springadale, PORT ELIZABETH, 6020 - *Sarah Elizabeth*
35. Arinao Nemulodi - 960112 0743 089 - Maniini, THOHOYANDOU, 0950 - *Arinao Masindi*
36. Trevor Williams - 700310 5276 080 - 59 Lindsay Atreet, Eastridge, MITCHELLS PLAIN, 7785 - *Tauriq*
37. Jocobine Boitumelo Mothupi - 720425 0858 082 - Akasia, 5158 Itumeleng Street, GA RANKUWA, 0208 - *Jacky Boitumelo*
38. Hans Jakob Breytenbach - 660529 5175 087 - Randburg, Mr H Breytenbach, 816 Kelly Street, BLOMHOF, 2154 - *Hein*
39. Pumela Yafele - 900415 0788 084 - 20 Gxaza Street, MOTHER WELL, 6211 - *Phumeza*
40. Mark Machika - 901227 5620 082 - Ga Phaahla, MAKADIKWE, 1062 - *Selematsela Mark*
41. Mtutuzeli Mpungose - 900213 5864 087 - Danco House 119, Umbiko, DURBAN, 4001 - *Mthunzi*
42. Cluitus Kadiaka - 890226 5252 089 - 6113 Mabele Street, Zone 5, DIEPKLOOF, 1862 - *Cluitus Kgositsile*
43. Carmen Euan Lamohr - 590823 5083 085 - 3 Jacaranda Street, BOTRIVIER, 7485 - *Christoph*
44. Marguerite Roos - 580326 0085 081 - Plot Kromdraai, KROOMDRAAI, 0487 - *Megan Grethe*
45. Teodora Luis Pereira - 550917 5037 089 - 7 Bushbuck, Essenwood, Rood, MTUBATUBA, 3935 - *Teodoro Luis*
46. Edith Lindia Mehl - 550916 0038 084 - 27 Brookford Road, LOTUS RIVER, 7941 - *Edith Linda*
47. Jenefer Abrahams - 530910 0024 082 - 63 Don Carlos Street, Eastridge, MITCHELLS PLAIN, 7785 - *Jasmine*
48. Annie Julies - 490729 0068 081 - 72c Redberry Street, BONTHEUWEL, 7764 - *Ann*
49. John William Deal - 480910 5083 083 - 11 Wabash Street, MANENBERG, 7764 - *Yagyah*
50. Kariema Petersen - 720106 0137 087 - 36 Hangklip Court, HANOVER PARK, 7764 - *Christilene*
51. Pha'iek Simons - 710812 5109 086 - 4 Langeberg, Lvenderhill, CAPE TOWN, 7945 - *Faiek*
52. Jan Neethling - 680229 5066 081 - 54 Queen Guinevere Street, Camelot, KUILSRIVER, 7850 - *Josias*
53. Francois Pieter Wewers - 671108 5179 089 - No 7 Coral Tree Road, THORNTON, 7764 - *Francois Peter*
54. Senzo Knowledge Ngcobo - 971229 5874 086 - Harmonds Farm 12043, VERULAM, 4340 - *Bilal Knowledge*
55. Leslé Jones - 920528 0092 087 - 43 A Southey Avenue, NEWCLARE, 2093 - *Raeesa*
56. Kwandile Gcumisa - 960902 5734 087 - 070826 – 103 Magoba Road, Kwanyuswa, PINETOWN, 3610 - *Kwandile Kwanele*
57. Shirly Magdalene Matthews - 650427 0226 082 - 24 Hibiscus Avenue, GREAT BRAKRIVER, 6525 - *Shirley Magdalene*
58. Narainamah Govender - 580726 0203 081 - 394 Grove End Drive, PHOENIX, 4068 - *Daisy*
59. Masah Lois Clarke - 571001 0152 089 - 26 Virgo Street, Extension 1, ENNERDALE, 1830 - *Marsha Lois*
60. Digby Stephen Ormond Ormond-Brown - 600227 5014 082 - 28 10th Street, Melville, JOHANNESBURG, 2092 - *Digby Stephen*
61. Alia Hendricks - 711023 0198 087 - 20 Argentide Street, Extension 5, ENNERDALE, 1830 - *Monica Mary*
62. Sarojini Govender - 510621 0130 084 - 86 Fanpalm Ga Phoenix, PALMVIEW, 4068 - *Fathima Zara*
63. Zuwaidah Weaver - 520925 0169 085 - 5 Meresteyn Close, Avondale, ATLANTIS, 7309 - *Zelda Rosemary*

64. Steven Anthony Perrow - 650706 5041 087 - 23 Oliphant Cresent, NEWCASTLE, 2940 - *Yusuf Anthony Bin Zangel*

65. Mildred Middleton - 650317 0116 088 - 7 Pennygum Road, Austerville, DURBAN, 4052 - *Milly*

66. Jochelina Louisa Pieterse - 500713 0033 087 - 69 Naude Street, RAYTON, 1001 - *Lien*

67. Balakisten Naidoo - 690603 5013 087 - 169 Cardinal Road, PHOENIX, 4001 - *Brian*

68. Yvonne Isabel Perrow - 690822 0008 088 - 23 Olifant Cresent, NEWCASTLE, 2940 - *Yasmin*

69. Nkosinathi Stevealo Masango - 910330 6198 089 - Stand B710, SIYABUSWA, 0472 - *Nkosinathi*

70. Bongani Sibonelo Mlambo - 920605 6251 089 - P O Box 1543, MTUBATUBA, 3935 - *Bongani Sibonelo Mbonomuhle*

71. Gugu Hlophe - 931124 1223 082 - 16 Price Street, BREYTEN, 2330 - *Gugu Precious*

72. Maeme Ridick Thokwane - 940128 6012 084 - Eenzaam, Block 6, NEBO, 1059 - *Maeme Riddick*

73. Adiel Davids - 791015 5214 086 - 228 Gordon Villas, GORDONS BAY, 7140 - *Adrian William*

74. Imtiaz Yodsuf Mahomed - 830621 5250 088 - 271 Sastri Avemie, Claudius, LAUDIUM, 0037 - *Imtyaz Yusuf*

75. Suhayfa Allee - 830916 0035 082 - The Gayles Unit, Unit 221, EVANDER, 2280 - *Candy*

76. Theo Jerome Goliath - 791023 5239 087 - 14 B Braambo Street, Bonteheuwel, CAPE TOWN, 7764 - *Wakeel*

77. René Daniels - 770216 0186 080 - 116 Gazelle Street, Eastridge, MITCHWELLS PLAIN, 7785 - *Roshni*

78. Reshmee Ramdin - 750401 0061 087 - 9055 Flinders Crescent, Extension 10, LENASIA, 1827 - *Reshmee Gehna*

79. Dumisane Donven Nchabeleng - 940415 5532 083 - Tswaing, MASEMOLA, 1060 - *Nkohle Lucas*

80. Daniel Sello Sello - 991209 6274 086 - 12757 Maharaj, SASOLBURG, 1949 - *Daniel Tankiso*

81. Olarato Kepadisa - 950911 0428 084 - 360 Chris Marris Street, Ipeleng, KIMBERLEY, 8345 - *Olorato*

82. Anathi Gama - 940403 6159 080 - Mfetsheni Area, BIZANA, 4800 - *Mzukisi*

83. Mhlakabuswa Nkomo - 950610 5582 081 - 156 Mhlabunzima, CLERMONT, 3610 - *Lungani Thando*

84. Sipiso Siphesihle Mncwabe - 951221 5330 080 - Kwampinde Location, PIETERMARITZBURG, 3200 - *Siphesihle*

85. Richard Hair - 880802 5064 088 - 48 Vivien Road, PINETOWN, 3610 - *Richard Krauspe*

86. Karin Carmenlitre Du Plessis - 771225 0133 082 - 44 Assegaaibos Street, Tafelsig, MITCHELLS PLAIN, 7785 - *Kashiefah*

87. Aysha Martin - 890331 0240 087 - Hibuscus, GORDONSBAY, 7140 - *Christel Huisamen*

88. Clareece Alexander - 861212 0109 081 - 55 Boudehout Street, BONTEHEUWEL, 7764 - *Imrah*

89. L-ona Cherica Nuwegeld - 881112 0028 081 - 16 Goukamma Court, Sherwood Park, ATLANTIS, 7349 - *Leona Cherica*

90. Desmonia Che-Nel Letitia Erasmus - 870429 0221 083 - Columbine Place, HANOVER PRK, 7780 - *Laylaa*

91. Hilda Barnard - 790915 0061 088 - 1 Le – Chalet, Avoneaclose, PARKLANDS, 7441 - *Hilde*

92. Thurston Nigel Hendricks - 800228 5221 089 - 30 Orion Road, Surrey Estate, ATHLONE, 7764 - *Tawfeeq*

93. Dora Montsho - 790216 0578 084 - 1544 26th Street, JOUBERTON, 2574 - *Dora Mammusi*

94. Setshego Enny Sehuba - 780328 1127 084 - 20398 Extension 20, JOUBERTON, 2574 - *Sophy Kgomotso*

95. Ralekhula Lekhalo - 751121 0768 080 - 8754 Zone 8, FICKSBURG, 9730 - *Malitaba Alfonsina*

96. Mpuse Liesbeth Nhlapo - 880607 0437 084 - 9002 Extension 2, BETHLEHEM, 9701 - *Puseletso*

97. Wonderboy Nhlanhla Mathe - 951212 5335 088 - 972 Mosolodi Street, Klipspruit, PIMVILLE, 1809 - *Jabulani Nhlanhla*

98. Mogamat Jazeed Salie - 840818 5201 081 - 119 Kliproad, Erassy Park, CAPE TOWN, 7941 - *Mogamat Yazeed*

99. Nicolene Lucinda Abrahams - 850205 0308 086 - 15 Protea Street, Collvile, KIMBERLEY, 8301 - *Latiefah*

100. Charmine Suneen April - 860415 0104 082 - 42tolletjie Crescent, ROOSENDAL, 7100 - *Charmine Charne*

101. Nathan Ashley Adriaans - 880303 5145 084 - 42 Kimberley Way, Portlands, MITCHELLS PLAIN, 7785 - *Naeem*

102. Ahmed Sookram - 891012 5128 084 - Flat 53, 101 Victoria, Embalenhle, DURBAN, 4001 - *Darien Jarrod*

103. Maria Semono - 991106 0286 084 - 33 Madiba Park, JUNGSTATE, 0741 - *Maria Nomvula*

104. Agron Marima - 870130 5481 082 - 19 Mbaula, GIYANI, 0826 - *Musa Aaron*

105. Dithlare Lucy Semase - 930220 0324 086 - 1278 Mashaneng Location, TOURIESBURG, 9725 - *Nomaiza*

106. Kirtan Thakorlal Shantilal - 810629 5261 082 - 17 Surat Street, MACKENZIEVILLE, 1491 - *Mohammed Thakorlal*

107. Tsie Aubrey Khashane - 980512 5344 088 - 21317 Zone 14, SEBOKENG, 1982 - *Lehlohonolo Aubrey*

108. Lelani Praise-Well Thusi - 981215 5508 087 - C3280 Bhuqu Road, KWAMASHU, 4359 - *Celani Praise-Well*

109. S'phesihle Ntsele - 930109 0441 083 - P O Box 214, NONGOMA, 3950 - *Mbalenhle Sinethemba Andiswa*

110. Jasmine Lamb - 971107 0297 083 - 12 Atlantic Drive, Imhoffs Gift, Mommetjie, CAPE TOWN, 7975 - *Jax*

111. Motheo Faith Lekgetho - 990606 0125 084 - 749 Tswelelopele Section, Magojaneng Village, KURUMAN, 8460 - *Pabalelo Faith*

112. Meloni Wagner - 960311 0056 084 - 202 Moriting, August 9th Street, TEMBISA, 1632 - *Melanie Victoria*

113. Kgotso Lucas Maswankanye - 860916 6346 080 - 1826 Block I, Kekana Gardens, HAMMANSKRAAL, 0400 - *Kgotso Lucas Nyalenda*

114. Maphuthanang Gcuku - 851025 1426 086 - 2775 Boyce Nontala, BARKLY EAST, 9782 - *Nandipha*

115. Selelo Maria Gafane - 840104 0900 088 - 2391 Thiba Street, PHOMOLON, 1632 - *Selaelo Maria*

116. Sikhumbuzo Givenson Mduduzi Mngomezulu - 930125 5714 084 - Msane Reserve, MTUBATUBA, 3935 - *Skhumbuso Givenson Mduduzi*

117. Lovejoy Vuyo Makhosazana Kgafela - 970518 0292 083 - 12 Section C, EKANGALA, 1021 - *Lovejoy Lethabo Nkosazana*

118. Thandiwe Prudeuce Simelane - 930525 0423 088 - 1559 Ntuli Street, THOKOZA, 1426 - *Thandiwe Prudence*

119. Magwedi Hilda Khambola - 710617 0678 088 - 3107 Mountain View, BRANDFORT, 9400 - *Masabata Hilda*

120. Prudence Nikeziwe Mafuya - 831020 0665 086 - House No 3036, Kwashozi Area, ADAMS MISSION, 4126 - *Nicky Prudence*

121. David Mtutuzeli David Jack - 470923 5251 081 - 4972 Nu 8, MDANTSANE, 5219 - *David Mtutuzeli*

122. Namzuze Matiwana - 490205 5706 082 - Ncera Village 4, KIDDS BEACH, 5200 - *Namzuze Freeman*

123. Nacole Jenny-Lee Manneson - 900326 0112 086 - 834/2 Thorn & Milk Wood Street, Alveda Park, JOHANNESBURG, 2091 - *Nazreen*

124. Pinky Mittah Mothokoa - 820420 0923 084 - 6341 Unit 7, TEMBA, 0407 - *Pinky Tswelopele*

125. Clement Bongane Makwakwa - 811207 5367 081 - 38 Aldrin Street, REYNO RIDGE, 1049 - *Mayileni Bongane*

126. Ndeshana Abednigo Sindane - 801205 5511 080 - 38 Tafelberg Avenue, VEREENIGING, 1927 - *Ndishana Nchime*

127. Pretty Qweleka - 981228 5451 083 - Clarkvurry Area, NGCOBO, 5050 - *Timothy*

128. Desilunge Phithizela - 971006 5794 088 - Kwangcoya, LUSIKISIKI, 4820 - *Andile Desilunge*

129. Zachariah Leope - 920727 5268 086 - 145 Mokhukhu Street, ATTERIDGEVILLE WEST, 0008 - *Molefe Zacharia*

130. Vicent Molokomme - 951018 5504 080 - House 5821, Extension 7, MODIMOLLE, 0510 - *Vincent Bokamoso*

131. Owen Makhubo - 771112 5377 080 - 12 Harrison House, Harrison Street, JOHANNESBURG, 2001 - *Nthato Owen*

132. Mshushwa Koos Moloi - 830719 5276 085 - 31 A Vander Merwe Street, VREDE, 9855 - *Jabu Koos*

133. Khunjulwa Princess Makapela - 811003 0508 088 - 26 Nciniba Street, Ilitha Park, KHAYELITSHA, 7784 - *Kkhunjulwa Princess Mimi*

134. Tshepiso Jacob Dingalo - 880602 5623 085 - 70591 Rakgobi Section, Bodibe, MFIKENG, 2745 - *Shaguun*

135. Gosebelwang Julia Olifant - 840820 0303 086 - 8745 Ngobeni Street, JOUBERTON, 2874 - *Gosebelwang Tshepiso*

136. Baatseba Motsane Segogela - 990131 0630 082 - Ga Meretsote, JANE FURSE, 1085 - *Baatseba Mosedi*

137. Preliat Anania Mabuza - 000327 0248 085 - Msogwaba Trust, KABOKWENI, 1215 - *Brilliant Anania*

138. Botang Mnisi - 990802 5423 083 - 96 Beruit, MABOPANE, 0190 - *Tshepang*

139. Wilson Nobela - 991102 5699 082 - Stand No 1918, Njhakanjhaka, ELIM, 0960 - *Magezi Trigger*

140. Possible Sidwell Hlaudi - 810123 5361 084 - 4229 Mpandoms Street, DAVEYTON, 1520 - *Teboho Sidwell*

141. Patricia Mazwane - 960213 0087 087 - Gogela Location, MOUNT AYLIFF, 4701 - *Patricia Thabisa*

142. Sanelisiwe Gwacela - 920811 0233 087 - P O Box 7445, Phola Mloshi, INANDA, 4310 - *Tracy Sanelisiwe*

143. Nesan Strinivasan Pillay Pillay - 920420 5469 082 - 74 Tyger Avenue, Greenwood Park, DURBAN, 4001 - *Nesan*

144. Ntombifuthi Ntshingila - 900313 0836 088 - P O Box 1532, KWAMBONAMBI, 3915 - *Ntombifuthi Mapule*

145. Karabo Madiba - 961231 0254 084 - 418 Selley Street, MMABATHO, 2735 - *Karabo Angel*

146. Victor Adam - 410307 5089 084 - 18 Pedrone Crescent, STRANDFONTEIN, 7780 - *Faried*

147. Salvin Audrey Coetzee - 661110 5219 081 - 6 Koding Road, Belthorn, WYNBERG, 7824 - *Salwyn Andre*

148. Hendrie Chris Hattingh - 680426 5017 086 - Jp 404 Brakspruit, SWARTRUGGENS, 2835 - *Heinrich Reinhardt*

149. Moalosi Moses Mothobi - 761109 5410 087 - 1016 Block X, MABOPANE, 0196 - *Moalosi Mosa Moses*

150. Manduleli Rubushe - 961231 5541 089 - 3464 Nu 2, MDANTSANE, 5210 - *Mandilakhe Enoch*

151. Isaac Mashilo Hlongwane - 850526 5522 086 - 10 Show Court, 190 Souter Street, PRETORIA WEST, 0183 - *Isaac Mashilo Eliase Mafemane*

152. Lizette Jaylarnie - 990921 0551 084 - 13 Grundlingh Street, Schauderville, PORT ELIZABETH, 6059 - *Laylah*

153. Sinonelele Tose - 880608 1010 086 - Machubeni Area, LADY FRERE, 5410 - *Sinonelele Yandisa*

154. Crowu Siyozama Mto - 900101 6637 083 - 102 – 02 Avenue, ALEXANDRA, 2090 - *Crown Siyozama*

155. Khaliphile Ngaleka - 911130 1228 082 - Etyeni Location, BIZANA, 4800 - *Yolanda*

156. Dipou Pinkie Ntuli - 920101 0475 080 - 10701 Ndebele Street, MAMELODI EAST, 0122 - *Makhosazana Princess Pinkie*

157. Mishqah Petersen - 870106 0188 088 - 4 Ullswater Street, Coniston Park, WYNBERG, 7824 - *Melissa*

158. Sitha Ophola Mtoto - 000329 5275 089 - 1956 Pakamisa, KING WILLIAMS TOWN, 5600 - *Sithasolwazi Ophola*

159. Farhaad Mahomed - 981120 5056 089 - 12 A Six Avenue, MAYFAIR, 2001 - *Yaseen Mamdoo*

160. Machwene Ophelia Matlakala - 870123 0912 086 - Stand No G2791, GA-RANKUWA, 0208 - *Machwene Nkele*

161. Awonke Mfuku - 990904 5844 084 - 507 Nkanini, Makhaza, KHAYELITSHA, 7525 - *Awonke Lwazi*

162. Kamogelo Terone Mothoa - 951215 5365 088 - A 293 Khureng Village, Zebediela, MOKOPANE, 0630 - *Kamogelo Theron*

163. Kifo Yakubaba Msiska - 960516 5472 082 - 1427 Dube Stand, WINTERVELDT, 0198 - *Kifo*

164. Micalin Govender - 730913 0202 086 - 3 Herman Drive, Moorton, CHATSWORTH, 0100 - *Dhanalutchmee*

165. Sello Matsobane Remegio Mautjana - 921212 5158 081 - 64 Empetsheni Crescent, Ilitha Park, KHAYELITSHA, 7784 - *Remegio Kitso Matsobane*

166. Ella Anna De Lima - 710225 0234 082 - 32 Tecoma Crescent, PLATTEKLOOF, 7500 - *Lana*

167. Salome Geraldene Chemaly - 700901 0040 081 - 7 Bifola Street, LANGEBAAN, 7357 - *Rose Mary*

168. Mark Enrico Macleod - 680516 5112 083 - 14 Robarts Road, DURBAN, 4001 - *Marco Enrico*

169. Patrick George Clarivette - 651222 5182 086 - 41 Modem 10, Briscow, MAYVILLE, 4091 - *Mohammed Essa*

170. Vivella Finch - 540602 0211 086 - 11 – 12th Avenue, HAZENDAL, 7764 - *Elizabeth*

171. Devanayagie Polizzi - 650310 0073 086 - 93 Pienaar Road, Milnerton, CAPE TOWN, 8000 - *Angelina Catherina*

172. Desmond Steenkamp - 821102 5286 084 - 7 – 9 New Main Road, KIMBERLEY, 8300 - *Desmond Itemogeng*

173. Shadrack Makhosemvelo Lize - 890917 5528 086 - 18369 Road 55, PHILLIPI, 7780 - *Shadrack Bonginkosi*

174. Nico Alfonzo Swarts - 811028 5092 085 - 69 Clairwood Crescent, BEACON VALLEY, 7785 - *Na-Eem*

175. Carmelitta Bernadette Davids - 940923 0187 084 - 26 Carnation Street, MACASSAR, 7130 - *Qaabilah*

176. Mosala Ephraim Kutu - 780808 5830 080 - 3581 Lapeng Street, Extension 6, DIEPSLOOT, 2189 - *Makofane Ephraim*

177. Thobisa Mbolompo - 831028 0470 084 - 22 Cekiso Street, KHAYELITSHA, 6500 - *Thobisa Portia*

178. Lubalele Fihlani - 750202 5751 080 - 6356 Mthatha Street, Asia Park, MOSSELBAY, 6506 - *Lubalele Patrick*

179. Ntiti Petrus Motaung - 891005 5586 087 - 866 Ithoballe Section, PAUL ROUX, 9800 - *Nthethe*

180. Tshwarelo Makgophane Maleka - 990424 0524 086 - Pshiring, MASEMOLA, 1060 - *Charlotte Makgophane*

181. Bhekisile Mavundla - 961126 0646 083 - Bethani Area, BERGVILLE, 3350 - *Bhekisile Nonkululeko*

182. Robin Kaylene De Bruyn - 921114 0054 085 - 5 Ruth Court, MANENBERG, 7764 - *Kauthar*

183. Ayandasi Phokazi Qotyana - 910326 0579 084 - W 460, UMLAZI, 4001 - *Ayanda Siphokazi*

184. Coliwe Jennifer Ndebele - 960624 0241 088 - 312 Korare Street, Galeshewe, KIMBERLEY, 8300 - *Kholiwe Jennifer*

185. Siphamandla Simphiwe Dumakude - 930831 5419 083 - 186824 Inanda Mission, INANDA, 4310 - *Siphamandla Simphiwe Stunner*

186. Malebusa Dikopoloana Monareng - 910930 0685 088 - 1657 Tshiame B, HARRISMITH, 9880 - *Malebusa Takatso*

187. Xusi Innocent Cebekhulu - 900731 5888 087 - 142 Leratong Village, ROODEPOORT, 1725 - *Vusi Innocent*

188. Nicole Donna Gatap - 910429 0152 082 - 29 Cannon Street, PLUMSTEAD, 2012 - *Nabeelah*

189. Jove Lamar Pakathi - 920411 5122 086 - 56 – 4th Street, Linden, JOHANNESBURG, 2001 - *Brooklyn Jove Lamor*

190. Tsholofelo Brownin Ndou - 920327 0293 088 - 10136 Extension 7b, ORANGE FARM, 1805 - *Tsholofelo Brown*

191. Culezwa Yolande Ntshebe - 981120 0463 082 - 61707 Junior Street, Kwazakhele, PORT ELIZABETH, 6001 - *Chulezwa Yolande*

192. Ntswaki Mokoena - 900131 0405 088 - No 1696, BOTSHABELO, 9781 - *Ntswaki Nthabiseng*

193. Malose Elizabeth Mokhonwana - 771110 0306 088 - Stand No 1202, Kalkkraal, DENNILTON, 1030 - *Lucy Teiso*

194. Amelia Mmatlala Modima Mataboge - 770727 0608 089 - 39 Ramokhutha Section, Dilopye, HAMMANSKRAAL, 0100 - *Amelia Ofentse*

195. Vukani Sithembiso Thwala - 800820 5561 082 - Thengani B, KWANGWANASE, 3973 - *Vukani Sithembiso Caleb*

196. Tshengisile Princess Shezi - 790330 0607 080 - Unit 14, Imbali, PIETERMARITZBURG, 3200 - *Mbalenhle Nomonde*

197. Nekdeline Mathews - 930916 0395 089 - 619 Cwaile Street, JAN KEMPDORP, 8550 - *Mekdeline*

198. Moses Mfihleni Mzizi - 910217 5408 082 - Ward 16, Amantwe Mission, SCOTTBURGH, 4180 - *Moses*

199. Machego Chegofatso Phahlamohlaka - 950929 0405 084 - 6 Mohlabi Street, ATTERIDGEVILLE, 0008 - *Tshegofatso Mologadi*

200. Angel Nomecile Ngubane - 950224 0360 087 - P 401 Khetho Crescent, KWA MASHU, 4359 - *Ncomekile Angel*

201. Jacob Mohuphegi Motau - 791206 5686 080 - 3915 Block L, SOSHANGUVE, 0152 - *Mohau Jacob*

202. Maria Goitsemang Keega - 911231 0644 087 - 3213 Kanarie, KUILSVILLE, 8405 - *Lenkaletse Maria Goitsemang*

203. Chéronica Albertyn - 920813 0097 082 - 26 Lamana Street, MALMESBURY, 7300 - *Na'eelah*

204. Sheila Khumalo - 901028 0168 089 - 44 Oreily Street, Berea, JOHANNESBURG, 2001 - *Thembelihle Thenjiwe Sheila*

205. Theodore Allan Phillander - 731204 5244 086 - 10 Jakkalsvlei Avenue, BONTEHEUWEL, 7800 - *Shiraaj*

206. Lunuani Lennox Cele - 660727 0360 080 - Kwacele Area, UMZINTO, 4201 - *Velephi Princess*

207. Charles Mohlakoana - 680725 5820 088 - Block 82, Flat 9, Jabulani Flats, SOWETO, 1868 - *Mphodubu*

208. Outlwile Ernest Duiker - 831121 5848 089 - T 1386 B, MOROKWENG, 8614 - *Outlwile David*

209. Simphiwe Steven Mngwengwe - 810614 1099 082 - Kwawyuswa Area, BOTHASHILL, 3660 - *Laura Mbusamabandla*

210. Nomatenjwa Margarate Zodwa Mcetywa - 790912 0935 080 - 1586 Seraleng Rdp, MERITING, 0300 - *Nomatenjwa Margarate*

211. Lesiba Saul Magabe - 800626 5324 086 - Ga-Maoge, DRIEKOP, 1129 - *Tshepo Jack*

212. Modidi Joseph Motsoadi - 880416 5242 089 - 1916 Lebone Street, Kagiso 2, KRUGERSDORP, 1754 - *Mogomotsi Joseph*

213. Uniziour Tshegofatso Mashilo - 891212 0483 084 - Stand No 774, Stadium View, TAFELKOP, 0474 - *Lesego Uniziour Tshegofatso*

214. Lieketseng Sophia Mokwena - 520929 0859 083 - 326 Motseng Section, GA-RANKUWA, 0200 - *Dieketseng Sophia*

215. Nombulelo Kokwe - 420408 0202 082 - 1044 Nu 9, MDANTSANE, 5219 - *Nombulelo Agnes*

216. Hard Life Mathevula - 921215 5828 082 - Stand No 1540, Extension 4, Nkosi Johnson Street, DIEPKLOOF, 2156 - *Vhutshilo Hardlife*

217. Paul Cornelius Bezuidenhout - 930406 5182 088 - 185 Mayer Street, STRYDENBURG, 8765 - *Paul Lloyd Cornelius*

218. Nico Mmamogodi Mmadi - 821012 6131 082 - Mabitsi Village, NEBO, 1059 - *Nico Madiane*

219. Dikeledi Gertrude Moagi - 970808 0078 081 - 84 Dave Herman Street, THE ORCHARDS, 0110 - *Tshegofatso Precious Gertrude*

220. Dolly Thobile Mazibuko - 951021 0913 082 - Nkomokazini, ESTCOURT, 3310 - *Samkelisiwe Thobile*

221. Teddy Kgetsepe Mokgabudi - 990613 5791 084 - B 81 Makaepea, TAFELKOP, 0474 - *Teddy Bushang*

222. Isaac Jabulane Sizani - 680404 7256 085 - 14 Mfuleni Street, New Rest, WELLINGTON, 7655 - *Isaac Vuyani*

223. Mankoko Thoriso Vincent Molaba - 890907 5968 085 - 3 Pansolin, ONVERWACHT, 0557 - *Praise Thoriso*

224. Robin Leigh Anne Conradie - 950120 0498 085 - 80 St Christopher Street, St Montague Village, WYNBERG, 7945 - *Shareefa*

225. Helien Van Huyssteen - 940113 0124 085 - 341 Henriette Street, CENTURION, 0157 - *Mickela*

226. Maliyezwe Dlamini - 980828 5563 083 - 0231 Marble Road, INANDA, 4310 - *Thokozani Maliyezwe*

227. Motila Kgatla - 981111 5725 088 - P O Box 71, SHILUVANE, 0873 - *Motila Prince*

228. Zanele Sibinde - 971015 0625 080 - 1264 Tango, DENNILTON, 1030 - *Zanele Lucy*

229. Doliciano Delius Matchemezi Mokoena - 981004 5281 089 - 15055 Extension 8 B, ORANGE FARM, 1805 - *Lehlohonolo*

230. Beatrice Lungile Potwana - 920731 0594 082 - V 427 Ciko Street, Site B, KHAYELITSHA, 7784 - *Lungile*

231. Qhoshangani Mdlalose - 930710 0921 089 - 310 Langa Street, DUNDEE, 3000 - *Qhoshangani Nokubonga Happiness*

232. Samuel Magae Mashishi - 640424 6016 081 - 48 Unit D, TEMBA, 0484 - *Simon Magae*

233. Khotso Aubrey Buys - 851016 5332 081 - 26 Sandton Glades, 16 Muller Street, BUCCLEUCH, 1600 - *Kgotso Aubrey*

234. Jamie-Lee Rose Adams - 950811 0185 082 - 37 Hangklip Court, HANOVER PARK, 7780 - *Israa*

235. Tumelo Nkosi - 960421 0086 088 - 4607 Dinokwane Street, KIMBERLEY, 8300 - *Tumelo Kobamelo*

236. Malerato Andrimaker Tsoai - 950415 0858 084 - 8876 Zone 3, THABA NCHU, 9780 - *Malerato Andronica*

237. Khanyiso Ngcobo - 970324 5607 080 - Mpungeni Area, NDWEDWE, 4450 - *Nkanyiso*

238. Mikhail John Cummings - 970826 5108 083 - 42 Bontebok, Eastridge, MITCHELLS PLAIN, 7789 - *Mikaeel*

239. Margaret Mathibela - 911112 0394 081 - Sikhululiwe Village, MIDDELBURG, 1650 - *Owesipho Nkuleko*

240. Khutso Maupa Barnabas Matlou - 940428 5832 080 - Wits International House, 1 Jan Smuts Avenue, JOHANNESBURG, 2000 - *Khutso Nyakalelo*

241. Neo Mary Nemakwarani - 850427 0459 087 - P O Box 1184, PHANGAMI, 0904 - *Nofama Annie Elisabeth*

242. Sam Sandlandla - 960426 5341 081 - Mncuncuzo Area, COFIMVABA, 5380 - *Sam Monde*

243. Anelé Van Westhuizen - 930317 0039 084 - 19 Fuschia Avenue, BRACKENFELL, 7560 - *Anel Heidi*

244. Vernon Geiler - 740916 5226 081 - 48 Bentley Crescent, Eden Park, ALBERTON, 1458 - *Mohammed Vernon*

245. Amanda Lourens - 740826 0214 083 - 4 Albon Court, GOODWOOD, 7460 - *Denim*

246. Isabella Heydenreich - 740302 0111 083 - 28 Eastwood Lodge, Phillips Road, BOKSBURG, 1546 - *Devorah Isabella*

247. Evelyn Louise Salomé Mc Kay - 720518 0154 088 - Merimar Woonstel 103, Baron Van Rede Street, OUDTSHOORN, 6625 - *Salomé*

248. Shel Donna Renata Hackley - 880605 0230 087 - 14 Belamoor, Degrondel Road, MILNERTON, 7441 - *Shakurah*

249. Jayandrie Nagiah - 870823 0126 088 - 115 6th Avenue, EDENVALE, 1610 - *Jayandrie Chanel*

250. Nikita Abdurhman - 870102 0296 088 - 11 Netreg Way, BONTEHUEWEL, 7764 - *Naeelah*

251. Carlo John October - 860930 5035 081 - 28 Chapel Road, Harmony Village, MITCHELLS PLAIN, 7785 - *Saaiq*

252. Dennis Recado Brander - 860909 5262 085 - Vaalhoek 1, OKIEP, 8270 - *Recado*

253. Brionnee Dawids - 840621 0277 084 - 62-A Ruimte Road, MANENBERG, 7764 - *Razeenah*

254. Angelina Cloete - 770312 0167 087 - 156 Transvaal Road, KIMBERLEY, 8341 - *Angeline*

255. Samukalesiwe Sibongile Gamede - 590828 0264 085 - 4101 Blaauwbosch, OSIZWENI, 2952 - *Samukelisiwe Sibongile*

256. Humbulani Remember Manebaneba - 980928 5592 080 - Matswale Phase 12, House No 3607, MUSINA, 0906 - *Raphael Humbulani*

257. Loren-Lee Lesch - 970426 5018 083 - 75 Grandview Avenue, Salbelay, ELSIESRIVER, 7490 - *Lawrence*

258. Jodie-Ann Alcock - 850906 0177 088 - 2 A Blake Street, PAARL, 7620 - *Safiya*

259. Simphiwe Gola - 790610 6401 087 - 1775 C Section, Danvan Village, EAST LONDON, 5209 - *Siphiwe Siphandele Golam*

260. Hlawulani Lostina Chauke - 900616 0669 089 - 721 Malamulele, MALAMULELE, 0982 - *Hlawulani Amber*

261. Khomotso Malesela Juliet Moima - 000424 0719 080 - 140 Ga-Lebelo, MOKOPANE, 0600 - *Khomotso*

262. Aduocate Ntumeko Mlamla - 960120 5947 084 - Lotana Area, TSOLO, 5170 - *Advocate Ntumeko*

263. Gertruida Magdalena Venter - 630208 0108 081 - Luckoo Avenue 70, Nina Park, PRETORIA, 0156 - *Zacharia Gertruida Magdalena*

264. Adriaan Desmond Goehler - 651006 5111 082 - 62 Parkridge Road, PARKRIDGE, 5201 - *Adrian Desmond*

265. Yogasvaren Morgan Chetty - 651028 5146 082 - 1 Precess Circle, MOUNT EDGECOMBE, 4300 - *Yugesh*

266. Petru De Wet - 690201 0043 082 - Pine Greek C02, 133 Amy Searle Stree, GREAT BRAK, 6525 - *Rochelle*

267. Louis George Heydenreich - 690923 5160 088 - 28 Eastwood Lodge, Philips Road, Buyers Park, BOKSBURG, 1456 - *Baruch Louw*

268. Francios Augus - 701025 5035 083 - 24 Kerk Street, BRONVILLE, 9473 - *Francois*

269. Eva Mohammad - 620525 0165 080 - 550 Delft Main Road, DELFT SOUTH, 7100 - *Hawa*

270. Joseph Nathan - 610909 5322 080 - 034 Edenpark West, Extension 1, ALBERTON, 1455 - *Teboho Joseph*

271. David Nnusa Moretsele - 900621 5558 089 - 986 Phase One, Shrome Street, MAMELODI EAST, 0122 - *David Rameetse*

272. Sabelo Sakhile Mkhumbuzi - 000523 5363 081 - 40 Mccord Road, OVERPORT, 4091 - *Isabelosenkosi Sakhilevangelini*

273. Dirsley Mangoedi Loan Mampshika - 960807 0560 082 - Stand 521, Ga Molepo, GA THABA, 0700 - *Dersley Mangoedi Lo-An*

274. Dikaa Typhina Poo - 910319 0441 082 - 4057 Nkwe Street, Extension 2, MHLUZI, 1053 - *Dikaa Lebogang*

275. Dick Khosa - 970514 5761 081 - Stand No 484, Allandale, THULAMAHASHE, 1365 - *Dick Hlayisani*

276. Jean-Paul Van Biljon - 940115 5147 086 - 63 Lourens Street, SOMERSET WEST, 7130 - *Kimberly-Ann*

277. Eleck Mdlhayeni Mhlanga - 640724 5329 082 - House No 117 B, THULAMAHASHE, 1365 – *Eleck Miyelani*

278. Kholisile Jafta - 830703 5624 080 - 35 Riana Drive, Protea Heights, BRACKENFELL, 7560 - *Siyanda Kholisile*

279. Devendran Naidoo - 830714 5097 086 - 33 Road 745, Montford, CHATSORTH, 4092 - *Devendran Lionel*

280. Rhoda Shaik - 810415 0216 085 - 97 Milner Avenue, NORTHCLIFF, 2195 - *Sameera*

281. Ngoatomosadi Priscilla Mangoale - 941011 0382 084 - Mashite Village, Mphahlele, LEBOWAKGOMO, 0736 - *Moyagabo Priscilla*

282. Shereen Webster - 870910 0386 083 - 32 Summerville, Northdale Way, PARKLANDS, 7441 - *Shireen*

283. Michelle Brink - 890622 0113 088 - 42 Oval East, Beacon Valley, MITCHELLS PLAIN, 7785 - *Shahiema*

284. Chantal Rocksand Williams - 890530 0257 088 - 2 Haribees Street, Eastridge, MITCHELS PLAIN, 7785 - *Zuliakah*

285. Dawood Haroon Jeggels - 851213 5375 083 - 29 Bosman Street, KUILS RIVER, 7580 - *Daniel Herman*

286. Alida Johanna Kersop - 800416 0033 084 - 1gwentham Ribblesdale Road, Noordstad, BLOEMFONTEIN, 9301 - *Alidah Beulah Johannah*

287. Vania Adria Beata Truter - 800517 0060 082 - 3 Paloma Street, Joubert Park, BELLVILLE, 7530 - *Vania Catharina*

288. Stefanus Adriaan Kok - 800829 5049 089 - 3 Avondale Crescent, Midstream Estates, MIDRAND, 1692 - *Stefan Adrian*

DEPARTMENT OF RURAL DEVELOPMENT AND LAND REFORM

NO. 929 **07 SEPTEMBER 2018**

NOTICE OF AMENDMENT IN TERMS OF SECTION 11A (4) OF THE RESTITUTION OF LAND RIGHTS ACT , 22 OF 1994.

Notice is hereby given in terms of Section 11A(4) of the Restitution of Land Rights Act no 22 of 1994, that the Regional Land Claims Commissoner hereby amends Notice of Claim **published in Government Gazette No 30355 as Notice no. 1270 of 2007 on the** 12 October , by including the following:

Reference No. KRK6/2/3/B/98361/0/171 (M28)
Claimant : Late Mrs Xothiwe Hendrieta Manzana

FARM NAME	EXTENT IN HECTARES	CURRENT TITLE DEED	CURRENT OWNER
Kameelputs Farm No. 156	2326.5719 hectares (2716 Morgen 27 SR)	T2110/2014	Charles Fisher Family Trust

The Regional Land Claims Commissioner
Northern Cape
P.O Box 2458
Kimberley
8300
Tel: 053 807 5700
Fax: 053 831 6501

Mr. Lebyane H Maphutha
Regional Land Claims Commissioner

DEPARTMENT OF RURAL DEVELOPMENT AND LAND REFORM

NO. 930 **07 SEPTEMBER 2018**

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

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

REF NO.	CLAIMANT	PROPERTY	LOT NUMBER	DISTRICT	CURRENT LAND OWNER	INTERESTED PARTIES
H 0144	Lulu Merica Mazibuko	Lot No. 25, Eastwood	Lot No. 25, Eastwood	Tshwane Metropolitan Municipality	Tshwane Metropolitan Municipality	Department of Rural Development and Land Reform Tshwane Metropolitan Municipality

has/have been submitted to the office of the Regional Land Claim Commission. The Commission on Restitution of Land Rights will investigate the claim in terms of the provisions of Rule 5 of the Rules Regarding Procedure of Commission Established in terms of section 16 of Restitution of Land Rights Act as amended. Any interested party on the claim is hereby invited to submit, representations in terms of section 11A of the Restitution of Land Rights Act No. 22 of 1994 as amended within 90 (ninety) working days from the publication date of this notice, any comments/information may be send to:

MR. L.H. MAPHUTHA
The Regional Land Claims Commissioner
Gauteng Province
Private Bag X 03
ARCADIA
0007
TEL: (012) 310-6500/6620
FAX: (012) 323-2961

DEPARTMENT OF TRADE AND INDUSTRY

NO. 931 07 SEPTEMBER 2018

CO-OPERATIVES TO BE STRUCK FROM THE REGISTER

1. **PHILANGEZWI CO-OP LTD**
2. **MZILAZEMBE CO-OP LTD**
3. **AFIKILE CO-OP LTD**
4. **INGWEMABALABALA CO-OP LTD**
5. **DANNHAUSER BEADS CO-OP LTD**
6. **ZWAHASHU EGGS CO-OP LTD**
7. **NKUNZI EMPUNGA CO-OP LTD**
8. **XIVONO CO-OP LTD**
9. **MAMBO FARMING CO-OP LTD**
10. **ENGEL BAY CO-OP LTD**
11. **THUTHUKILE FARMERS CO-OP LTD**
12. **NKOTLOLLE AGRICULTURAL CO-OP LTD**
13. **ZIZAMELE MAMPONDO AGRICULTURAL CO-OP LTD**
14. **THEMBISILE MASIBUYELE EMASIMINI CO-OP LTD**
15. **ART AFRO DÉCOR CO-OP LTD**
16. **ELUXENI AGRICULTURAL CO-OP LTD**
17. **KWA NOMTAYI FAMILY FARM CO-OP LTD**
18. **VEZOKUHLE POULTRY CO-OP LTD**

Notice is hereby given that the names of the abovementioned co-operatives will, after the expiration of sixty days from the date of this notice, be struck off the register in terms of the provisions of section 73(1) of the Co-operatives Act, 2005, and the co-operatives will be dissolved unless proof is furnished to the effect that the co-operatives are carrying on business or are in operation.
Any objections to this procedure, which interested persons may wish to raise, must together with the reasons therefore, be lodged with this office before the expiration of the period of sixty days.

REGISTRAR OF CO-OPERATIVES
Office of the Registrar of Co-operatives
Dti Campus
77 Meintjies Street
Pretoria
0002

Private Bag X237
Pretoria
0001

DEPARTMENT OF WATER AND SANITATION

NO. 932 07 SEPTEMBER 2018

ANNEXURE A:

OLIFANTS & LETABA NOTICE (ENGLISH)

DEPARTMENT OF WATER AND SANITATION

NATIONAL WATER ACT, 1998

(ACT NO.36 OF 1998)

RESERVE DETERMINATION OF WATER RESOURCES FOR THE OLIFANTS AND LETABA CATCHMENTS

I, Deborah Mochotlhi, in my capacity as the Acting Director-General of the Department of Water and Sanitation, having complied with section 13 of the National Water Act, (Act No. 36 of 1998) ("the Act") and Regulation 3 of the Regulations for the establishment of Water Resource Classification System (No. R. 810 Government Gazette No. 33541, 17 September 2010), and duly authorised in terms of sections 16(1) and 63(1)(a) of the Act, after having complied with section 16(2) and (3) of the Act, hereby publish the Reserve determination of water resources for the catchments of the Olifants and Letaba.

Director: Reserve Determination
Attention: Mr Yakeen Atwaru
Department of Water and Sanitation
Ndinaye Building 5084
178 Francis Baard Street
Private Bag X313
Pretoria
0001

Email: atwaruy@dws.gov.za

MS DEBORAH MOCHOTLHI
ACTING DIRECTOR-GENERAL
DATE: 25/07/2018

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RESERVE DETERMINATION OF WATER RESOURCES FOR THE CATCHMENTS OF THE OLIFANTS AND LETABA IN TERMS OF SECTION 16(1) AND (2) OF THE NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998)

SCHEDULE

DESCRIPTION OF WATER RESOURCE

1. (1) The Reserve is determined for all or part of every significant water resource within the catchments of the Olifants and Letaba as set out below:

Water Management Area:	Olifants
Drainage Regions:	B Primary Drainage Region (excluding Shingwedzi catchment (B90))
Rivers:	Olifants and Letaba River Systems

(2) The Minister has in terms of section 16 of the National Water Act, 1998 (Act No.36 of 1998) ("the Act'), prescribed a system for classifying water resources by issuing Government Notice No. R. 810, published in Government Gazette No. 33541 dated 17 September 2010. In terms of section 16(1) of the Act, the Minister must, as soon as reasonably practicable after the class of all or part of a water resource has been determined, by Notice in the Gazette, determine the Reserve for all or part of that water resource.

(3) The Minister, in terms of section 16(1) and (2) of the Act, declares, the following Reserve for the catchments of the Olifants and Letaba.

RESERVE DERMINATION AS REQUIRED IN TERMS OF SECTION 16(1) AND (2) OF THE NATIONAL WATER ACT, 1998

2. (1)A summary of the quantity component for the Rivers which include the EWR (**Figure 1 & 2**) and the BHN in terms of section 16(1) of the Act for the Olifants and Letaba catchments is set out in item 4. **Table 4.1** includes the results of the priority sites and **Table 4.2** includes the results of the biophysical nodes and the remaining EWR sites.

(2)A summary of the quality component for the River at the EWR sites in terms of section 16(1) of the Act for the Olifants and Letaba catchments is set out in **Table 5.1 - 5.29**.

(3) A summary of the groundwater contribution to the Reserve for Water Quantity in terms of section 16(1) of the Act for the Olifants and Letaba catchments is set out in **Table 6.1**.

(4)A summary of the groundwater contribution to the Reserve for Water Quality in terms of section 16(1) of the Act for the Olifants and Letaba catchments is set out in **Table 7.1**, **7.2** and **7.3**.

(5)A summary of the wetland Reserve for Water Quantity & Quality in terms of section 16(1) of the Act for the Olifants and Letaba catchments is set out in **Table 8.1**.

(6)The Reserve will apply from the date signed off as determined in terms of section 16(1) of the Act, unless otherwise specified by the Minister.

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3. ACRONYMS AND DEFINITIONS

3.1. Acronyms

BHN	Basic Human Needs
EcoSpecs	Ecological Specifications
EIS	Ecological Importance and Sensitivity
EWR	Ecological Water Requirement
GRAII	Groundwater Resource Assessment Phase II
GRDM	Groundwater Reserve Determination Methodology
GRUs	Groundwater Resource Units
NMAR	Natural Mean Annual Runoff
MCM	Million Cubic Metres
PES	Present Ecological Status
REC	Recommended Ecological Category
TEC	Target Ecological Category
TPCs	Thresholds of Potential Concern

3.2. Definitions

Baseflow is a sustained low flow in rivers during dry or fair weather conditions, but not necessarily all contributed by groundwater; includes contribution from delayed interflow and groundwater discharge.

EWR (Ecological Water Requirements) refers to the flow patterns (magnitude, timing and duration) and water quality needed to maintain a riverine ecosystem in a particular condition.

Recharge is the addition of water to the zone of saturation, either by downward percolation of precipitation or surface water and/ or the lateral migration of groundwater from adjacent aquifers.

Reserve is the quantity and quality of the water required to satisfy the basic human needs by securing a basic water supply and to protect the aquatic ecosystem in order to secure ecologically sustainable development and use of the relevant water resource.

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CONTINUES ON PAGE 130 - PART 2



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PART 2 OF 4

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4. SURFACE-WATER - QUANTITY COMPONENT FOR RIVERS

The results for the Reserve determination and ecological categorisation for the Olifants and Letaba Systems, where the Reserve are expressed as a percentage of the NMAR for the respective catchments (cumulative) in terms of section (16)(1).

Table 4.1: Summary of the **quantity** component for the Rivers which include the EWR & BHN for the priority sites.

Quaternary Catchment	Water Resource	PES	EI_ES	TEC[5]	Ecological Reserve[3] (%NMAR)	BHN Reserve[4] (%NMAR)	Total Reserve[2] (%NMAR)	NMAR (MCM)[1]
B31C	Upper Elands - Olifants_ELA1	C/D	Very high	C	20.87	0.003	20.873	31.08
B20J	Lower Wilge - Olifants_EWR4	C	High	B	36.28	0.013	36.293	175.59
B20F	Wilge River - Olifants_WIL1	C/D	High	C	15.11	0.008	15.118	44.76
B11J	Olifants - Olifants_EWR1	D	Moderate	D	17.80	0.052	17.852	184.54
B32A	Olifants - Olifants_EWR2	C	High	B/C	29.83	0.008	29.838	500.63
B32A	Kranspoortspruit - OLI_EWR3	C	Very high	B	30.26	0.008	30.268	13.86
B32C	Selons - Olifants_SEL1	D	Very high	C	21.86	0.020	21.88	33.11
B71D	Olifants - Olifants_EWR8	C	Moderate	C/D	15.19	0.020	15.21	813.17
B42H	Lower Spekboom - Olifants_SPE1	C	High	C	23.16	0.091	23.251	148.19
B60B	Upper Blyde - Olifants_BLY1	C	High	B	46.08	0.005	46.085	164.45
B71J	Olifants - Olifants_EWR11	C	High	C/D	12.81	0.052	12.862	1321.92
B60J	Lower Blyde - Olifants_EWR12	C	High	B	31.14	0.052	31.192	383.27
B72D	Olifants - Olifants_EWR13	C	Moderate	C	22.37	0.301	22.671	1762.10
B73H	Olifants - Olifants_EWR16	D	High	C	21.06	0.002	21.062	1918.30
B83D	Letaba - Letaba_EWR7	C/D	High	C	17.34	0.000	17.34	646.28
B81D	Letsitele - Letaba_EWR2	D	High	D	17.59	0.078	17.668	116.55
B81B	Great Letaba - Letaba_EWR1	C/D	High	C	24.76	0.030	24.79	99.85
B81A	Broederstroom - Letaba_BRO1	B/C	High	B/C	49.22	0.012	49.232	6.68
B12E	Klein Olifants - Olifants-EWR3	D	High	C/D	19.8	0.009	19.809	81.54
B32D	Olifants - Olifants-EWR5	C	High	C	12.51	0.060	12.57	571.13
B31G	Lower Elands - Olifants-EWR6	C/D	Moderate	D	10.48	0.033	10.513	60.32
B51G	Olifants - Olifants-EWR7	E	Moderate	D	9.89	0.365	10.255	736.94
B41H	Steelpoort - Olifants-EWR9	D	High	C/D	23.33	3.086	26.416	137.50
B72K	Lower Ga-Selati - Olifants_EWR14b	E	Moderate	D	19.45	0.043	19.493	72.74
B11H	Spookspruit - SPK_EWR1	C	Moderate	C	30.12	0.001	30.121	9.32
B41H	Dwars - DWA_EWR1	B/C	High	B/C	31.24	3.086	34.326	26.10
B41K	Steelpoort - Olifants_EWR10	D	High	D	12.69	0.480	13.17	342.75
B60H	Ohrigstad - OLI_EWR8	C	Moderate	C	17.41	0.512	17.922	67.79
B72H	Upper Ga-Selati - Olifants_EWR14a	C	Moderate	C	27.53	0.123	27.653	52.20

1) NMAR is the Natural Mean Annual Runoff.
2) The total Reserve amount accounts for both the Ecological Reserve and the Basic Human Needs Reserve (BHN).
3) This amount represent the long term mean based on the NMAR. If the NMAR changes, this volume will also change.
4) Represents the percentage of BHN.
5) Target Ecological Category (TEC): The ultimate target to achieve a sustainable system both ecologically and economically taking into account the PES and REC.

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Table 4.2: Summary of the **quantity** component for the Rivers EWR & BHN for the biophysical nodes and the remaining EWR sites.

Quaternary catchment	Water Resource	PES	EI	ES	REC	Ecological Reserve (%NMAR)	BHN Reserve (%NMAR)	Total Reserve (%NMAR)	NMAR (MCM)
B11A, B11B	Olifants (confluence with Steenkoolspruit)	C	High	High	C	10.25	0.001	10.251	61.30
B11D	Steenkoolspruit (outlet of quaternary	D	Moderate	High	D	4.70	0.006	4.706	44.60
B11E	Steenkoolspruit (confluence with Olifants)	D	Moderate	High	D	4.70	0.004	4.704	65.40
B11F	Olifants (outlet of quaternary)	D	Moderate	High	D	4.70	0.007	4.707	147.90
B11G	**Noupoortspruit (EWR site – NOU-EWR1) (existing)**	**C/D**	**EIS-Moderate**		**C/D**	**13.90**	**0.075**	**13.975**	**4.28**
B11G	Olifants (releases from Witbank Dam)	D	Moderate	High	D	4.70	0.075	4.775	164.00
B11H	Spookspruit (confluence with Olifants)	C	High	High	C	10.25	0.001	10.251	11.40
B11K, B11L	Klipspruit (confluence with Olifants)	D	High	Moderate	D	4.67	0.052	4.722	45.70
B12A	Klein Olifants (outlet of quaternary)	C	High	High	C	18.85	0.001	18.851	12.70
B12B	Klein Olifants (outlet of quaternary)	D	Moderate	High	D	8.11	0.000	8.110	16.90
B12C	**Klein Olifants (EWR site – OLI-EWR1) (Rapid site)**	**C**	**EIS-Low**		**C**	**18.85**	**0.003**	**18.853**	**44.50**
B12C	Klein Olifants (releases from Middelburg Dam)	D	High	High	D	5.52	0.003	5.523	53.50
B12D	Klein Olifants (outlet of quaternary)	D	Moderate	High	D	5.52	0.004	5.524	67.30
B20A	Bronkhorstpruit (outlet of quaternary)	C	Moderate	High	C	13.38	0.003	13.383	27.70
B20B	Koffiespruit (confluence with Bronkhorstspruit)	C	Moderate	High	C	13.38	0.005	13.385	15.50
B20C	Bronkhorstpruit (outlet from Bronkhorstspruit Dam)	C	High	High	C	13.44	0.003	13.443	56.40
B20D	Hondespruit (confluence with Bronkhorstspruit)	C	High	High	C	13.39	0.002	13.395	11.90
B20D	Bronkhorstpruit (confluence with Wilge)	C	High	Very High	C	13.45	0.002	13.452	79.90
B20E, B20F	Wilge (confluence with Bronkhorstspruit	C	High	High	C	13.42	0.003	13.423	45.80
B20G	Saalboomspruit (confluence with Wilge)	C	Moderate	High	C	13.40	0.025	13.425	22.10
B20H	Grootspruit (confluence with Wilge)	C	High	Very high	C	13.40	0.006	13.406	12.80
B20H	Wilge (outlet of quaternary)	B	High	Very high	B	17.92	0.006	17.926	158.20
B32C	Olifants (releases from Loskop Dam)	D	High	High	D	7.22	0.020	7.240	568.60
B32C	Olifants (outlet of quaternary – outlet of IUA3)	D	High	High	D	7.22	0.020	7.240	576.80
B31A, B, C	B31A (Elands) B31B (Hartbeesspruit) B31C (Elands) Node at outlet of B31C releases from Rust de Winter Dam.	C C C	High High High	High Very high Very high	C	12.34	0.003	12.343	33.50

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Quaternary catchment	Water Resource	PES	EI	ES	REC	Ecological Reserve (%NMAR)	BHN Reserve (%NMAR)	Total Reserve (%NMAR)	NMAR (MCM)
B31F	Elands (releases from Mkumbe Dam)	C	High	High	C	12.34	0.008	12.348	59.80
B31H, B31J	Elands (outlet of quaternary, confluence with Olifants))	D	Moderate	Moderate	D	6.32	0.084	6.404	84.10
B32E, B32F	B32E (Bloed) B32F (Doringpoortloop) Node at confluence with Olifants in B32F.	B	Moderate High	High Moderate	B	13.90	0.397	14.297	17.20
B32G, B32H	B32G (Moses) B32H (Mametse and Moses) Node at outlet of B32H	C	High High	High High	C	9.93	0.084	10.014	35.40
B51B	Olifants (releases from Flag Boshielo Dam)	D	Moderate	High	D	3.91	1.009	4.919	723.40
B51D, B51E	Olifants (outlet of quaternary– outlet of IUA5)	D	Moderate	High	D	3.81	0.000	3.810	726.60
B41A	Grootspruit (outlet of quaternary) Langspruit, including Lakenvleispruit and Kleinspruit	C D	High High	High Very high	C	20.78	0.003	20.783	41.90
B41B	**Steelpoort (EWR site – OLI-EWR2) (Rapid site)**	**C**	**EIS=Moderate**		**C**	**20.78**	**0.006**	**20.786**	**63.50**
B41D, B41E	Steelpoort (inflow to De Hoop Dam)	C	High	Very high	C	20.78	0.394	21.174	117.00
B41F	**Klip (EWR site – OLI-EWR4) (Rapid site)**	**C**	**EIS=Moderate**		**C**	**12.44**	**0.019**	**12.459**	**5.20**
B41G	Upper reaches of Dwars (before mining impacts)	C	High	Very high	C	13.33	0.015	13.345	24.50
B51F	Nkumpi (outlet of quaternary)	C	High	Moderate	C	10.73	0.023	10.753	3.80
B52A, E,G,H	Olifants (outlet of quaternary – outlet of IUA7)	D	Moderate	High	D	3.88	0.541	4.421	799.7
B42B	**Dorpspruit (EWR site – OLI-EWR9) (Rapid site)**	**C/D**	**EIS=Low**		**C/D**	**11.99**	**0.006**	**11.996**	**63.20**
B42D, B42E	Dorps (confluence with Spekboom) Spekboom (confluence with Dorps)	C C	High High	High Very high	C	14.95	0.011	14.961	69.70
B42D	**Spekboom (EWR site – OLI-EWR6) (Rapid site)**	**C**	**EIS=High**		**C**	**17.15**	**0.001**	**17.151**	**28.00**
B42F	Watervals (releases from Buffelskloof Dam)	C	High	Very high	C	17.36	0.011	17.371	28.60
B42G	**Watervals (EWR site – OLI-EWR5) (Rapid site)**	**C**	**EIS=Moderate**		**C**	**15.47**	**0.283**	**31.220**	**36.40**
B42H	Spekboom (outlet of quaternary – outlet of IUA 8)	B	High	Moderate	B	28.84	0.091	28.931	149.00
B60E, B60F	Kranskloofspruit (confluence with Ohrigstad) Mantshibi (confluence with Ohrigstad) Ohrigstad (outlet of quaternary) Node at outlet of B60F.	C C D	High High Moderate	Very high Very high Very high	D	6.31	0.012	6.322	35.60

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Quaternary catchment	Water Resource	PES	EI	ES	REC	Ecological Reserve (%NMAR)	BHN Reserve (%NMAR)	Total Reserve (%NMAR)	NMAR (MCM)
B60H	Ohrigstad (outlet of quaternary – outlet of IUA9B)	D	High	Very high	D	8.05	0.512	8.562	69.70
B60J	Blyde (confluence with Olifants)	C	Very high	Very high	C	16.13	0.052	16.182	385.70
B71C	Mohlapitse (upper reaches)	B	Very high	Very high	B	26.50	0.103	26.603	42.10
B71D, B71F	Olifants (confluence with Steelpoort)	D	High	Very high	D	4.30	0.253	4.553	937.9
B72A	Makhutswi, including Moungwane and Malomanye	C	High	High	C	12.89	23.721	36.611	38.00
B72C	Olifants (outlet – outlet of IUA10)	C	High	High	C	18.07	0.616	18.686	1755.5
B72E	Ngwabatse (confluence with Ga-Selati)	D	High	Very high	D	9.05	0.341	9.391	25.70
B72F, G	Ga-Selati (outlet of quaternary)	C	High	Very high	C	19.59	0.023	19.613	13.50
B72J	Molatle (confluence with Ga-Selati)	B	Moderate	Moderate	B	12.67	0.038	12.705	11.40
B72K	Ga-Selati (outlet of quaternary – outlet of UIA11)	E	High	High	D	11.95	0.043	11.993	72.70
B73A	**Klaserie (EWR site – OLI-EWR7) (Rapid site)**	**B/C**	**EIS=High**		**B/C**	**22.31**	**0.033**	**22.343**	**25.50**
B73B	Klaserie (confluence with Olifants)	C	High	High	C	15.41	0.008	15.418	37.10
B73D	Nhlaralumi, including Machaton, Nyameni and Thlaralumi	B	High	Low	B	13.65	0.006	13.656	6.80
B73E	Sesete (confluence with Timbavati)	B	High	Low	B	12.24	0.152	12.392	11.10
B73F	Timbavati (outlet of quaternary)	B	High	Moderate	B	12.12	0.003	12.123	18.70
B73J	Olifants (outlet of quaternary – outlet of IUA12)	C	High	Low	C	21.07	0.007	21.077	1931.7
B60A	Blyde (confluence with Lisbon)	C	High	Very high	C	18.73	0.015	18.745	87.10
B60B	Blyde (outlet of quaternary)	B	High	Very high	B	32.86	0.005	32.865	183.80
B60C	**Treur (EWR site – TRE-EWR1) (existing)**	**B**	**EIS=Very High**		**B**	**34.60**	**0.001**	**34.601**	**46.80**
B60D	Blyde (inflow to Blyderivierpoort Dam – outlet of IUA13)	B	High	Very high	B	31.57	0.008	31.578	283.90
B81A	00242 - Broederstroom	C	Moderate	High	C	21.90	0.012	21.912	23.83
B81A	00256 - Unnamed tributary	D	Low	High	D	21.90	0.012	21.912	16.34
B81A	00263 - Unnamed tributary	D	Moderate	Moderate	D	21.90	0.012	21.912	5.75
B81A	00270 - Broederstroom	C	Moderate	Very high	C	27.10	0.012	27.112	44..47
B81B	00227 - Mahitse	D	Moderate	High	D	22.10	0.030	22.130	13.60
B81B	00233 - Mahitse	C	Moderate	High	C	27.40	0.030	27.430	2.69
B81B	00234 - Mahitse	C	Moderate	High	C	29.80	0.030	29.130	10.13

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Quaternary catchment	Water Resource	PES	EI	ES	REC	Ecological Reserve (%NMAR)	BHN Reserve (%NMAR)	Total Reserve (%NMAR)	NMAR (MCM)
B81B	00240 - Politsi	C	Moderate	High	C	19.10	0.030	19.130	38.98
B81B	00246 - Politsi	C	Moderate	Very high	C	17.70	0.030	17.730	36.26
B81B	00251 - Unnamed tributary	D	Low	Moderate	D	15.40	0.030	15.430	1.34
B81B	00269 - Morudi	B	Moderate	Very high	B	34.60	0.030	34.630	1.95
B81D	00272 - Letsitele	C	High	Very high	C	22.00	0.078	22.078	91.27
B81D	00277 - Thabina	D	High	High	D	13.00	0.078	13.078	25.28
B81D	00280 - Bobs	B	High	Very high	B	29.30	0.078	29.378	18.51
B81D	00296 - Mothlaka-Semeetse	B	High	Very high	B	34.60	0.078	34.678	10.53
B81E	00213 - Nwanedzi	D	Moderate	High	C	8.10	0.249	8.349	17.28
B81F	00189 - Merekome	C	Moderate	Moderate	C	7.10	0.244	7.344	4.74
B81F	00203 - Lerwatlou	C	Moderate	High	C	8.80	0.244	9.044	3.74
B81F	00228 - Reshwele	B	Moderate	Low	B	9.10	0.244	9.344	3.53
B81F	00232 - Makwena	B	Moderate	Low	B	12.80	0.244	13.044	2.75
B81G	00164 - Molototsi	D	Moderate	Moderate	D	6.60	0.288	6.888	16.72
B81H	00162 - Metsemola	C	Moderate	Low	C	9.80	0.545	10.345	0.64
B81H	00171 - Molototsi	D	Moderate	Moderate	D	6.50	0.545	7.045	25.84
B81J	00187 - Mbhawula	C	Moderate	Low	C	9.80	0.024	9.824	2.53
B82A	00168 - Middle Letaba	C	Moderate	Moderate	C	24.30	0.014	24.314	31.12
B82B	00173 - Koedoes	D	Moderate	Moderate	D	12.30	0.013	12.313	23.13
B82D	00154 - Middle Letaba	D	Moderate	Moderate	D	17.30	0.116	17.416	40.53
B82D	00163 - Lebjelebore	C	Moderate	High	C	25.80	0.116	25.916	4.90
B82D	00166 - Mosukodutsi	D	Moderate	Moderate	D	10.20	0.116	10.316	42.25
B82E	00149 - Khwali	B	High	Low	B	13.90	0.158	14.058	4.51
B82E	00150 - Klein Letaba	C	Moderate	Moderate	C	16.00	0.158	16.158	3.48
B82F	00128 - Klein Letaba	C	Moderate	Moderate	C	15.40	0.071	15.471	32.13
B82F	00137 - Klein Letaba	D	Moderate	Moderate	D	9.70	0.071	9.771	13.64
B82F	00141 - Soeketse	C	Moderate	Low	C	12.80	0.071	12.871	7.32
B82H	00127 - Nsama	C	Moderate	High	C	10.60	0.064	10.664	6.91
B82H	00139 - Magobe	B	Moderate	Low	B	14.90	0.064	14.964	3.10
B82H	00157 - Nsama	B	Moderate	Moderate	B	14.40	0.064	14.964	11.72
B82J	00197 - Ka-Malilibone	B	Moderate	Very low	B	13.80	0.013	13.813	0.66

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5. SURFACE-WATER - QUALITY COMPONENT FOR RIVERS

Summary of the Quality component at EWR sites

Table 5.1: Olifants_ELA1: **Upper Elands** - EcoSpecs relating to Physico-chemical data

River: Upper Elands		**EWR : Olifants_ELA1**	Nearest WQ site (downstream Rust De Winter Dam) B3H013. No WQ site in vicinity of EWR site. In situ reading obtaining during survey
Water quality metrics		**ECOSPEC: PES AND REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 30 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 80 mg/L	
	Na	The 95th percentile of the data must be ≤ 70 mg/L	
	Cl	The 95th percentile of the data must be ≤.40 mg/L	
	Ca	The 95th percentile of the data must be ≤ 32 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 30 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 6.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 2.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.058 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L.	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2.	
	Ammonia	The 95th percentile of the data must be ≤ 72.5 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 78.5 µg/L	
	Flouride	The 95th percentile of the data must be ≤ 3.52 mg/L	

Table 5.2: Olifants_EWR4: **Lower Wilge** - EcoSpecs relating to Physico-chemical data

River: Lower Wilge		**EWR : Olifants_EWR4**	Downstream B2H015Q01 Wilge River at Zusterstroom
Water quality metrics		**ECOSPEC: PES AND REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 50 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 150 mg/L	
	Na	The 95th percentile of the data must be ≤ 92.5 mg/L	
	Cl	The 95th percentile of the data must be ≤.120 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 0.75 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.025 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Aluminium	The 95th percentile of the data must be ≤ 62.5 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 2.50 mg/L	
	Manganese	The 95th percentile of the data must be ≤ 99.0 µg/L	

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Table 5.3: Olifants_WIL1: **Upper Wilge** - EcoSpecs relating to Physico-chemical data

River: Lower Wilge		**EWR : Olifants_WIL1**	Downstream B2H014Q01
Water quality metrics		**ECOSPEC: PES AND REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 30 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 80 mg/L	
	Na	The 95th percentile of the data must be ≤ 70mg/L	
	Cl	The 95th percentile of the data must be ≤.40 mg/L	
	Ca	The 95th percentile of the data must be ≤ 32 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 6.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 2.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.058 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 3.52 mg/L	

Table 5.4: Olifants_EWR1: **Olifants** - EcoSpecs relating to Physico-chemical data

River: Olifants		**EWR : Olifants_EWR1**	No water quality site in vicinity of EWR site
Water quality metrics		**ECOSPEC: REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 70 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 250 mg/L	
	Na	The 95th percentile of the data must be ≤ 115mg/L	
	Cl	The 95th percentile of the data must be ≤.175 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 85 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.6 – 9.2	
	Temperature	Variation of 2°C or 10% from background average temperature	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 6.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	Nitrite &Nitrite	The 50th percentile of the data must be ≤ 3.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.091 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 3.52 mg/L	

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Table 5.5: Olifants_EWR2: **Olifants** - EcoSpecs relating to Physico-chemical data

River: Olifants		**EWR : Olifants_EWR2**	No water quality site in vicinity of EWR site
Water quality metrics		**ECOSPEC: REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 50 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 150 mg/L	
	Na	The 95th percentile of the data must be ≤ 92.5 mg/L	
	Cl	The 95th percentile of the data must be ≤.120 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 1.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.025 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Aluminium	The 95th percentile of the data must be ≤ 62.5 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 2.5 mg/L	
	Manganese	The 95th percentile of the data must be ≤ 180 µg/L	

Table 5.6: OLI_EWR3: **Kranspoortspruit** - EcoSpecs relating to Physico-chemical data

River: Kranspoortspruit		**EWR : OLI_EWR3**	No water quality site in vicinity of EWR
Water quality metrics		**ECOSPEC: REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 30 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 80 mg/L	
	Na	The 95th percentile of the data must be ≤ 70mg/L	
	Cl	The 95th percentile of the data must be ≤.40 mg/L	
	Ca	The 95th percentile of the data must be ≤ 32 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 30 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 0.75 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.02 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 15µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 14.56 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 3.52 mg/L	

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Table 5.7: Olifants_SEL1: **Selons** - EcoSpecs relating to Physico-chemical data

River: Selons		**EWR : Olifants_SEL1**	No water quality site in vicinity of EWR site
Water quality metrics		**ECOSPEC: PES and REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 50 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 150 mg/L	
	Na	The 95th percentile of the data must be ≤ 92.5 mg/L	
	Cl	The 95th percentile of the data must be ≤.120 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.6 – 9.2	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 6.5 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 2.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.058 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 3.52 mg/L	
	Aluminium	The 95th percentile of the data must be ≤ 0.15 mg/L	
	Manganese	The 95th percentile of the data must be ≤ 1.30 mg/L	
	Zinc	The 95th percentile of the data must be ≤ 36 µg/L.	

Table 5.8: Olifants_EWR8: **Olifants** - EcoSpecs relating to Physico-chemical data

River: Olifants		**EWR : Olifants_EWR8**	No water quality site in vicinity of EWR site
Water quality metrics		**ECOSPEC: PES and REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 50 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 150 mg/L	
	Na	The 95th percentile of the data must be ≤ 92.5 mg/L	
	Cl	The 95th percentile of the data must be ≤.120 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 2.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.058 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 3.52 mg/L	

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Table 5.9: Olifants_SPE1: **Spekboom** - EcoSpecs relating to Physico-chemical data

River: Lower Spekboom		**EWR : Olifants_SPE1**	No water quality site in vicinity of EWR site
Water quality metrics		**ECOSPEC: REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 50 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 150 mg/L	
	Na	The 95th percentile of the data must be ≤ 92.5 mg/L	
	Cl	The 95th percentile of the data must be ≤.120 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 1.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.025 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Aluminium	The 95th percentile of the data must be ≤ 150 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 3 mg/L	
	Manganese	The 95th percentile of the data must be ≤ 1.3 mg/L	

Table 5.10: Olifants_BLY1: **Upper Blyde** - EcoSpecs relating to Physico-chemical data

River: Upper Blyde		**EWR : Olifants_BLY1**	Downstream site B6H001Q01
Water quality metrics		**ECOSPEC: PES AND REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 30 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 80 mg/L	
	Na	The 95th percentile of the data must be ≤ 70mg/L	
	Cl	The 95th percentile of the data must be ≤.40 mg/L	
	Ca	The 95th percentile of the data must be ≤ 32 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 30 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 8.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 0.5 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.025 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 15 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 14.56 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 15 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 9 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 1.5 mg/L	

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Table 5.11: Olifants_EWR11: **Olifants** - EcoSpecs relating to Physico-chemical data

River: Olifants		**EWR : Olifants_EWR11**	Downstream site B7H009Q01
Water quality metrics		**ECOSPEC: PES and REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 50 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 150 mg/L	
	Na	The 95th percentile of the data must be ≤ 92.5 mg/L	
	Cl	The 95th percentile of the data must be ≤.120 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 2.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.058 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 3.52 mg/L	

Table 5.12: Olifants_EWR12: **Lower Blyde** - EcoSpecs relating to Physico-chemical data

River: Lower Blyde		**EWR : Olifants_EWR12**	Upstream site B6H004Q01
Water quality metrics		**ECOSPEC: PES AND REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 30 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 80 mg/L	
	Na	The 95th percentile of the data must be ≤ 70mg/L	
	Cl	The 95th percentile of the data must be ≤.40 mg/L	
	Ca	The 95th percentile of the data must be ≤ 32 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 30 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 8.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 0.5 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.020 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 15 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 14.56 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 15 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 19 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 1.0 mg/L	

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Table 5.13: Olifants_EWR13: **Olifants** - EcoSpecs relating to Physico-chemical data

River: Olifants		**EWR : Olifants_EWR13**	Upstream site B7H007Q01
Water quality metrics		**ECOSPEC: PES and REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 50 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 150 mg/L	
	Na	The 95th percentile of the data must be ≤ 92.5 mg/L	
	Cl	The 95th percentile of the data must be ≤.120 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 1.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.025 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Aluminium	The 95th percentile of the data must be ≤ 62.5 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 2.5 mg/L	

Table 5.14: Olifants_EWR16: **Olifants** - EcoSpecs relating to Physico-chemical data

River: Olifants		**EWR : Olifants_EWR16**	Downstream site B7H017Q01
Water quality metrics		**ECOSPEC: PES and REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 30 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 80 mg/L	
	Na	The 95th percentile of the data must be ≤ 70mg/L	
	Cl	The 95th percentile of the data must be ≤.40 mg/L	
	Ca	The 95th percentile of the data must be ≤ 32 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 30 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 8.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 0.75 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.02 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 2.5 mg/L	

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Table 5.15: Olifants_EWR3: **Klein Olifants** - EcoSpecs relating to Physico-chemical data

River: Klein Olifants		**EWR : Olifants_EWR3**	No water quality site in vicinity of EWR site
Water quality metrics		**ECOSPEC: REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 50 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 150 mg/L	
	Na	The 95th percentile of the data must be ≤ 92.5 mg/L	
	Cl	The 95th percentile of the data must be ≤.120 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.6 – 9.2	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 6.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 2.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.058 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Fluoride	The 95th percentile of the data must be ≤ 3.52 mg/L	

Table 5.16: Olifants_EWR5: **Olifants** - EcoSpecs relating to Physico-chemical data

River: Olifants		**EWR : Olifants_EWR5**	No water quality site in vicinity of EWR site
Water quality metrics		**ECOSPEC: PES and REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 50 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 150 mg/L	
	Na	The 95th percentile of the data must be ≤ 92.5 mg/L	
	Cl	The 95th percentile of the data must be ≤.120 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 2.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.058 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 72.5 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 78.5 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 3.52 mg/L	

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Table 5.17: Olifants_EWR6: **Lower Elands** - EcoSpecs relating to Physico-chemical data

River: Elands		**EWR : Olifants_EWR6**	Downstream site B3R005Q01
Water quality metrics		**ECOSPEC: PES and REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 50 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 150 mg/L	
	Na	The 95th percentile of the data must be ≤ 92.5 mg/L	
	Cl	The 95th percentile of the data must be ≤.120 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.6 – 9.2	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 6.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 3.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.091 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 30 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 42 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 72.5 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 78.5 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 3.52 mg/L	

Table 5.18: Olifants_EWR7: **Olifants** - EcoSpecs relating to Physico-chemical data

River: Olifants		**EWR : Olifants_EWR7**	No water quality site in vicinity of EWR site
Water quality metrics		**ECOSPEC: PES and REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 70 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 250 mg/L	
	Na	The 95th percentile of the data must be ≤ 115 mg/L	
	Cl	The 95th percentile of the data must be ≤.175 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 85 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.0 – 10.0	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 5.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 4.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.125 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 30 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 42 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 72.5 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 78.5 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 3.52 mg/L	

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Table 5.19: Olifants_EWR9: **Steelpoort** - EcoSpecs relating to Physico-chemical data

River: Steelpoort		**EWR : Olifants_EWR9**	No water quality site in vicinity of EWR site
Water quality metrics		**ECOSPEC: PES and REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 70 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 250 mg/L	
	Na	The 95th percentile of the data must be ≤ 115 mg/L	
	Cl	The 95th percentile of the data must be ≤.175 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 85 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.0 – 10.0	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 5.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 4.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.125 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 30 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 42 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 72.5 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 78.5 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 3.52 mg/L	

Table 5.20: Olifants_EWR10: **Steelpoort** - EcoSpecs relating to Physico-chemical data

River: Lower Steelpoort		**EWR : Olifants_EWR10**	No water quality site in vicinity of EWR site use upstream site B4H011Q01 (B4H11)
Water quality metrics		**ECOSPEC: PES, RQO and TEC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 40 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 50 mg/L	
	Na	The 95th percentile of the data must be ≤ 40 mg/L	
	Cl	The 95th percentile of the data must be ≤ 50 mg/L	
	Ca	The 95th percentile of the data must be ≤ 50 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 70 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.0 – 9.0	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 4.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.091 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 30 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 42 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 72.5 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.8 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 0.7 mg/L	
	Aluminium	The 95th percentile of the data must be ≤ 62.5 µg/L	
	Zinc	The 95th percentile of the data must be ≤ 14.4 µg/L	
	Manganese	The 95th percentile of the data must be ≤ 0.68 mg/L	

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Table 5.21: Olifants_EWR14a: **Upper Ga-Selati** - EcoSpecs relating to Physico-chemical data

River: Upper Ga-Selati		**EWR : Olifants_EWR14a**	No water quality site in vicinity of EWR site. Closest site is B7H140Q01
Water quality metrics		**ECOSPEC: PES and TEC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 20 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 10 mg/L	
	Na	The 95th percentile of the data must be ≤ 15 mg/L	
	Cl	The 95th percentile of the data must be ≤.15 mg/L	
	Ca	The 95th percentile of the data must be ≤ 30 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 35 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 6.4 – 8.6	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 1.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.01 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 0.7 mg/L	

Table 5.22: Olifants_EWR14b: **Lower Ga-Selati** - EcoSpecs relating to Physico-chemical data

River: Lower Ga-Selati		**EWR : Olifants_EWR14b**	Upstream water quality site B7H19
Water quality metrics		**ECOSPEC: PES and TEC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 70 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 250 mg/L	
	Na	The 95th percentile of the data must be ≤ 115 mg/L	
	Cl	The 95th percentile of the data must be ≤.175 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 85 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.0 – 10.0	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 5.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 4.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.125 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 30 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 42 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 72.5 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 78.5 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 1.0 mg/L	

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Table 5.23: SPK_EWR1: **Spookspruit** - EcoSpecs relating to Physico-chemical data

River: Spookspruit		**EWR : SPK_EWR1**	No water quality site in vicinity of EWR site, but can use downstream site B1H200Q01
Water quality metrics		**ECOSPEC: PES and TEC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 50 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 250 mg/L	
	Na	The 95th percentile of the data must be ≤ 92.5 mg/L	
	Cl	The 95th percentile of the data must be ≤.120 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 1.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.025 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 2.5 mg/L	

Table 5.24: DWA_EWR1: **Dwars** - EcoSpecs relating to Physico-chemical data

River: Dwars		**EWR : DWA_EWR1**	No water quality site in vicinity of EWR site, use water quality site B4H9
Water quality metrics		**ECOSPEC: PES and TEC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 50 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 30 mg/L	
	Na	The 95th percentile of the data must be ≤ 25 mg/L	
	Cl	The 95th percentile of the data must be ≤ 20 mg/L	
	Ca	The 95th percentile of the data must be ≤ 45 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 7.0 – 8.7	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 1.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.025 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 0.7 µg/L	

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Table 5.25: OLI_EWR8: **Origstad** - EcoSpecs relating to Physico-chemical data

River: Ohrigstad		**EWR : OLI_EWR8**	No water quality site in vicinity of EWR site. Use upstream water quality site B60_1000009803
Water quality metrics		**ECOSPEC: PES and TEC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 20 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 20 mg/L	
	Na	The 95th percentile of the data must be ≤ 15 mg/L	
	Cl	The 95th percentile of the data must be ≤ 15 mg/L	
	Ca	The 95th percentile of the data must be ≤ 25 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 6.4 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 1.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.025 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 0.5 mg/L	

Table 5.26: Letaba_EWR7: **Letaba** - EcoSpecs relating to Physico-chemical data

River: Letaba		**EWR: Letaba EWR7**	Downstream site B8H018Q01
Water quality metrics		**ECOSPEC: PES and REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 50 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 150 mg/L	
	Na	The 95th percentile of the data must be ≤ 92.5 mg/L	
	Cl	The 95th percentile of the data must be ≤.120 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 2.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.058 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 3.52 mg/L	

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Table 5.27: Letaba_EWR2: **Letsitele** - EcoSpecs relating to Physico-chemical data

River: Letsitele		**EWR : Letaba EWR2**	Upstream site B8H010Q01
Water quality metrics		**ECOSPEC: PES and REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 50 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 150 mg/L	
	Na	The 95th percentile of the data must be ≤ 92.5 mg/L	
	Cl	The 95th percentile of the data must be ≤.120 mg/L	
	Ca	The 95th percentile of the data must be ≤ 80 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 55 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.0 – 10.0	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 5.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 4.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.125 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 30 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 42 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 72.5 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 78.5 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 3.52 mg/L	

Table 5.28: Letaba_EWR1: **Great Letaba** - EcoSpecs relating to Physico-chemical data

River: Great Letaba		**EWR: Letaba_EWR1**	Downstream site B8H014Q01
Water quality metrics		**ECOSPEC: PES and REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 30 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 80 mg/L	
	Na	The 95th percentile of the data must be ≤ 70mg/L	
	Cl	The 95th percentile of the data must be ≤.40 mg/L	
	Ca	The 95th percentile of the data must be ≤ 32 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 30 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 2.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.058 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 3.52 mg/L	

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Table 5.29: Letaba_BRO1: **Broederstroom** - EcoSpecs relating to Physico-chemical data

River: Broederstroom		**EWR : Letaba_BRO1**	No water quality site in vicinity of EWR site
Water quality metrics		**ECOSPEC: PES and REC**	
Major Ions	Mg	The 95th percentile of the data must be ≤ 30 mg/L	
	SO_4	The 95th percentile of the data must be ≤ 80 mg/L	
	Na	The 95th percentile of the data must be ≤ 70mg/L	
	Cl	The 95th percentile of the data must be ≤.40 mg/L	
	Ca	The 95th percentile of the data must be ≤ 32 mg/L	
Physical variables	EC	The 95th percentile of the data must be ≤ 30 mS/m	
	pH	The 5th and 95th percentiles of the data must range from 5.9 – 8.8	
	Temperature	Variation of 2°C or 10% from background average temperature.	
	Dissolved oxygen	The 5th percentile of the data must be ≥ 7.0 mg/L	
	Turbidity	Vary (small amount) from natural turbidity range; minor silting of instream habitats acceptable.	
Nutrients	TIN	The 50th percentile of the data must be ≤ 1.0 mg/L	
	PO_4-P	The 50th percentile of the data must be ≤ 0.025 mg/L	
Response variables	Chl-a phytoplankton	The 50th percentile of the data must be ≤ 20 µg/L	
	Chl-a periphyton	The 50th percentile of the data must be ≤ 21 mg/m^2	
	Ammonia	The 95th percentile of the data must be ≤ 43.75 µg/L.	
	Atrazine	The 95th percentile of the data must be ≤ 48.75 µg/L	
	Aluminium	The 95th percentile of the data must be ≤ 62.5 µg/L	
	Fluoride	The 95th percentile of the data must be ≤ 2.5 mg/L	

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6. GROUNDWATER - QUANTITY COMPONENT

Table 6.1 below contains datasets from three different groundwater Resources Directed Measures (RDM) study results since 2005 for the study area.

The sources of the datasets were: (i) Groundwater Resources Assessment Phase II (DWAF, 2005), (ii) Leshika Water Systems Management (2013 and 2014), ((iii) Exigo (2009) and SRK (2009).

Some variations in the groundwater recharge and baseflow were noted and where possible, a mean value was adopted. BHN values were calculated using a GIS algorithm around perennial river systems to differentiate between surface water and groundwater users – this application is not fully accurate as the differentiation of perennial and non-perennial river systems is vague in real time.

The prescribed GRDM algorithm was used and an "allocable groundwater" volume (MCM/a) was calculated.

Two different Stress Indexes (SRK, 2009, Exigo, 2009 and WSM, 2014)) were adopted – although significant variations between the two sources were noted in a few cases.

A groundwater quantity ranking approach was applied, based on a ranking approach followed by SRK 2009, from an Unmodified System (A) to a Critically Modified System (F). This ranking approach was applied by considering the differences between the different data sources, but specifically applying a larger weight on the actual allocable groundwater (SRK-WSM) and physical assessments from the Exigo dataset.

The allocable groundwater value (MCM/a), as well as the dependence (%) of the Reserve depending on the groundwater recharge forms the basis of the ranking process. Several cases where the allocable groundwater value is ZERO, the quantity ranking was accordingly lowered (towards D, E or F) depending on the reserve dependence on recharge.

The potential impact of groundwater abstraction on the surface water component in the quaternary catchments is listed as well and use as a factor where the groundwater allocation was ZERO.

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Table 6.1: Groundwater Resource Directed Measures (GRDM) Template (An indicator for potential surface water resources impacts due to high groundwater abstraction is added (surface water Impact)

Quaternary Catchment	Area (km^2)	Recharge (Mm^3/a)		Rech to Aqf	Baseflow (Mm3/a)				EWR_MLF (Mm3/a)	BHN Reserve (Mm3/a)	Total Gw Reserve (Mm3/a)	Total Gwater Use (Mm3/a)	SI = Gw Use / Aqf Rech	(Mm3/a)	Reserve (% of Recharge)	Quantity (GRDM)	Swater Impact	Allocable Gwater (Mm3/a)
	GRA II	WSM_{2009}	$Exigo_{2009}$	Ave	WSM_{2013}	$Exigo_{2009}$	SRK_{2009}	Ave			=AW+BB	Calc'd	WSM2013	$Exigo_{2009}$		Ranked	Narrative	Cal'd
B11A	945.4	15.45	8.52	11.99	12.2	6.72	8.37	10.29		0.10	12.30	0.57	0.04	0.21	79.6	A-Unmodified	Low	2.98
B11B	435.3	6.84	4.47	5.66	5.37	2.73	3.71	4.54	0.068	0.12	5.49	0.20	0.03	0.39	80.3	A-Unmodified	Low	1.32
B11C	385.4	5.71	5.59	5.65	4.85	4.43	3.14	4.00		0.04	4.89	4.37	0.77	0.21	85.6	C-Moderately modified	Low	0.00
B11D	550.9	7.66	10.79	9.23	6.5	8.45	4.3	5.40		0.18	6.68	2.34	0.31	0.33	87.2	B-Largely Natural	Low	0.00
B11E	466.7	6.80	6.27	6.53	5.36	3.28	3.75	4.56	0.048	0.11	5.47	3.53	0.52	0.48	80.4	C-Moderately modified	Low	0.00
B11F	428.3	6.44	4.43	5.44	5.07	0.48	3.57	4.32		0.08	5.15	0.37	0.06	0.89	80.0	B-Largely Natural	Low	1.08
B11G	367.8	5.61	3.56	4.58	4.42	14.11	3.03	3.73	0.103	0.07	4.49	0.10	0.02	0.41	80.0	A-Unmodified	Low	1.17
B11H	246.0	3.78	3.01	3.40	2.97	2.33	2.03	2.50	0.024	0.04	3.01	0.46	0.12	0.23	79.6	B-Largely Natural	Low	0.41
B11J	269.4	7.08	1.90	4.49	5.6	4.03	5.17	5.39		0.45	6.05	1.88	0.06	0.15	85.5	B-Largely Natural	Moderate	0.00
B11K	378.3	9.84	3.16	6.50	7.59	0.00	7.06	7.33		0.03	7.62	0.22	0.02	0.92	77.4	B-Largely Natural	Moderate	2.25
B11L	241.8	6.05	3.48	4.77	4.95	3.28	4.6	4.78	0.996	0.01	4.96	0.06	0.01	0.06	82.0	A-Unmodified	Moderate	1.21
B12A	406.9	4.72	5.44	5.08	4.31	4.29	3.09	3.70		0.18	4.49	0.16	0.03	0.21	95.1	A-Unmodified	Low	0.26
B12B	658.5	8.62	8.79	8.70	7.81	6.09	5.15	6.48		0.08	7.89	3.84	0.45	0.31	91.5	B-Largely Natural	Low	0.00
B12C	529.0	7.20	4.58	5.89	6.54	9.52	4.24	5.39	0.109	0.04	6.58	0.21	0.03	0.23	91.4	A-Unmodified	Low	0.70
B12D	362.3	5.16	4.10	4.63	4.72	0.32	3.09	3.91	0.179	0.98	5.70	0.24	0.05	0.92	110.5	E – Seriously modified	Low	0.00
B12E	435.8	11.49	8.63	10.06	9.15	8.16	8.73	8.94	0.187	0.04	9.19	0.45	0.04	0.05	80.0	A-Unmodified	Moderate	2.21
B20A	574.3	10.26	14.45	12.35	6.6	9.21	7.39	7.00		0.48	9.84	20.57	2.00	1.00	95.9	F-Critically modified	Low	0.00
B20B	321.0	5.72	5.69	5.71	3.62	0.00	4.07	3.85		0.38	4.72	58.03	10.02	1.00	82.5	F-Critically modified	Low	0.00
B20C	363.7	6.53	4.50	5.52	4.13	12.36	4.71	4.42		0.03	4.16	0.91	0.14	0.12	63.7	B-Largely Natural	High	1.59
B20D	480.4	8.52	10.03	9.27	5.3	13.77	6.1	5.70	0.293	0.26	5.56	1.43	0.17	0.11	65.3	B-Largely Natural	Moderate	1.70
B20E	619.9	9.61	8.69	9.25	7.27	3.93	7.75	7.51		0.37	7.64	3.58	0.36	0.55	77.9	C-Moderately modified	Moderate	0.00
B20F	504.2	9.05	9.44	9.25	5.71	8.74	6.28	6.00	0.081	0.05	5.76	0.80	0.09	0.07	63.6	B-Largely Natural	Moderate	2.62
B20G	522.4	13.15	9.31	11.23	10.28	8.28	9.31	9.80	0.067	0.30	10.58	1.87	0.14	0.12	80.5	B-Largely Natural	Moderate	1.04
B20H	562.5	13.70	5.55	9.63	11.03	3.57	9.79	10.41		0.36	11.39	1.77	0.13	0.36	83.1	B-Largely Natural	Moderate	0.87

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Quat	Area	Rainfall	Runoff	Rech to Aqf	Baseflow (Mm3/a)				EWR_MLF (Mm3/a)	BHN Reserve (Mm3/a)	Total Gw Reserve (Mm3/a)	Total Gw Use (Mm3/a)	SI = Gw Use / Aqf Rech	(Mm3/a)	Reserve (% of Recharge)	Quantity (GRDM)	Swater Impact	Allocable Gwater (Mm3/a)
				Ave	WSM2013	Exigo2009	SRK2009	Ave			=AW+BB	Calc'd	WSM2013	Exigo2008		Ranked	Narrative	Cal'd
B20J	407.4	10.03	7.12	8.58	8.03	6.20	7.34	7.69	0.958	0.05	8.08	1.09	0.11	0.13	80.6	B-Largely Natural	Moderate	1.14
B31A	386.6	6.09	4.43	5.26	3.77	1.99	3.15	3.46		0.04	3.81	4.81	0.79	0.55	62.6	C-Moderately modified	Moderate	0.00
B31B	385.1	5.56	9.40	7.48	3.45	6.64	2.64	3.05		0.19	3.64	1.22	0.22	0.29	65.5	B-Largely Natural	Moderate	0.71
B31C	373.4	5.14	9.23	7.19	2.75	8.71	2.27	2.51	0.076	0.00	2.75	0.82	0.16	0.07	53.5	B-Largely Natural	Moderate	1.59
B31D	557.0	7.58	10.19	8.89	4.06	6.92	3.3	3.68		0.42	4.48	1.96	0.26	0.32	59.1	B-Largely Natural	Low	1.16
B31E	1382.4	8.34	47.74	28.04	0	43.36	0	0.00		0.14	0.14	9.24	1.11	0.09	1.7	C-Moderately modified	Low	0.00
B31F	637.5	3.69	8.09	5.89	0	3.85	0	0.00		0.43	0.43	2.31	0.63	0.52	11.7	C-Moderately modified	Low	0.95
B31G	433.2	4.67	7.29	5.98	1.4	4.26	2.54	1.97	0.096	0.31	1.71	1.42	0.30	0.42	36.6	B-Largely Natural	Low	1.59
B31H	611.8	6.85	6.31	6.58	1.96	4.67	3.26	2.61		1.64	3.60	4.36	0.64	0.26	52.6	C-Moderately modified	Negligible	0.00
B31J	1379.9	7.84	27.75	17.80	0	25.02	0	0.00	0.085	0.10	0.10	30.84	3.93	0.10	1.3	E – Seriously modified	Negligible	0.00
B32A	801.4	21.18	15.31	18.24	16.26	25.10	15.2	15.73	1.717	0.05	16.31	0.54	0.03	0.07	77.0	A-Unmodified	Low	4.36
B32B	613.8	13.40	8.72	11.06	9.7	7.68	10.83	10.27		0.04	9.74	0.25	0.02	0.12	72.7	A-Unmodified	Low	3.59
B32C	302.8	3.19	4.04	3.62	1.09	2.92	4.5	2.80	0.094	0.01	1.10	3.47	1.09	0.28	34.5	C-Moderately modified	Low	0.00
B32D	521.1	4.95	9.03	6.99	3.15	8.39	1.79	2.47	0.875	0.07	3.22	3.14	0.63	0.07	65.1	C-Moderately modified	Negligible	0.00
B32E	203.2	2.43	3.05	2.74	1.59	2.81	0.89	1.24		0.01	1.60	0.19	0.08	0.08	65.8	A-Unmodified	Low	0.67
B32F	667.2	3.71	4.83	4.27	0.71	2.74	2.7	1.71	0.005	0.34	1.05	4.30	1.16	0.43	28.3	D – Largely modified	Low	0.00
B32G	967.6	8.89	15.09	11.99	1.35	6.51	6.86	4.11		1.83	3.18	5.85	0.66	0.57	35.8	C-Moderately modified	Low	0.07
B32H	693.9	10.21	13.42	11.81	5.77	11.22	4.42	5.10	0.046	0.06	5.83	2.90	0.28	0.18	57.1	B-Largely Natural	Low	1.49
B32J	322.8	1.17	2.76	1.97	0	0.58	0.05	0.03		0.44	0.44	1.01	0.86	0.79	37.6	C-Moderately modified	Negligible	0.00
B41A	764.5	18.28	8.43	13.36	14.79	5.87	12.35	13.57	0.122	0.14	14.93	0.06	0.00	0.32	81.7	A-Unmodified	Negligible	3.47
B41B	778.0	18.51	11.67	15.09	14.96	10.07	12.16	13.56		0.04	15.00	1.23	0.07	0.14	81.0	A-Unmodified	Negligible	2.45
B41C	302.4	7.19	1.96	4.57	5.79	0.00	4.6	5.20		0.02	5.61	0.54	0.08	1.00	80.8	C-Moderately modified	Negligible	0.90
B41D	402.9	4.97	6.22	5.60	2.61	5.50	5.03	3.82	0.506	0.09	2.70	1.72	0.35	0.12	54.3	B-Largely Natural	Negligible	0.59
B41E	237.1	1.17	6.79	3.98	0	5.66	0.04	0.02		0.23	0.23	0.11	0.09	0.17	19.7	A-Unmodified	Moderate	0.83
B41F	379.8	10.88	7.21	9.04	9.99	6.84	7.92	8.96		0.01	10.00	0.00	0.00	0.05	91.9	A-Unmodified	Moderate	1.03

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				Rech to Aqf	Baseflow (Mm3/a)				EWR_MLF (Mm3/a)	BHN Reserve (Mm3/a)	Total Gw Reserve (Mm3/a)	Total Gwater Use (Mm3/a)	SI = Gw Use / Aqf Rech	(Mm3/a)	Reserve (% of Recharge)	Quantity (GRDM)	Gwater Impact	Allocable Gwater (Mm3/a)
			Exigo2009	Ave	WSM2013	Exigo2009	SRK2009	Ave			=AW+BB	Calc'd	WSM2013	Exigo2009		Ranked	Narrative	Cal'd
B41G	442.1	11.41	6.71	9.06	10.34	3.98	8.48	9.41		0.01	10.35	0.38	0.03	0.41	90.7	A-Unmodified	Moderate	0.88
B41H	410.3	2.57	7.57	5.07	0	5.03	0.1	0.05	0.537	0.35	0.35	0.16	0.06	0.34	13.6	A-Unmodified	Moderate	2.06
B41J	690.8	4.31	10.88	7.59	0	6.02	0.2	0.10		0.41	0.41	0.64	0.15	0.45	9.5	A-Unmodified	Negligible	3.26
B41K	635.2	3.53	7.00	5.27	0	4.64	0.23	0.12	0.495	0.47	0.47	1.99	0.56	0.34	13.3	B-Largely Natural	High	1.07
B42A	318.9	10.64	1.86	6.25	9.81	1.41	15.41	12.61		0.02	9.83	3.46	0.33	0.24	92.4	B-Largely Natural	High	0.00
B42B	213.7	7.65	7.45	7.55	6.28	6.33	12.8	9.54		0.17	6.45	0.06	0.01	0.15	84.3	A-Unmodified	Negligible	1.29
B42C	164.1	2.66	3.45	3.05	2.57	3.08	1.39	1.98	0.143	0.00	2.57	0.00	0.00	0.11	96.6	B-Largely Natural	Negligible	0.28
B42D	154.6	6.33	3.64	4.98	5.72	3.39	11.44	8.58		0.00	5.72	0.00	0.00	0.07	90.4	A-Unmodified	Negligible	0.99
B42E	221.4	2.04	2.49	2.26	1.99	1.91	1.25	1.62		0.01	2.00	0.22	0.11	0.23	98.0	A-Unmodified	Negligible	0.00
B42F	279.1	9.39	2.52	5.96	8.55	2.09	12.42	10.49		0.01	8.56	0.22	0.02	0.17	91.2	A-Unmodified	Negligible	0.67
B42G	327.2	3.86	3.28	3.57	3.59	2.59	2.13	2.86	0.265	0.01	3.60	3.26	0.84	0.21	93.3	B-Largely Natural	Negligible	0.00
B42H	412.3	2.31	13.36	7.83	0	12.43	0.1	0.05	0.594	0.07	0.07	0.99	0.43	0.07	3.0	B-Largely Natural	Negligible	1.25
B51A	311.5	2.24	2.75	2.49	0	0.84	0.07	0.04		0.40	0.40	0.08	0.04	0.69	17.9	B-Largely Natural	Negligible	1.76
B51B	591.1	4.82	7.51	6.16	0	5.24	0.1	0.05		0.46	0.46	0.33	0.07	0.30	9.5	A-Unmodified	Negligible	4.03
B51C	638.1	4.52	6.65	5.58	0	4.67	0.07	0.04	1.785	0.45	0.45	0.22	0.05	0.30	10.0	A-Unmodified	Negligible	3.85
B51E	2926.8	6.31	38.17	22.24	0	22.43	0	0.00		0.34	0.34	8.56	1.36	0.41	5.4	D – Largely modified	Negligible	0.00
B51F	394.6	2.71	4.87	3.79	0	4.27	0.07	0.04		0.01	0.01	3.02	1.11	0.12	0.4	D – Largely modified	Negligible	0.00
B51G	590.7	3.79	6.25	5.02	0	1.85	0.07	0.04		0.97	0.97	12.43	3.28	0.70	25.6	F-Critically modified	Negligible	0.00
B51H	717.3	4.90	16.81	10.86	0	11.64	0.13	0.07		0.98	0.98	0.57	0.12	0.31	20.0	A-Unmodified	Negligible	3.35
B52A	566.1	2.58	9.96	6.27	0	6.37	0.02	0.01		0.48	0.48	0.28	0.11	0.36	18.6	A-Unmodified	Negligible	1.82
B52B	632.9	7.09	7.65	7.37	0	2.75	0.11	0.06		1.07	1.07	2.08	0.29	0.64	15.1	B-Largely Natural	High	3.94
B52C	200.4	0.96	2.25	1.60	0	1.27	0	0.00		0.16	0.16	0.22	0.23	0.43	16.7	B-Largely Natural	High	0.58
B52D	341.0	2.09	6.50	4.30	0	3.69	0.01	0.01		0.73	0.73	1.19	0.57	0.43	34.9	C-Moderately modified	Low	0.17
B52E	450.8	4.66	8.37	6.52	0	6.03	0.05	0.03		0.34	0.34	0.51	0.11	0.28	7.3	B-Largely Natural	High	3.81
B52F	118.4	0.58	1.93	1.26	0	1.41	0	0.00		0.09	0.09	0.47	0.81	0.27	15.5	C-Moderately modified	Low	0.02

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Quaternary Catchment	Area	Runoff		Recharge to Aqf	Baseflow (Mm3/a)				BWR_MLF (Mm3/a)	BHN Reserve (Mm3/a)	Total Gw Reserve (Mm3/a)	Total Gwater Use (Mm3/a)	SI = Gw Use / Aqf Rech	(Mm3/a)	Reserve (% of Recharge)	Quantity (GRDM)	Swater Impact	Allocable Gwater (Mm3/a)
	SCS	WSM2013	Exigo2009	Ave	WSM2013	Exigo2009	SRK2009	Ave			=AW+BB	Calc'd	WSM2013	Exigo2009		Ranked	Narrative	Cal'd
B52G	290.9	1.35	6.10	3.73	0	4.36	0	0.00		0.22	0.22	0.84	0.62	0.29	16.3	C-Moderately modified	High	0.29
B52H	563.3	3.38	5.19	4.28	0	1.80	0.27	0.14		0.66	0.66	0.77	0.23	0.65	19.5	B-Largely Natural	Low	1.95
B52J	394.7	2.09	11.73	6.91	0	9.16	0.05	0.03		0.22	0.22	0.14	0.07	0.22	10.5	A-Unmodified	Negligible	1.73
B60A	209.4	12.93	10.44	11.69	11.46	9.77	48.12	29.79		0.02	11.48	0.13	0.01	0.06	88.8	A-Unmodified	High	2.23
B60B	302.2	20.22	15.36	17.79	17.18	15.09	56.91	37.05	1.501	0.01	17.19	0.00	0.00	0.02	85.0	A-Unmodified	Moderate	3.83
B60C	94.1	5.33	0.84	3.08	4.93	0.76	22.43	13.68	0.376	0.00	4.93	0.00	0.00	0.09	92.5	A-Unmodified	Moderate	0.97
B60D	243.5	15.98	9.27	12.62	14	7.61	20.57	17.29	1.694	0.15	14.15	0.00	0.00	0.18	88.5	A-Unmodified	Low	2.52
B60E	83.4	1.73	1.30	1.52	0.76	1.36	6.45	3.61		0.00	0.76	0.00	0.00	0.05	43.9	A-Unmodified	Moderate	1.00
B60F	399.3	7.68	5.55	6.61	5.43	4.40	4.45	4.94	0.097	0.01	5.44	2.71	0.35	0.21	70.8	B-Largely Natural	Negligible	0.00
B60G	448.0	4.52	7.49	6.00	1.32	6.64	3.69	2.51		0.03	1.35	3.71	0.82	0.11	29.9	C-Moderately modified	Negligible	0.00
B60H	384.6	7.58	11.30	9.44	6.15	9.84	4.37	5.26	0.181	0.14	6.29	5.34	0.70	0.18	83.0	D – Largely modified	High	0.00
B60J	675.9	13.05	9.63	11.34	6.46	8.48	32.86	19.66	2.269	0.05	6.51	1.37	0.10	0.12	49.9	A-Unmodified	High	5.21
B71A	297.6	3.37	13.61	8.49	0	12.76	0.16	0.08		0.03	0.03	0.23	0.07	0.06	0.9	A-Unmodified	Negligible	3.11
B71B	274.3	2.11	7.39	4.75	0	6.58	0.04	0.02		0.07	0.07	0.19	0.09	0.11	3.3	A-Unmodified	High	1.85
B71C	262.5	5.87	6.85	6.36	2.17	6.45	16.52	9.35		0.03	2.20	0.00	0.00	0.06	37.5	A-Unmodified	High	3.78
B71D	227.1	4.03	1.97	3.00	1.98	1.11	6.92	4.45	1.865	0.10	2.08	0.22	0.05	0.44	51.6	A-Unmodified	Negligible	1.77
B71E	781.9	6.25	4.15	5.20	0	0.00	0.3	0.15		0.80	0.80	1.55	0.25	0.90	12.8	B-Largely Natural	Negligible	3.90
B71F	540.8	12.68	21.55	17.12	9.11	20.54	22.14	15.63	2.458	0.07	9.18	0.03	0.00	0.05	72.4	A-Unmodified	Negligible	3.84
B71G	244.9	6.94	5.25	6.10	3.97	4.32	11.3	7.64		0.13	4.10	0.22	0.03	0.18	59.1	A-Unmodified	Negligible	2.87
B71H	329.7	1.56	2.47	2.02	0	1.40	0	0.00		0.20	0.20	2.52	1.62	0.43	12.8	C-Moderately modified	Negligible	0.00
B71J	78.5	0.18	0.48	0.33	0	0.36	0	0.00	3.011	0.01	0.01	0.00	0.00	0.26	5.6	A-Unmodified	Negligible	0.17
B72A	534.0	12.53	8.29	10.41	8.64	5.57	19.8	14.22		0.54	9.18	3.01	0.24	0.33	73.3	B-Largely Natural	Moderate	0.56
B72B	331.7	1.37	3.02	2.20	0	2.81	0	0.00	0.285	0.00	0.00	0.06	0.04	0.07	0.0	A-Unmodified	High	1.31
B72C	334.7	1.88	3.87	2.88	0	3.46	0	0.00		0.05	0.05	0.07	0.04	0.11	2.7	A-Unmodified	Negligible	1.76
B72D	922.2	6.54	8.72	7.63	0	7.55	0	0.00	7.339	0.01	0.01	4.49	0.69	0.13	0.2	B-Largely Natural	Negligible	2.04

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Quaternary Catchment	Area (km^2)	Recharge (Mm^3/a)		Rech to Aqf	Baseflow (Mm3/a)				EWR_MLF (Mm3/a)	BHN Reserve (Mm3/a)	Total Gw Reserve (Mm3/a)	Total Gwater Use (Mm3/a)	SI = Gw Use / Aqf Rech	(Mm3/a)	Reserve (% of Recharge)	Quantity (GRDM)	Swater Impact	Allocable Gwater (Mm3/a)
	GRAII	WSM_{2009}	$Exigo_{2009}$	Ave	WSM_{2013}	$Exigo_{2009}$	SRK_{2009}	Ave			=AW+BB	Calc'd	WSM2013	$Exigo_{2009}$		Ranked	Narrative	Cal'd
B72E	320.1	6.54	2.76	5.65	4.9	0.36	12.71	8.81	0.024	0.45	5.35	0.90	0.11	0.87	62.6	B-Largely Natural	Negligible	2.48
B72F	81.2	2.27	2.31	2.29	1.3	2.26	4.11	2.71		0.00	1.30	0.00	0.00	0.02	57.3	A-Unmodified	Negligible	1.07
B72G	47.9	0.12	0.56	0.34	0	0.48	0	0.00		0.01	0.01	0.43	3.58	0.13	8.3	E – Seriously modified	High	0.00
B72H	385.7	1.94	3.25	2.60	0	2.69	0	0.00		0.01	0.01	0.92	0.47	0.17	0.5	B-Largely Natural	Negligible	1.01
B72J	537.4	2.91	2.64	2.77	0	2.22	0	0.00		0.03	0.03	0.16	0.05	0.16	1.0	A-Unmodified	Negligible	2.72
B72K	965.9	3.45	10.73	7.09	0	7.27	0	0.00	0.172	0.52	0.52	0.61	0.18	0.38	15.1	A-Unmodified	Negligible	2.32
B73A	164.5	2.20	2.76	2.48	1.29	1.07	11.37	6.33		0.00	1.29	0.00	0.00	0.61	58.6	A-Unmodified	Negligible	1.04
B73B	687.7	2.19	4.53	3.36	0	3.34	0	0.00	0.122	0.01	0.01	2.75	1.26	0.26	0.5	C-Moderately modified	Negligible	0.00
B73C	880.0	3.19	11.16	7.18	0	10.12	0	0.00		0.65	0.65	1.01	0.32	0.09	20.4	A-Unmodified	Negligible	1.53
B73D	687.0	2.34	7.40	4.87	0	6.58	0	0.00		0.00	0.00	1.20	0.51	0.11	0.0	B-Largely Natural	Negligible	1.14
B73E	430.5	2.51	3.55	3.03	0	0.00	0	0.00		0.00	0.00	0.35	0.14	1.00	0.0	B-Largely Natural	Negligible	2.16
B73F	506.8	3.37	9.96	6.66	0	9.79	0	0.00		0.00	0.00	0.00	0.00	0.02	0.0	A-Unmodified	High	3.37
B73G	733.2	4.31	15.44	9.88	0	12.84	0	0.00		0.00	0.00	0.00	0.00	0.07	0.0	A-Unmodified	High	4.31
B73H	301.8	1.50	2.40	1.95	0	2.32	0	0.00		0.00	0.00	0.00	0.00	0.03	0.0	A-Unmodified	High	1.50
B73J	254.5	1.55	2.07	1.81	0	0.00	0	0.00	7.713	0.00	0.00	0.00	0.00	0.69	0.0	A-Unmodified	High	1.55
B81A	169.1	10.34		10.34	7.57			7.57	0.058	0.00	7.57	0.15	0.01	0.01	73.2	A-Unmodified	High	10.19
B81B	481.2	20.32		20.32	1.12			1.12	0.398	0.00	1.12	2.64	0.13	0.13	5.5	B-Largely Natural	High	17.68
B81C	208.4	16.27		16.27	10.54			10.54		0.00	10.54	5.47	0.34	0.34	64.8	C – Moderately modified	Moderate	10.80
B81D	478.8	12.84		12.84	1.59			1.59		3.00	4.59	4.13	0.32	0.32	35.7	C-Moderately modified	Negligible	8.71
B81E	664.9	18.20		18.20	0.04			0.04	0.32	0.59	0.63	15.75	0.87	0.87	3.5	D – Largely modified	Negligible	2.45
B81F	1199.7	18.47		18.47	0.06			0.06		0.00	0.06	7.94	0.43	0.43	0.3	D - Largely modified	Negligible	10.53
B81G	512.5	12.58		12.58	0.13			0.13		0.00	0.13	5.06	0.40	0.40	1.0	D – Largely modified	Negligible	7.52
B81H	667.7	8.80		8.80	0.01			0.01		0.00	0.01	2.62	0.30	0.30	0.1	C – Moderately modified	Negligible	6.18
B81J	567.0	6.34		6.34	0			0		0.00	0.00	0.00	0.00	0.00	0.0	A - Unmodified	Negligible	6.34
B82A	466.6	11.36		11.36	6.45			6.45		1.45	7.90	2.93	0.26	0.26	69.5	B-Largely Natural	Low	8.43

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Quaternary Catchment	Area (km²)	Rainfall (Mm3/a)		Recharge to Aqf	Base flow (Mm3/a)				EWR_MLF (Mm3/a)	BHN Reserve (Mm3/a)	Total Gw Reserve (Mm3/a)	Total Gwater Use (Mm3/a)	SI = Gw Use / Aqf Rech	(Mm3/a)	Reserve (% of Recharge)	Quantity (GRDM)	Swater Impact	Allocable Gwater (Mm3/a)
			Exigo2009	Ave	WSM2013	Exigo2009	SRK2009	Ave			=AW+BB	Calc'd	WSM2013	Exigo2009		Ranked	Narrative	Cal'd
B82B	406.3	9.50		9.50	5.47			5.47		0.00	5.47	14.50	1.53	1.53	57.6	F-Critically modified	Low	0.00
B82C	299.7	7.14		7.14	3.27			3.27		0.00	3.27	13.00	1.82	1.82	45.8	E – Seriously modified	Low	5.83
B82D	631.7	10.35		10.35	4.76			4.76		4.00	8.76	4.52	0.44	0.44	84.6	D-Largely modified	Low	0.00
B82E	423.4	8.05		8.05	0.21			0.21		0.00	0.21	1.45	0.18	0.18	2.6	C – Moderately modified	Low	6.60
B82F	759.8	14.30		14.30	1			1		0.00	1.00	1.43	0.10	0.10	7.0	B - Largely natural	Low	12.87
B82G	920.2	10.75		10.75	0.01			0.01		0.00	0.01	0.06	0.01	0.06	0.1	B - Largely natural	Negligible	10.15
B82J	748.7	9.27		9.27	0.01			0.01		0.00	0.01	0.00	0.00	0.00	0.1	A – Unmodified	Negligible	9.27
B82H	793.7	8.36		8.36	0.01			0.01		0.00	0.01	0.16	0.02	0.02	0.1	A – Unmodified	Negligible	8.36
B83A	1250.0	11.77		11.77	0.01			0.01		0.00	0.01	0.00	0.00	0.00	0.1	A – Unmodified	Negligible	11.77
B83B	438.8	5.71		5.71	0			0		0.00	0.00	0.00	0.00	0.00	0.0	A – Unmodified	Negligible	5.71
B83C	596.0	7.70		7.70	0.01			0.01		0.00	0.01	0.00	0.00	0.00	0.1	A – Unmodified	Negligible	7.70
B83D	783.7	7.88		7.88	0			0	2.015	0.00	0.00	0.00	0.00	0.00	0.0	A – Unmodified	Negligible	7.88
B83E	311.8	3.11		3.11	0			0		0.00	0.00	0.00	0.00	0.00	0.0	A – Unmodified	Negligible	3.11

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7. GROUNDWATER - QUALITY COMPONENT

The basic human needs Reserve provides for the essential needs of individuals served by the water resource in question and includes water for drinking, food preparation and for personal hygiene. A life-line amount of 25 litres per person per day was used.

In the Reserve determinations of the quality component during Intermediate/Comprehensive assessments the ambient groundwater quality is compared to the Class 1 recommended value (SANS 241:2006). The lowest or more conservative value of the two is selected. In instances where the ambient value is selected, it is increased by 10 per cent. In instances where the ambient quality, of geological origin exceeds the recommended value, the ambient water quality is used. These poor water quality areas will become exclusion zones in determining the Basic Human Needs Reserve Requirement. The groundwater quality should comply with the target water quality ranges as shown in **Table 7.1** and **Table 7.2**. **Table 7.3** shows a summary of the results for the quality aspects at quaternary level in terms of the BHN.

Table 7.1: Chemical water quality

Chemical Parameter	Target Water Quality Ranges[1]				
	Units	Class 0	Class I	Class II	Class III
Calcium as Ca	mg/l	0 - 80	80 - 150	150 - 300	> 300
Magnesium as Mg	mg/l	0 - 30	30 - 70	70 - 100	> 100
Sodium as Na	mg/l	0 - 100	100 - 200	200 - 400	> 400
Chloride as Cl	mg/l	0 - 100	100 - 200	200 - 600	> 600
Sulphate as SO_4	mg/l	0 - 200	200 - 400	400 - 600	> 600
Nitrate as NO_x- N	mg/l	0 - 6	6 - 10	10 - 20	> 20
Flouride as F	mg/l	0 - 1	1 - 1.5	1.5 - 3.5	> 3.5
Faecal coliforms	counts/100ml	0	0 - 1	1 - 10	> 10

1) Ref: South African Water Quality Guidelines, Volume 1: Domestic Water Use, 2nd Ed. 1996. Department of Water Affairs and Forestry. Pretoria, South Africa.

2) Ref: South African Water Quality Guidelines, Volume 1: Domestic Water Use, 2nd Ed. 1996. Department of Water Affairs and Forestry. Pretoria, South Africa.

Table 7.2: Physical water quality

Physical Parameter	Target Water Quality Ranges[2]				
	Units	Class 0	Class I	Class II	Class III
pH (pH Units)		6 - 9	5 - 6 & 9 - 9.5	4 - 5&> 9.5 - 10	< 4 or > 10
Total Dissolved Solids	mg/l	0 - 450	450 - 1000	1000 - 2450	> 2450
Electrical Conductivity	mS/m	0 - 70	70 - 150	150 - 300	> 370

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NOTE:

Class 0 This is ideal water quality, suitable for lifetime use, with no adverse health effects on the user. This class is essentially the same as the target water quality range in the 2nd edition of the *South African Water Quality Guidelines for Domestic Use* (DWAF, 1996).

Class I Water in this class is safe for lifetime use, but falls short of the ideal water quality in that there may be instances of adverse health effects, but these are usually mild, and overt health effects are almost sub-clinical and difficult to demonstrate. Water in Class I does not cause health effects under normal circumstances. Aesthetic effects may, however, be apparent.

Class II Water in this class is defined as that where adverse health effects are unusual for limited short-term use. Adverse health effects may become more common particularly with prolonged use over many years, or with lifetime use. This class represents water suitable for short-term or emergency use only, but not necessarily suitable for continuous use over a lifetime.

Class III This water has constituents in a concentration range where serious health effects might be anticipated, particularly in infants or elderly people with short-term use, and even more so with longer term use. The water in this class is not suitable for use as drinking water without adequate treatment to shift the water into a lower and safer class.

NOTE: THE WATER QUALITY FOR THE FOLLOWING QUATERNARY CATCHMENTS WERE NOT ASSESSED DUE TO INSUFFICIENT INFORMATION (LACK OF REPRESENTABLE GROUNDWATER QUALITY DATA):

B11A, B11B, B11C, B11D, B11E, B11F, B11G, B11H, B11K, B11L, B11K, B11L, B12A, B12B, B12C, B12D, B12E, B20B, B20D, B20E, B20F, B20G, B20H, B20J, B21A, B31A, B31B, B31C, B31D, B31E, B31F, B31G, B32A,B32B, B32C, B32D, B32E, B41A, B41B, B41F, B42A, B42C, B42D, B42E, B42G, B42H, B51D, B51E, B51F, B60A, B60B, B60C, B60E, B60F, B60H, B60J, B71A, B71B, B71C, B71D, B71E, B71F, B71G, B71H, B771J, B72A, B72B, B72C, B72D, B72E, B72F, B72G, B72H, B72J, B73B, B72C, B72D, B72G, B72H, B72J, B81A, B81B, B81F, B81J, B82B, B82H, B83A, B83C, B83D, B83E

Table 7.3: The results of the Groundwater Component – Quality Aspects

Chemical Parameter	Unit	Olifants River Catchment QC B20A			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	95	8.23	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	95	43.7	<150	48
Calcium as Ca	mg/l	95	32.1	<150	35
Magnesium as Mg	mg/l	95	22.2	<100	24
Sodium as Na	mg/l	95	10.0	<200	11
Potassium as K	mg/l	95	2.14	<50	2.3
Total Alkalinity as $CaCO_3$	mg/l	95	150.8	N/A	165
Chloride as Cl	mg/l	95	15.5	<200	17
Sulphate as SO_4	mg/l	95	15.2	<400	16
Nitrate as NO_x-N	mg/l	95	0.36	<10	0.40
Fluoride as F	Mg/l	95	0.17	<1.0	0.19
				Water quality class	**Class 0**

1 Median value (calculated from population of samples in QC).
2 Upper limit of Class I water quality (DWAF et al 1998).
3 The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B31H			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	28	8.201	5.0 – 9.5	8.50
Electrical Conductivity	mS/m	28	123.85	<150	136
Calcium as Ca	mg/l	28	74.3495	<150	81
Magnesium as Mg	mg/l	28	74.3055	<100	81
Sodium as Na	mg/l	28	93.461	<200	102
Potassium as K	mg/l	28	3.2095	<50	3.5
Total Alkalinity as $CaCO_3$	mg/l	28	402.9	N/A	403[4]
Chloride as Cl	mg/l	28	71.0795	<200	78
Sulphate as SO_4	mg/l	28	44.199	<400	48
Nitrate as NO_x-N	mg/l	28	25.0555	<10	25.0
Fluoride as F	Mg/l	28	0.6355	<1.0	0.7
				Water quality class	Class III

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

Chemical Parameter	Unit	Olifants River Catchment QC B31J			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	83	7.927	5.0 – 9.5	8.25
Electrical Conductivity	mS/m	83	89.3	<150	98
Calcium as Ca	mg/l	83	64.445	<150	70
Magnesium as Mg	mg/l	83	34.851	<100	38
Sodium as Na	mg/l	83	41.59	<200	45
Potassium as K	mg/l	83	6.61	<50	7.2
Total Alkalinity as $CaCO_3$	mg/l	83	156.554	N/A	172
Chloride as Cl	mg/l	83	113.12	<200	124
Sulphate as SO_4	mg/l	83	71.082	<400	78
Nitrate as NO_x-N	mg/l	83	9.768	<10	9.8
Fluoride as F	Mg/l	83	0.387	<1.0	0.5
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B32F			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	71	7.53	5.0 – 9.5	7.75
Electrical Conductivity	mS/m	71	10.9	<150	11
Calcium as Ca	mg/l	71	5.129	<150	5
Magnesium as Mg	mg/l	71	1.8	<100	1
Sodium as Na	mg/l	71	9.383	<200	10
Potassium as K	mg/l	71	2.98	<50	3.2
Total Alkalinity as $CaCO_3$	mg/l	71	30	N/A	33
Chloride as Cl	mg/l	71	5	<200	5
Sulphate as SO_4	mg/l	71	4.1	<400	4
Nitrate as NO_x-N	mg/l	71	0.462	<10	0.5
Fluoride as F	Mg/l	71	0.26	<1.0	0.3
				Water quality class	Class 0

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B32H			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	10	8.07	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	10	32.75	<150	36
Calcium as Ca	mg/l	10	15.4205	<150	16
Magnesium as Mg	mg/l	10	3.919	<100	4
Sodium as Na	mg/l	10	27.375	<200	30
Potassium as K	mg/l	10	1.7715	<50	1.9
Total Alkalinity as $CaCO_3$	mg/l	10	76.44	N/A	84
Chloride as Cl	mg/l	10	19.831	<200	21
Sulphate as SO_4	mg/l	10	3.1255	<400	3
Nitrate as NO_x-N	mg/l	10	2.7245	<10	2.9
Fluoride as F	Mg/l	10	0.684	<1.0	0.75
				Water quality class	Class 0

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B32J			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	20	8.1255	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	20	34.75	<150	38
Calcium as Ca	mg/l	20	25.0525	<150	27
Magnesium as Mg	mg/l	20	3.9455	<100	4
Sodium as Na	mg/l	20	36.878	<200	40
Potassium as K	mg/l	20	3.288	<50	3.6
Total Alkalinity as $CaCO_3$	mg/l	20	119.036	N/A	130
Chloride as Cl	mg/l	20	22.976	<200	25
Sulphate as SO_4	mg/l	20	6.497	<400	7
Nitrate as NO_x-N	mg/l	20	0.6245	<10	0.6
Fluoride as F	Mg/l	20	2.7755	<1.0	2.8
				Water quality class	Class III

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B41C			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	35	8.13	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	35	55.2	<150	60
Calcium as Ca	mg/l	35	66.099	<150	72
Magnesium as Mg	mg/l	35	26.2	<100	28
Sodium as Na	mg/l	35	13.01	<200	14
Potassium as K	mg/l	35	0.5	<50	0.5
Total Alkalinity as $CaCO_3$	mg/l	35	274.083	N/A	275
Chloride as Cl	mg/l	35	10.8	<200	11
Sulphate as SO_4	mg/l	35	11.118	<400	12
Nitrate as NO_x-N	mg/l	35	0.703	<10	0.7
Fluoride as F	Mg/l	35	0.11	<1.0	0.12
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B41D			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	20	7.345	5.0 – 9.5	7.75
Electrical Conductivity	mS/m	20	10.78	<150	11
Calcium as Ca	mg/l	20	6.4	<150	7
Magnesium as Mg	mg/l	20	2.059	<100	2
Sodium as Na	mg/l	20	7.424	<200	8
Potassium as K	mg/l	20	2.5015	<50	2.7
Total Alkalinity as $CaCO_3$	mg/l	20	32.708	N/A	35
Chloride as Cl	mg/l	20	5	<200	5
Sulphate as SO_4	mg/l	20	4.956	<400	5
Nitrate as NO_x-N	mg/l	20	0.294	<10	0.3
Fluoride as F	Mg/l	20	0.4065	<1.0	0.44
				Water quality class	Class 0

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B41E			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	37	8.028	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	37	29	<150	31
Calcium as Ca	mg/l	37	18.1	<150	19
Magnesium as Mg	mg/l	37	4.039	<100	4
Sodium as Na	mg/l	37	21.117	<200	23
Potassium as K	mg/l	37	4.456	<50	4.9
Total Alkalinity as $CaCO_3$	mg/l	37	109.16	N/A	120
Chloride as Cl	mg/l	37	7.398	<200	8
Sulphate as SO_4	mg/l	37	6.603	<400	7
Nitrate as NO_x-N	mg/l	37	1.531	<10	1.6
Fluoride as F	Mg/l	37	0.379	<1.0	0.41
				Water quality class	Class 0

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B41G			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	13	8.055	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	13	59.2	<150	65
Calcium as Ca	mg/l	13	51.605	<150	56
Magnesium as Mg	mg/l	13	29.374	<100	32
Sodium as Na	mg/l	13	23.522	<200	25
Potassium as K	mg/l	13	0.796	<50	0.8
Total Alkalinity as $CaCO_3$	mg/l	13	244	N/A	268
Chloride as Cl	mg/l	13	17.18	<200	18
Sulphate as SO_4	mg/l	13	10.187	<400	11
Nitrate as NO_x-N	mg/l	13	0.055	<10	0.1
Fluoride as F	Mg/l	13	0.1	<1.0	0.11
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B41H			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	109	8.187	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	109	91	<150	100
Calcium as Ca	mg/l	109	70.6	<150	77
Magnesium as Mg	mg/l	109	47.88	<100	52
Sodium as Na	mg/l	109	45.1	<200	49
Potassium as K	mg/l	109	0.995	<50	1.1
Total Alkalinity as $CaCO_3$	mg/l	109	259.5	N/A	285
Chloride as Cl	mg/l	109	58.3	<200	64
Sulphate as SO_4	mg/l	109	44.6715	<400	49
Nitrate as NO_x-N	mg/l	109	5.692	<10	6.2
Fluoride as F	Mg/l	109	0.24	<1.0	0.26
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B41J			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve [2]	Groundwater Quality Reserve [3]
pH	–	134	8.292	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	134	89.45	<150	98
Calcium as Ca	mg/l	134	37.69	<150	41
Magnesium as Mg	mg/l	134	71.6125	<100	78
Sodium as Na	mg/l	134	29.1	<200	32
Potassium as K	mg/l	134	1.2445	<50	1.3
Total Alkalinity as $CaCO_3$	mg/l	134	345.7	<330	346[4]
Chloride as Cl	mg/l	134	43.5825	<200	47
Sulphate as SO_4	mg/l	134	30.315	<400	33
Nitrate as NO_x-N	mg/l	134	6.5185	<10	7.1
Fluoride as F	Mg/l	134	0.1275	<1.0	0.14
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

Chemical Parameter	Unit	Olifants River Catchment QC B41K			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve [2]	Groundwater Quality Reserve [3]
pH	–	60	8.1035	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	60	110.75	<150	121
Calcium as Ca	mg/l	60	54.651	<150	60
Magnesium as Mg	mg/l	60	61.1175	<100	67
Sodium as Na	mg/l	60	81.835	<200	90
Potassium as K	mg/l	60	2.789	<50	3.1
Total Alkalinity as $CaCO_3$	mg/l	60	362.1	N/A	362[4]
Chloride as Cl	mg/l	60	80.582	<200	88
Sulphate as SO_4	mg/l	60	40.9105	<400	45
Nitrate as NO_x-N	mg/l	60	3.9235	<10	4.3
Fluoride as F	Mg/l	60	0.484	<1.0	0.53
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

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Chemical Parameter	Unit	Olifants River Catchment QC B42B			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	39	7.523	5.0 – 9.5	7.75
Electrical Conductivity	mS/m	40	5.76	<150	6
Calcium as Ca	mg/l	40	4.299	<150	4
Magnesium as Mg	mg/l	40	2.176	<100	2
Sodium as Na	mg/l	40	2.19	<200	2
Potassium as K	mg/l	40	0.3275	<50	0.3
Total Alkalinity as $CaCO_3$	mg/l	40	17.932	N/A	19
Chloride as Cl	mg/l	40	3.25	<200	3.
Sulphate as SO_4	mg/l	40	3	<400	3
Nitrate as NO_x-N	mg/l	40	0.6955	<10	0.8
Fluoride as F	Mg/l	40	0.104	<1.0	0.11
				Water quality class	Class 0

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B42F			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	37	7.93	5.0 – 9.5	8.25
Electrical Conductivity	mS/m	37	59	<150	64
Calcium as Ca	mg/l	37	17.146	<150	18
Magnesium as Mg	mg/l	37	52.835	<100	58
Sodium as Na	mg/l	37	14.4	<200	15
Potassium as K	mg/l	37	0.853	<50	0.9
Total Alkalinity as $CaCO_3$	mg/l	37	154.3	N/A	169
Chloride as Cl	mg/l	37	53.976	<200	59
Sulphate as SO_4	mg/l	37	17.706	<400	19
Nitrate as NO_x-N	mg/l	37	8.679	<10	9.5
Fluoride as F	Mg/l	37	0.206	<1.0	0.22
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B51A			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	50	7.568	5.0 – 9.5	7.75
Electrical Conductivity	mS/m	50	14.4	<150	15
Calcium as Ca	mg/l	50	6.838	<150	7
Magnesium as Mg	mg/l	50	2.27	<100	2
Sodium as Na	mg/l	50	11.348	<200	12
Potassium as K	mg/l	50	3.835	<50	4.3
Total Alkalinity as $CaCO_3$	mg/l	50	35.5425	N/A	39
Chloride as Cl	mg/l	50	6.6835	<200	7
Sulphate as SO_4	mg/l	50	2	<400	2
Nitrate as NO_x-N	mg/l	50	3.5095	<10	3.8
Fluoride as F	Mg/l	50	0.418	<1.0	0.45
				Water quality class	**Class 0**

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B51B			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	62	7.908	5.0 – 9.5	8.25
Electrical Conductivity	mS/m	62	20.95	<150	23
Calcium as Ca	mg/l	62	9.1095	<150	10
Magnesium as Mg	mg/l	62	2.1195	<100	2
Sodium as Na	mg/l	62	18.919	<200	20
Potassium as K	mg/l	62	2.91	<50	3.2
Total Alkalinity as $CaCO_3$	mg/l	62	62.909	N/A	69
Chloride as Cl	mg/l	62	8.565	<200	9
Sulphate as SO_4	mg/l	62	3.091	<400	3
Nitrate as NO_x-N	mg/l	62	1.0575	<10	1.2
Fluoride as F	Mg/l	62	0.9945	<1.0	1.0
				Water quality class	**Class II**

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B51C			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	55	7.954	5.0 – 9.5	8.25
Electrical Conductivity	mS/m	55	51.4	<150	56
Calcium as Ca	mg/l	55	40.544	<150	44
Magnesium as Mg	mg/l	55	8.812	<100	9
Sodium as Na	mg/l	55	47.532	<200	52
Potassium as K	mg/l	55	3.095	<50	3.4
Total Alkalinity as $CaCO_3$	mg/l	55	122.026	N/A	134
Chloride as Cl	mg/l	55	41.026	<200	45
Sulphate as SO_4	mg/l	55	18.15	<400	19
Nitrate as NO_x-N	mg/l	55	3.955	<10	4.3
Fluoride as F	Mg/l	55	2.171	<1.0	2.2
				Water quality class	Class III

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B51E			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	117	8.04	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	117	112.2	<150	123
Calcium as Ca	mg/l	117	86.1	<150	94
Magnesium as Mg	mg/l	117	54.055	<100	59
Sodium as Na	mg/l	117	61.675	<200	67
Potassium as K	mg/l	117	4.345	<50	4.8
Total Alkalinity as $CaCO_3$	mg/l	117	260.7	N/A	286
Chloride as Cl	mg/l	117	74.8	<200	82
Sulphate as SO_4	mg/l	117	58.789	<400	64
Nitrate as NO_x-N	mg/l	117	23.174	<10	23
Fluoride as F	Mg/l	117	0.345	<1.0	0.4
				Water quality class	Class III

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B51G			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	168	8.2285	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	168	90.6	<150	99
Calcium as Ca	mg/l	168	54.406	<150	59
Magnesium as Mg	mg/l	168	35.9285	<100	39
Sodium as Na	mg/l	168	61.381	<200	67
Potassium as K	mg/l	168	3.785	<50	4.1
Total Alkalinity as $CaCO_3$	mg/l	168	250.4975	N/A	275
Chloride as Cl	mg/l	168	82.078	<200	90
Sulphate as SO_4	mg/l	168	17.7	<400	19
Nitrate as NO_x-N	mg/l	168	5.333	<10	5.8
Fluoride as F	Mg/l	168	0.2945	<1.0	0.32
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B51H			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	219	7.978	5.0 – 9.5	8.25
Electrical Conductivity	mS/m	219	39.3	<150	43
Calcium as Ca	mg/l	219	25.6	<150	28
Magnesium as Mg	mg/l	219	5.1	<100	5
Sodium as Na	mg/l	219	33.852	<200	37
Potassium as K	mg/l	219	2.979	<50	3.3
Total Alkalinity as $CaCO_3$	mg/l	219	103.8	N/A	114
Chloride as Cl	mg/l	219	27.699	<200	30
Sulphate as SO_4	mg/l	219	6.5	<400	7
Nitrate as NO_x-N	mg/l	219	2.75	<10	3.1
Fluoride as F	Mg/l	219	0.818	<1.0	1.00[4]
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B52A			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	95	8.251	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	95	116.3	<150	127
Calcium as Ca	mg/l	95	69.871	<150	76
Magnesium as Mg	mg/l	95	47.17	<100	51
Sodium as Na	mg/l	95	113.292	<200	124
Potassium as K	mg/l	95	6.052	<50	6.6
Total Alkalinity as $CaCO_3$	mg/l	95	320.786	N/A	321[4]
Chloride as Cl	mg/l	95	142.676	<200	156
Sulphate as SO_4	mg/l	95	48.865	<400	53
Nitrate as NO_x-N	mg/l	95	14.852	<10	14.9
Fluoride as F	Mg/l	95	1.232	<1.0	1.23[4]
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

Chemical Parameter	Unit	Olifants River Catchment QC B52B			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	267	8.175	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	268	94.3	<150	103
Calcium as Ca	mg/l	268	78.1675	<150	85
Magnesium as Mg	mg/l	268	52.385	<100	57
Sodium as Na	mg/l	268	48.44	<200	53
Potassium as K	mg/l	268	0.932	<50	1.0
Total Alkalinity as $CaCO_3$	mg/l	268	336.5035	N/A	337[4]
Chloride as Cl	mg/l	268	58.677	<200	64
Sulphate as SO_4	mg/l	268	23.316	<400	25
Nitrate as NO_x-N	mg/l	268	12.3475	<10	13.5
Fluoride as F	Mg/l	268	0.173	<1.0	0.19
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

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Chemical Parameter	Unit	Olifants River Catchment QC B52C			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	15	8.12	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	15	76.4	<150	84
Calcium as Ca	mg/l	15	57.541	<150	63
Magnesium as Mg	mg/l	15	26.2	<100	28
Sodium as Na	mg/l	15	48.3	<200	53
Potassium as K	mg/l	15	2.526	<50	2.7
Total Alkalinity as $CaCO_3$	mg/l	15	259.21	N/A	285
Chloride as Cl	mg/l	15	42.701	<200	46
Sulphate as SO_4	mg/l	15	15.788	<400	17
Nitrate as NO_x-N	mg/l	15	4.477	<10	4.9
Fluoride as F	Mg/l	15	0.282	<1.0	0.31
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B52D			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	66	8.124	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	66	129	<150	141
Calcium as Ca	mg/l	66	80.419	<150	88
Magnesium as Mg	mg/l	66	75.161	<100	82
Sodium as Na	mg/l	66	73.681	<200	81
Potassium as K	mg/l	66	3.373	<50	3.7
Total Alkalinity as $CaCO_3$	mg/l	66	368.735	N/A	369[4]
Chloride as Cl	mg/l	66	155.5865	<200	171
Sulphate as SO_4	mg/l	66	68.1475	<400	74
Nitrate as NO_x-N	mg/l	66	8.625	<10	9.5
Fluoride as F	Mg/l	66	0.463	<1.0	0.50
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

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Chemical Parameter	Unit	Olifants River Catchment QC B52E			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	92	8.19	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	92	187	<150	<150[4]
Calcium as Ca	mg/l	92	93.099	<150	102
Magnesium as Mg	mg/l	92	99.779	<100	109
Sodium as Na	mg/l	92	130.3125	<200	143
Potassium as K	mg/l	92	0.9365	<50	1.1
Total Alkalinity as $CaCO_3$	mg/l	92	353.535	N/A	354[4]
Chloride as Cl	mg/l	92	271.372	<200	271[4]
Sulphate as SO_4	mg/l	92	92.543	<400	101
Nitrate as NO_x-N	mg/l	92	20.1515	<10	20.2
Fluoride as F	Mg/l	92	0.1425	<1.0	0.16
				Water quality class	Class III

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

Chemical Parameter	Unit	Olifants River Catchment QC B52F			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	16	8.2865	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	16	63.55	<150	69
Calcium as Ca	mg/l	16	39.18	<150	43
Magnesium as Mg	mg/l	16	19.85	<100	21
Sodium as Na	mg/l	16	76.3	<200	83
Potassium as K	mg/l	16	2.86	<50	3.1
Total Alkalinity as $CaCO_3$	mg/l	16	260.7275	<330	286
Chloride as Cl	mg/l	16	26.6075	<200	29
Sulphate as SO_4	mg/l	16	8.8	<400	9
Nitrate as NO_x-N	mg/l	16	1.1595	<10	1.2
Fluoride as F	Mg/l	16	1.45	<1.0	1.5
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B52G			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	29	8.152	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	29	105.1	<150	115
Calcium as Ca	mg/l	29	84.691	<150	93
Magnesium as Mg	mg/l	29	69.516	<100	76
Sodium as Na	mg/l	29	52.144	<200	57
Potassium as K	mg/l	29	2.33	<50	2.5
Total Alkalinity as $CaCO_3$	mg/l	29	356.471	<330	356[4]
Chloride as Cl	mg/l	29	94.103	<200	103
Sulphate as SO_4	mg/l	29	31	<400	34
Nitrate as NO_x-N	mg/l	29	12.666	<10	12.7
Fluoride as F	Mg/l	29	0.253	<1.0	0.27
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

Chemical Parameter	Unit	Olifants River Catchment QC B52H			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	64	8.094	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	64	91.65	<150	100
Calcium as Ca	mg/l	64	58.418	<150	64
Magnesium as Mg	mg/l	64	32.033	<100	35
Sodium as Na	mg/l	64	62.1165	<200	68
Potassium as K	mg/l	64	2.675	<50	2.9
Total Alkalinity as $CaCO_3$	mg/l	64	241.4405	N/A	265
Chloride as Cl	mg/l	64	71.774	<200	78
Sulphate as SO_4	mg/l	64	26.55	<400	29
Nitrate as NO_x-N	mg/l	64	9.7805	<10	9.8
Fluoride as F	Mg/l	64	0.538	<1.0	0.59
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B52J			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	78	8.144	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	78	109.35	<150	120
Calcium as Ca	mg/l	78	69.1765	<150	76
Magnesium as Mg	mg/l	78	71.318	<100	78
Sodium as Na	mg/l	78	62.3	<200	68
Potassium as K	mg/l	78	1.63	<50	1.7
Total Alkalinity as $CaCO_3$	mg/l	78	334.125	N/A	367
Chloride as Cl	mg/l	78	86.681	<200	95
Sulphate as SO_4	mg/l	78	52.3	<400	57
Nitrate as NO_x-N	mg/l	78	10.5165	<10	11
Fluoride as F	Mg/l	78	0.135	<1.0	0.14
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B60D			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	42	8.1615	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	42	44.65	<150	49
Calcium as Ca	mg/l	42	45.0725	<150	49
Magnesium as Mg	mg/l	42	26.8335	<100	29
Sodium as Na	mg/l	42	5.362	<200	5
Potassium as K	mg/l	42	0.512	<50	0.5
Total Alkalinity as $CaCO_3$	mg/l	42	211.7055	N/A	232
Chloride as Cl	mg/l	42	5	<200	5
Sulphate as SO_4	mg/l	42	4.35	<400	4
Nitrate as NO_x-N	mg/l	42	2.74	<10	3.0
Fluoride as F	Mg/l	42	0.183	<1.0	0.20
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B60G			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	12	8.2325	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	12	61.6	<150	67
Calcium as Ca	mg/l	12	40.2825	<150	44
Magnesium as Mg	mg/l	12	32.098	<100	35
Sodium as Na	mg/l	12	45.8895	<200	50
Potassium as K	mg/l	12	0.6575	<50	0.7
Total Alkalinity as $CaCO_3$	mg/l	12	233.8585	N/A	257
Chloride as Cl	mg/l	12	50.102	<200	55
Sulphate as SO_4	mg/l	12	14.519	<400	15
Nitrate as NO_x-N	mg/l	12	1.812	<10	1.9
Fluoride as F	Mg/l	12	0.453	<1.0	0.49
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B60H			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	26	7.998	5.0 – 9.5	8.25
Electrical Conductivity	mS/m	26	51.25	<150	56
Calcium as Ca	mg/l	26	41.6925	<150	45
Magnesium as Mg	mg/l	26	21.389	<100	23
Sodium as Na	mg/l	26	18.465	<200	20
Potassium as K	mg/l	26	0.6945	<50	0.7
Total Alkalinity as $CaCO_3$	mg/l	26	204.4145	N/A	224
Chloride as Cl	mg/l	26	15.6565	<200	17
Sulphate as SO_4	mg/l	26	10.8385	<400	11
Nitrate as NO_x-N	mg/l	26	0.916	<10	1.0
Fluoride as F	Mg/l	26	0.1825	<1.0	0.20
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B60J			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	22	7.819	5.0 – 9.5	8.00
Electrical Conductivity	mS/m	22	148	<150	150[4]
Calcium as Ca	mg/l	22	73.509	<150	80
Magnesium as Mg	mg/l	22	60.6	<100	66
Sodium as Na	mg/l	22	154.017	<200	169
Potassium as K	mg/l	22	3.585	<50	3.9
Total Alkalinity as $CaCO_3$	mg/l	22	381.78	N/A	382[4]
Chloride as Cl	mg/l	22	166.4	<200	183
Sulphate as SO_4	mg/l	22	82.4675	<400	90
Nitrate as NO_x-N	mg/l	22	7.887	<10	8.7
Fluoride as F	Mg/l	22	0.62	<1.0	0.68
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

Chemical Parameter	Unit	Olifants River Catchment QC B71A			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	25	8.18	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	25	75.9	<150	83
Calcium as Ca	mg/l	25	41.692	<150	45
Magnesium as Mg	mg/l	25	35.6	<100	39
Sodium as Na	mg/l	25	27.457	<200	30
Potassium as K	mg/l	25	2.488	<50	2.7
Total Alkalinity as $CaCO_3$	mg/l	25	239.8	N/A	263
Chloride as Cl	mg/l	25	43.299	<200	47
Sulphate as SO_4	mg/l	25	14.9	<400	16
Nitrate as NO_x-N	mg/l	25	3.908	<10	4.3
Fluoride as F	Mg/l	25	0.2	<1.0	0.22
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B71B			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	22	8.245	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	22	116.45	<150	128
Calcium as Ca	mg/l	22	43.1465	<150	47
Magnesium as Mg	mg/l	22	86.0155	<100	94
Sodium as Na	mg/l	22	58.222	<200	64
Potassium as K	mg/l	22	2.425	<50	2.7
Total Alkalinity as $CaCO_3$	mg/l	22	393.132	N/A	393[4]
Chloride as Cl	mg/l	22	111.8245	<200	123
Sulphate as SO_4	mg/l	22	39.897	<400	43
Nitrate as NO_x-N	mg/l	22	4.1535	<10	4.6
Fluoride as F	Mg/l	22	0.161	<1.0	0.17
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

Chemical Parameter	Unit	Olifants River Catchment QC B71D			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	9	8.123	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	9	70	<150	77
Calcium as Ca	mg/l	9	33.574	<150	36
Magnesium as Mg	mg/l	9	18.525	<100	20
Sodium as Na	mg/l	9	18.321	<200	20
Potassium as K	mg/l	9	3.815	<50	4.1
Total Alkalinity as $CaCO_3$	mg/l	9	219.423	N/A	241
Chloride as Cl	mg/l	9	35.581	<200	39
Sulphate as SO_4	mg/l	9	9.179	<400	10
Nitrate as NO_x-N	mg/l	9	0.515	<10	0.6
Fluoride as F	Mg/l	9	0.18	<1.0	0.19
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B71E			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	180	8.283	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	180	93.05	<150	102
Calcium as Ca	mg/l	180	42.4955	<150	46
Magnesium as Mg	mg/l	180	73.983	<100	81
Sodium as Na	mg/l	180	34.421	<200	37
Potassium as K	mg/l	180	1.402	<50	1.5
Total Alkalinity as $CaCO_3$	mg/l	180	363.32	N/A	363[4]
Chloride as Cl	mg/l	180	55.85	<200	61
Sulphate as SO_4	mg/l	177	25.37	<400	27
Nitrate as NO_x-N	mg/l	180	10.442	<10	10.4
Fluoride as F	Mg/l	180	0.1155	<1.0	0.12
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

Chemical Parameter	Unit	Olifants River Catchment QC B71F			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	46	8.2235	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	46	84.5	<150	92
Calcium as Ca	mg/l	46	74.201	<150	81
Magnesium as Mg	mg/l	46	37.6255	<100	41
Sodium as Na	mg/l	46	44.6935	<200	49
Potassium as K	mg/l	46	2.189	<50	2.4
Total Alkalinity as $CaCO_3$	mg/l	46	258.762	N/A	284
Chloride as Cl	mg/l	46	88.4355	<200	97
Sulphate as SO_4	mg/l	46	51.892	<400	57
Nitrate as NO_x-N	mg/l	46	0.925	<10	1.0
Fluoride as F	Mg/l	46	0.3	<1.0	0.33
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B71G			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	16	8.216	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	16	65.6	<150	72
Calcium as Ca	mg/l	16	52.8585	<150	58
Magnesium as Mg	mg/l	16	47.3295	<100	52
Sodium as Na	mg/l	16	13.832	<200	15
Potassium as K	mg/l	16	1.1435	<50	1.3
Total Alkalinity as $CaCO_3$	mg/l	16	304.0185	N/A	304[4]
Chloride as Cl	mg/l	16	16.358	<200	17
Sulphate as SO_4	mg/l	16	11.1915	<400	12
Nitrate as NO_x-N	mg/l	16	2.496	<10	2.7
Fluoride as F	Mg/l	16	0.2525	<1.0	0.27
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

Chemical Parameter	Unit	Olifants River Catchment QC B71H			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	56	7.945	5.0 – 9.5	8.0
Electrical Conductivity	mS/m	56	93.6	<150	102
Calcium as Ca	mg/l	56	55.15	<150	60
Magnesium as Mg	mg/l	56	31.1	<100	34
Sodium as Na	mg/l	56	68.05	<200	74.
Potassium as K	mg/l	56	2.465	<50	2.7
Total Alkalinity as $CaCO_3$	mg/l	56	303.4585	N/A	303[4]
Chloride as Cl	mg/l	56	65.056	<200	71
Sulphate as SO_4	mg/l	56	12.6	<400	13
Nitrate as NO_x-N	mg/l	56	0.741	<10	0.8
Fluoride as F	Mg/l	56	0.446	<1.0	0.49
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

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Chemical Parameter	Unit	Olifants River Catchment QC B72A			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	100	7.915	5.0 – 9.5	8.25
Electrical Conductivity	mS/m	100	46.45	<150	51
Calcium as Ca	mg/l	100	33.95	<150	37
Magnesium as Mg	mg/l	100	16.7285	<100	18
Sodium as Na	mg/l	100	30.7	<200	33
Potassium as K	mg/l	100	1.8155	<50	1.9
Total Alkalinity as $CaCO_3$	mg/l	100	176.85	N/A	194
Chloride as Cl	mg/l	100	23.8	<200	26
Sulphate as SO_4	mg/l	100	7.112	<400	7
Nitrate as NO_x-N	mg/l	100	1.0335	<10	1.1
Fluoride as F	Mg/l	100	0.2755	<1.0	0.30
				Water quality class	Class 0

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B72C			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	26	8.17	5.0 – 9.5	8.50
Electrical Conductivity	mS/m	26	125.65	<150	138
Calcium as Ca	mg/l	26	51.7	<150	56
Magnesium as Mg	mg/l	26	37.25	<100	40
Sodium as Na	mg/l	26	175.8	<200	193
Potassium as K	mg/l	26	2.63	<50	2.8
Total Alkalinity as $CaCO_3$	mg/l	26	442.65	N/A	443[4]
Chloride as Cl	mg/l	26	138.187	<200	152
Sulphate as SO_4	mg/l	26	20.564	<400	22
Nitrate as NO_x-N	mg/l	26	0.66	<10	0.7
Fluoride as F	Mg/l	26	0.7885	<1.0	0.86
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

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Chemical Parameter	Unit	Olifants River Catchment QC B72E			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	101	8.035	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	101	53.3	<150	58
Calcium as Ca	mg/l	101	39.2	<150	43
Magnesium as Mg	mg/l	101	26.2	<100	28
Sodium as Na	mg/l	101	26.5	<200	29
Potassium as K	mg/l	101	0.898	<50	0.9
Total Alkalinity as $CaCO_3$	mg/l	101	236.548	N/A	260
Chloride as Cl	mg/l	101	13.9	<200	15
Sulphate as SO_4	mg/l	101	4.3	<400	4
Nitrate as NO_x-N	mg/l	101	1.927	<10	2.1
Fluoride as F	Mg/l	101	0.227	<1.0	0.24
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B72J			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	47	8.038	5.0 – 9.5	8.50
Electrical Conductivity	mS/m	47	110.23	<150	121
Calcium as Ca	mg/l	47	64.86	<150	71
Magnesium as Mg	mg/l	47	69.761	<100	76
Sodium as Na	mg/l	47	69.6	<200	76
Potassium as K	mg/l	47	0.65	<50	0.7
Total Alkalinity as $CaCO_3$	mg/l	47	381.88	N/A	382[4]
Chloride as Cl	mg/l	47	101.636	<200	111
Sulphate as SO_4	mg/l	47	41.281	<400	45
Nitrate as NO_x-N	mg/l	47	9.989	<10	10
Fluoride as F	Mg/l	47	0.3	<1.0	0.33
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

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Chemical Parameter	Unit	Olifants River Catchment QC B72K			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	61	8.21	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	61	180	<150	180[4]
Calcium as Ca	mg/l	61	61.681	<150	67
Magnesium as Mg	mg/l	61	61.2	<100	67
Sodium as Na	mg/l	61	223.785	<200	224[4]
Potassium as K	mg/l	61	5.38	<50	5.9
Total Alkalinity as $CaCO_3$	mg/l	61	459	N/A	459[4]
Chloride as Cl	mg/l	61	244.7	<200	245[4]
Sulphate as SO_4	mg/l	61	54.8	<400	60
Nitrate as NO_x-N	mg/l	61	9.088	<10	9.9
Fluoride as F	Mg/l	61	0.642	<1.0	0.70
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

Chemical Parameter	Unit	Olifants River Catchment QC B73A			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	25	7.67	5.0 – 9.5	8.00
Electrical Conductivity	mS/m	25	22.6	<150	24
Calcium as Ca	mg/l	25	10.3	<150	11
Magnesium as Mg	mg/l	25	3.6	<100	3
Sodium as Na	mg/l	25	28.4	<200	31
Potassium as K	mg/l	25	1.3	<50	1.4
Total Alkalinity as $CaCO_3$	mg/l	25	84.6	N/A	93
Chloride as Cl	mg/l	25	9.2	<200	10
Sulphate as SO_4	mg/l	25	4.9	<400	5
Nitrate as NO_x-N	mg/l	25	0.93	<10	1.0
Fluoride as F	Mg/l	25	0.398	<1.0	0.43
				Water quality class	Class 0

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B73E			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	50	8.16	5.0 – 9.5	8.50
Electrical Conductivity	mS/m	50	80.3	<150	88
Calcium as Ca	mg/l	50	40.7885	<150	44
Magnesium as Mg	mg/l	50	21.05	<100	23
Sodium as Na	mg/l	50	102.9	<200	113
Potassium as K	mg/l	50	2.203	<50	2.4
Total Alkalinity as $CaCO_3$	mg/l	50	281.2	N/A	309
Chloride as Cl	mg/l	50	55.35	<200	60
Sulphate as SO_4	mg/l	50	10.85	<400	11
Nitrate as NO_x-N	mg/l	50	3.3105	<10	3.6
Fluoride as F	Mg/l	50	0.99	<1.0	1.0
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B73F			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	19	8.346	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	19	50.5	<150	55
Calcium as Ca	mg/l	19	15.864	<150	17
Magnesium as Mg	mg/l	19	30.272	<100	33
Sodium as Na	mg/l	19	43.2	<200	47
Potassium as K	mg/l	19	1.893	<50	2.0
Total Alkalinity as $CaCO_3$	mg/l	19	197.544	N/A	217
Chloride as Cl	mg/l	19	32.906	<200	36
Sulphate as SO_4	mg/l	19	10.439	<400	11
Nitrate as NO_x-N	mg/l	19	1.443	<10	1.5
Fluoride as F	Mg/l	19	0.333	<1.0	0.36
				Water quality class	Class 0

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B81C			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	64	7.689	5.0 – 9.5	8.00
Electrical Conductivity	mS/m	64	22.6185	<150	25
Calcium as Ca	mg/l	64	13.7065	<150	15
Magnesium as Mg	mg/l	64	4.2295	<100	5
Sodium as Na	mg/l	63	16.8	<200	18
Potassium as K	mg/l	61	2.638	<50	2.9
Total Alkalinity as $CaCO_3$	mg/l	64	46.5115	N/A	51
Chloride as Cl	mg/l	64	23.9395	<200	26
Sulphate as SO_4	mg/l	64	3	<400	3
Nitrate as NO_x-N	mg/l	64	3.5385	<10	3.9
Fluoride as F	Mg/l	63	0.14	<1.0	0.15
				Water quality class	Class 0

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B81D			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	178	7.827	5.0 – 9.5	8.0
Electrical Conductivity	mS/m	178	44.65	<150	49
Calcium as Ca	mg/l	178	36.9385	<150	41
Magnesium as Mg	mg/l	178	21.843	<100	24
Sodium as Na	mg/l	175	17.5	<200	19
Potassium as K	mg/l	175	0.542	<50	0.6
Total Alkalinity as $CaCO_3$	mg/l	177	187.634	N/A	206
Chloride as Cl	mg/l	178	11.9215	<200	13
Sulphate as SO_4	mg/l	178	4.6	<400	5
Nitrate as NO_x-N	mg/l	177	1.949	<10	2.1
Fluoride as F	Mg/l	177	0.192	<1.0	0.21
				Water quality class	Class 0

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B81E			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	144	8.077	5.0 – 9.5	8.25
Electrical Conductivity	mS/m	144	45.25	<150	50
Calcium as Ca	mg/l	144	27.84	<150	31
Magnesium as Mg	mg/l	144	15.55	<100	17
Sodium as Na	mg/l	144	33.4565	<200	37
Potassium as K	mg/l	144	2.6485	<50	2.9
Total Alkalinity as $CaCO_3$	mg/l	144	166.2245	N/A	183
Chloride as Cl	mg/l	144	27.5525	<200	30
Sulphate as SO_4	mg/l	144	5.85	<400	6
Nitrate as NO_x-N	mg/l	144	0.784	<10	0.9
Fluoride as F	Mg/l	144	0.34	<1.0	0.37
				Water quality class	Class 0

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B81G			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	298	7.99	5.0 – 9.5	8.25
Electrical Conductivity	mS/m	298	83.35	<150	92
Calcium as Ca	mg/l	298	44.047	<150	48
Magnesium as Mg	mg/l	298	33.068	<100	36
Sodium as Na	mg/l	298	68.3885	<200	75
Potassium as K	mg/l	298	2.0605	<50	2.3
Total Alkalinity as $CaCO_3$	mg/l	298	266.67	N/A	293
Chloride as Cl	mg/l	298	63.85	<200	70
Sulphate as SO_4	mg/l	298	10.42	<400	11
Nitrate as NO_x-N	mg/l	298	3.7285	<10	4.1
Fluoride as F	Mg/l	298	0.471	<1.0	0.52
				Water quality class	Class 0

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B81H			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	169	8.208	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	169	175	<150	<175[4]
Calcium as Ca	mg/l	169	74.8	<150	82
Magnesium as Mg	mg/l	169	72.6	<100	80
Sodium as Na	mg/l	169	164.759	<200	181
Potassium as K	mg/l	169	5.781	<50	6.4
Total Alkalinity as $CaCO_3$	mg/l	169	435.6	N/A	436[4]
Chloride as Cl	mg/l	169	232.193	<200	232[4]
Sulphate as SO_4	mg/l	169	27.609	<400	30
Nitrate as NO_x-N	mg/l	168	11.143	<10	12.3
Fluoride as F	Mg/l	168	0.605	<1.0	0.67
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

Chemical Parameter	Unit	Olifants River Catchment QC B82A			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	59	7.854	5.0 – 9.5	8.00
Electrical Conductivity	mS/m	58	63	<150	69
Calcium as Ca	mg/l	59	38.951	<150	43
Magnesium as Mg	mg/l	59	27.147	<100	30
Sodium as Na	mg/l	59	43.935	<200	48
Potassium as K	mg/l	59	2.66	<50	2.9
Total Alkalinity as $CaCO_3$	mg/l	59	232.8	N/A	256
Chloride as Cl	mg/l	59	40.451	<200	44
Sulphate as SO_4	mg/l	59	11.214	<400	12
Nitrate as NO_x-N	mg/l	59	2.506	<10	2.8
Fluoride as F	Mg/l	58	0.317	<1.0	0.35
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B82C			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	31	7.76	5.0 – 9.5	8.00
Electrical Conductivity	mS/m	31	33.2	<150	37
Calcium as Ca	mg/l	31	21.981	<150	24
Magnesium as Mg	mg/l	31	11.7	<100	13
Sodium as Na	mg/l	30	21.188	<200	23
Potassium as K	mg/l	30	1.3995	<50	1.5
Total Alkalinity as $CaCO_3$	mg/l	31	109	N/A	120
Chloride as Cl	mg/l	31	20.489	<200	23
Sulphate as SO_4	mg/l	31	4.6	<400	5
Nitrate as NO_x-N	mg/l	31	2.878	<10	3.2
Fluoride as F	Mg/l	31	0.218	<1.0	0.24
				Water quality class	Class 0

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B82D			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	249	8.06	5.0 – 9.5	8.50
Electrical Conductivity	mS/m	249	76.5	<150	84
Calcium as Ca	mg/l	249	42.482	<150	47
Magnesium as Mg	mg/l	249	44.02	<100	48
Sodium as Na	mg/l	248	55.2845	<200	61
Potassium as K	mg/l	248	5.2555	<50	5.8
Total Alkalinity as $CaCO_3$	mg/l	248	260.05	N/A	286
Chloride as Cl	mg/l	249	50.5	<200	56
Sulphate as SO_4	mg/l	249	14.488	<400	16
Nitrate as NO_x-N	mg/l	248	9.7535	<10	9.8
Fluoride as F	Mg/l	248	0.302	<1.0	0.33
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B82E			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	113	7.958	5.0 – 9.5	8.25
Electrical Conductivity	mS/m	113	65.5	<150	72
Calcium as Ca	mg/l	113	34.922	<150	38
Magnesium as Mg	mg/l	113	30.514	<100	34
Sodium as Na	mg/l	108	37.64	<200	41
Potassium as K	mg/l	108	5.0595	<50	5.6
Total Alkalinity as $CaCO_3$	mg/l	113	183.846	N/A	200
Chloride as Cl	mg/l	113	49.127	<200	54
Sulphate as SO_4	mg/l	113	16.067	<400	18
Nitrate as NO_x-N	mg/l	113	5.914	<10	6.5
Fluoride as F	Mg/l	113	0.197	<1.0	0.22
				Water quality class	Class 0

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

Chemical Parameter	Unit	Olifants River Catchment QC B82F			
		No. of Samples	Ambient GW quality or median [1)]	BHN Reserve[2)]	Groundwater Quality Reserve[3]
pH	–	232	8.032	5.0 – 9.5	8.25
Electrical Conductivity	mS/m	232	63.05	<150	69
Calcium as Ca	mg/l	232	33.353	<150	37
Magnesium as Mg	mg/l	232	36.834	<100	41
Sodium as Na	mg/l	231	29.3	<200	32
Potassium as K	mg/l	231	3.831	<50	4.2
Total Alkalinity as $CaCO_3$	mg/l	228	212.5	<330	234
Chloride as Cl	mg/l	232	38.3085	<200	42
Sulphate as SO_4	mg/l	232	11.063	<400	12
Nitrate as NO_x-N	mg/l	228	6.0725	<10	6.7
Fluoride as F	Mg/l	227	0.276	<1.0	0.30
				Water quality class	Class I

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.

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Chemical Parameter	Unit	Olifants River Catchment QC B82G			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve [2]	Groundwater Quality Reserve [3]
pH	–	220	8.19	5.0 – 9.5	8.5
Electrical Conductivity	mS/m	220	112.85	<150	124
Calcium as Ca	mg/l	220	52.8	<150	58
Magnesium as Mg	mg/l	220	62.807	<100	69
Sodium as Na	mg/l	218	84.9	<200	93
Potassium as K	mg/l	218	3.669	<50	4.0
Total Alkalinity as $CaCO_3$	mg/l	219	368.1	N/A	370[4]
Chloride as Cl	mg/l	220	92.0335	<200	101
Sulphate as SO_4	mg/l	220	17.0815	<400	19
Nitrate as NO_x-N	mg/l	218	4.6245	<10	5.1
Fluoride as F	Mg/l	217	0.469	<1.0	0.52
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

Chemical Parameter	Unit	Olifants River Catchment QC B82J			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve [2]	Groundwater Quality Reserve [3]
pH	–	26	8.0975	5.0 – 9.5	8.25
Electrical Conductivity	mS/m	26	176.5	<150	177[4]
Calcium as Ca	mg/l	26	75.872	<150	83
Magnesium as Mg	mg/l	26	184.0145	<100	184[4]
Sodium as Na	mg/l	26	70.92	<200	78
Potassium as K	mg/l	26	6.5275	<50	7.2
Total Alkalinity as $CaCO_3$	mg/l	26	454.1	N/A	454[4]
Chloride as Cl	mg/l	26	205.8395	<200	206[4]
Sulphate as SO_4	mg/l	26	29.3965	<400	32
Nitrate as NO_x-N	mg/l	26	9.4955	<10	10.4
Fluoride as F	Mg/l	26	0.536	<1.0	0.59
				Water quality class	Class II

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

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Chemical Parameter	Unit	Olifants River Catchment QC B83B			
		No. of Samples	Ambient GW quality or median [1]	BHN Reserve[2]	Groundwater Quality Reserve[3]
pH	–	22	7.5	5.0 – 9.5	8.00
Electrical Conductivity	mS/m	18	105.991	<150	117
Calcium as Ca	mg/l	22	484	<150	484[4]
Magnesium as Mg	mg/l	20	4.691	<100	5
Sodium as Na	mg/l	22	105.219	<200	116
Potassium as K	mg/l	20	3.953	<50	4.3
Total Alkalinity as $CaCO_3$	mg/l	21	484	N/A	484[4]
Chloride as Cl	mg/l	22	105	<200	116
Sulphate as SO_4	mg/l	22	4.69	<400	5
Nitrate as NO_x-N	mg/l	21	3.95	<10	4.3
Fluoride as F	Mg/l	20	0.70	<1.0	0.77
				Water quality class	Class III

[1] Median value (calculated from population of samples in QC).
[2] Upper limit of Class I water quality (DWAF et al 1998).
[3] The median plus 10% for the Groundwater Quality Reserve.
[4] Natural geological conditions may cause elevated dissolved solids in groundwater.

Please note:

In the case of Karoo Supergroup aquifers and the Rustenburg Layered Suite, magnesium (Mg), sodium (Na) and chloride (Cl) values are elevated due to these elements being part of the primary sediment/crystalline rock chemistry and are released into the groundwater due to weathering/decomposing processes.

Elevated values of total alkalinity is a general groundwater hydrochemical phenomenon in South Africa and could only in specific cases be the result of poor water quality management.

Elevated values for nitrate (NO3–N) has been noted through all of the sub-catchments, except the lower Letaba catchment (B83), and values of ~45 to 50 mg/l has been noted in the 95th percentile slot.

The observed groundwater quality criteria in terms of water quality for basic human needs (BHN) is significantly impacted by elevated values for nitrate (NO3–N) – therefore groundwater reserve values for nitrate has been set at the median values which in all cases (except the Central Olifants

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8. WETLAND RESERVE

Important quaternary catchments identified during a team workshop in July 2015 were considered for possible field visits based on a review of the available literature and a scan of the existing wetland databases. Quaternary catchments were identified for further investigation, many of which were then also targeted for field investigations.

The catchments were selected based on the following considerations:

- Important wetlands that should possibly be visited (already identified/prioritised in the current Reserve documents) for various reasons; and/or
- Potential gaps where additional important wetlands may exist and which should possibly also be included or prioritised in the Reserve process.

Table 8.1 identifies the priority wetlands in the Olifants and Letaba catchments and summarises the PES, EIS, REC and ecological specifications for the identified priority wetlands.

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Table 8.1: Table showing results of the prioritised wetlands.

IUA	Quat & Wetland ID	Wetland Name & Type	Co-ordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
1	B11E Oli_1.1	Blesbokspruit wetland Floodplain	-26.222	29.059	E/F	High	D	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Rehabilitation measures should be implemented in this system to improve its current state.
1	B11E Oli_1.2	Rietspruit wetland Unchannelled valley bottom; Channelled valley bottom	-26.252	29.103	D	High	C/D	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Rehabilitation measures should be implemented in this system to improve its current state.
1	B11D Oli_1.3	Kriel wetland Channelled valley bottom	-26.268	29.229	C/D	Moderate	C/D	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Rehabilitation measures should be implemented in this system to improve its current state.

IUA	Quat & Wetland ID	Wetland Name & Type	Co-ordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
1	B11F Oli_1.4	Klipoortjiespruit wetland Unchannelled valley bottom	-26.087	29.141	D	High	C/D	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of achieving the REC
1	B11B Oli_1.5	Koringspruit wetland Channelled valley bottom (section of unchannelled valley bottom)	-26.094	29.385	D	Moderate	C	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of achieving the REC. Rehabilitation measures should be implemented in this system to improve its current state.
1	B11K Oli_1.6	Klipspruit wetland Unchannelled valley bottom	-25.801	29.135	D	High	C/D	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition.

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IUA	Quat & Wetland ID	Wetland Name & Type	Co-ordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
								Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Rehabilitation measures should be implemented in this system to improve its current state.
1	B12A Oli_1.7	Klein-Olifants tributary Channelled valley bottom; Hillslope seepage	-26.057	29.746	D	High	C/D	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of achieving the REC. Rehabilitation measures should be implemented in this system to improve its current state.
1	B12B Oli_1.8	Matla wetland Channelled valley bottom	-26.037	29.815	C	Moderate	C	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including

IUA	Quat & Wetland ID	Wetland Name & Type	Co-ordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
								interflow) of scenarios to establish the potential impact in terms of achieving the REC. Rehabilitation measures should be implemented in this system to improve its current state.
1	B12B Oli_1.9	Woes-alleenspruit wetland Unchannelled valley bottom	-25.990	29.581	C	Moderate to High	C	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Rehabilitation measures should be implemented in this system to improve its current state.
1	B12B Oli_1.10	Bosmanspruit wetland Unchannelled valley bottom	-25.909	29.715	C	Moderate to High	C	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of achieving the REC.
1	B12C Oli_1.11	Kopermyn wetland Unchannelled valley bottom; Channelled valley bottom; Hillslope seepage	-25.847	29.720	C	High	B/C	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition.

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IUA	Quat & Wetland ID	Wetland Name & Type	Co-ordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
								Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply.
1	B11C Oli_1.12	Debeerspruit/ Piekespruit floodplain	-26.391	29.322	A/B	High	A/B	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of achieving the REC.
1	B11A Oli_1.13	Viskuile floodplain complex Floodplain	-26.261	29.492	C	High to Very High	B	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of achieving the REC. Rehabilitation measures should be implemented in this system to improve its current state.

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IUA	Quat & Wetland ID	Wetland Name & Type	Co-ordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
1	B11C Oli_1.14	Steenkoolspruit floodplain	-26.337	29.354	D	High	C/D	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of achieving the REC.
2	B20C Oli_2.1	Elandsvlei pans Pan/depression; Hillslope seepage	-25.996	28.463	C	High	B/C	No increase in cultivation or habitat transformation within the pan catchments should be permitted. Water quality impacts to the pan system must be restricted to ensure that the water and sediment chemistry remain within an acceptable normal range (anion and cation concentration to pan volume relationship) for this particular water chemistry pan type. Lateral flow inputs from the catchment and hillslope seepage wetlands must be protected through the application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Maintain suitable African Grass Owl habitat.
2	B20B Oli_2.2	Koffiespruit tributary Unchannelled valley bottom	-26.071	28.599	A/B	Moderate to High	A/B	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and

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IUA	Quat & Wetland ID	Wetland Name & Type	Co-ordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
								strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of achieving the REC.
2	B20A Oli_2.3	Delmas wetland Unchannelled valley bottom	-26.137	28.690	D	Moderate	D	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of achieving the REC.
2	B20A Oli_2.4	Bronkhorstspruit tributary Unchannelled valley bottom; Channelled valley bottom; Hillslope seepage	-26.252	28.767	C	High	B	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of

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IUA	Quat & Wetland ID	Wetland Name & Type	Co-ordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
								achieving the REC
2	B20E Oli_2.5	Wilge tributary Floodplain; Channelled valley bottom	-26.126	28.935	A/B to C	Moderate to High	B/C	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of achieving the REC.
2	B20G Oli_2.6	Zaalklap wetland Unchannelled valley bottom	-25.908	29.053	D	High	C/D	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of achieving the REC.
2	B20G Oli_2.7	Saalboomspruit wetland Unchannelled valley bottom; Channelled valley	-25.864	29.008	D	Moderate to High	C/D	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems.

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IUA	Quat & Wetland ID	Wetland Name & Type	Co-ordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
		bottom						Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of achieving the REC.
2	B20E Oli_2.8	Upper Wilge River Floodplain	-26.131	28.874	D	High	C/D	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of achieving the REC.
3	B12E Oli_3.1	Klein-Olifants tributary Unchannelled valley bottom; Channelled valley bottom; Hillslope seepage	-25.659	29.407	A/B to C	High	B	Maintain the existing flow distribution and retention patterns in the system. Currently unchannelled wetlands must be maintained as unchannelled systems. Maintain existing vegetation structure and composition. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply.

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IUA	Quat & Wetland ID	Wetland Name & Type	Co-ordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
4	B31A Oli_4.1	Elands tributary wetland Channelled valley bottom; Hillslope seepage	-25.627	28.650	C	High	B/C	Maintain the existing flow distribution and retention patterns in the system. Maintain existing vegetation structure and composition. Maintain permanent saturation of peat wetlands. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply.
5	B51C Oli_5.1	Makotswane Channelled valley bottom Hillslope seepage	-24.852	29.701	C	Very High	B	Maintain the existing flow distribution and retention patterns in the system. Maintain existing vegetation structure and composition. Maintain permanent saturation of peat wetlands. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Targeted wetland management actions and rehabilitation interventions should be implemented to safeguard and improve the wetland structure and functioning and associated peat and artesian springs.
6	B41A Oli_6.1	Lakenvlei wetland complex Unchannelled valley bottom Channelled valley bottom Hillslope seepage	-25.560	30.097	A/B	Very High	A/B	Maintain the existing flow distribution and retention patterns in the system. Maintain existing vegetation structure and composition. Maintain permanent saturation of peat wetlands. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Any applications for development, abstraction or groundwater use in the area will need to consider the impacts on this system, both from an EIA and WUL perspective, and strict licensing conditions including monitoring of the system should apply. The overall biodiversity and viable populations of Red Data bird species must be maintained. No new dams should be constructed in the system without following detailed authorisation process.

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IUA	Quat & Wetland ID	Wetland Name & Type	Co-ordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
								No increase in cultivation or habitat transformation within the hillslope seepage wetlands should be permitted. Any application for development including mining likely to impact this system, besides going through the normal licensing processes, should also include as a minimum an Intermediate Level Wetland Reserve which includes flow modelling (surface and groundwater including interflow) of scenarios to establish the potential impact in terms of achieving the REC.
6	B41B Oli_6.2	Welgevonden wetland Channelled valley bottom Hillslope seepage	-25.467	30.082	A/B	High to Very High	A/B	Maintain the existing flow distribution and retention patterns in the system. Maintain existing vegetation structure and composition. Maintain permanent saturation of peat wetlands. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply.
6	B41F Oli_6.3	Draaikraal wetland 1 Channelled valley bottom	-25.254	30.034	C	High to Very High	B	Maintain the existing flow distribution and retention patterns in the system. Unchannelled nature of sections of the wetland must be maintained. Maintain existing vegetation structure and composition. Maintain permanent saturation of peat wetlands. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply.
6	B41F Oli_6.4	Draaikraal wetland 2 Channelled valley bottom	-25.217	30.075	A/B to C	High to Very High	A/B to B	Maintain the existing flow distribution and retention patterns in the system. Unchannelled nature of sections of the wetland must be maintained. Maintain existing vegetation structure and composition. Maintain permanent saturation of peat wetlands. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply.

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Quat	Wetland ID	Wetland Name & Type	Coordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
6	B41F Oli_6.5	Draaikraal wetland 3 Hillslope seepage	-25.178	30.057	A/B	High to Very High	A/B	Maintain the existing flow distribution and retention patterns in the system. Unchannelled nature of sections of the wetland must be maintained. Maintain existing vegetation structure and composition. Maintain permanent saturation of peat wetlands. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply.
6	B41F Oli_6.8	Verloren Valei Comprises a mosaic of hillslope seepage wetlands and channelled and unchannelled valley bottom wetlands	-25.298	30.111	A/B	Very High	A	Maintain the existing flow distribution and retention patterns in the system. Unchannelled nature of sections of the wetland must be maintained. Maintain existing vegetation structure and composition. Maintain permanent saturation of peat wetlands. The conservation measures and management practices as per the Ramsar Information Sheet (RIS) (https://rsis.ramsar.org/RISapp/files/RISrep/ZA1110RIS.pdf) for Verloren Valei Nature Reserve must be implemented and maintained together with any additional management plans/actions that have subsequently been implemented by the Mpumalanga Parks Board.
6	B41A Oli_6.9	Belfast wetland complex Unchannelled valley bottom Channelled valley bottom Hillslope seepage	-25.695	30.036	A/B to C	High to Very High	B to A/B	Maintain the existing flow distribution and retention patterns in the system. Unchannelled nature of sections of the wetland must be maintained. Maintain existing vegetation structure and composition. Maintain permanent saturation of peat wetlands. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro- pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply.
9	B60F Oli_9.1	Krankloofpsruit wetland Channelled valley bottom	-24.932	30.506	C	Moderate	C	Maintain the existing flow distribution and retention patterns in the system. Maintain existing vegetation structure and composition.

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IUA	Quat & Wetland ID	Wetland Name & Type	Co-ordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
9	B60H Oli_9.2	Ohrigstad wetland Channelled valley bottom	-24.531	30.708	C	High to Very High	B	Maintain the existing flow distribution and retention patterns in the system. Maintain existing vegetation structure and composition.
10	B71G Oli_10.1	Tufa waterfall	-24.457	30.610	B	Very High	A/B	Maintenance of permanent water inputs to the tufa waterfall is critical for ongoing tufa formation. Any applications for groundwater use in the area will need to consider the impacts on this system, both from an EIA and WUL perspective, and strict licensing conditions including monitoring of the system should apply. Control of cultural activities within the wetland, e.g. salt harvesting. Site specific management measures should be developed in consultation with the local community to ensure the continued protection of this system.
13	B60C Oli_13.1	Treur wetland Hillslope seepage	-24.776	30.880	C	Very High	B	The unchannelled nature of sections of the wetland must be maintained. Maintain permanent saturation of peat wetlands. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Strict application of suitable forestry buffers. A viable populations of the Treur River Barb fish species should be maintained.
13	B60D Oli_13.2	Kadishi waterfall Tufa waterfall	-24.566	30.795	A/B	Very High	A/B	Maintenance of permanent water inputs to the tufa waterfall is critical for tufa formation. Any applications for groundwater use in the area will need to consider the impacts on this system, both from an EIA and WUL perspective, and strict licensing conditions including monitoring of the system should apply.
1	B81A Let_1.1	Stanford wetland Floodplain	-23.893	29.984	D	Moderate	D	The unchannelled nature of sections of the wetland must be maintained. Lateral flow inputs to the wetland must be protected through

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IUA	Quat & Wetland ID	Wetland Name & Type	Co-ordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
								application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Strict application of suitable forestry buffers. Targeted wetland management actions and rehabilitation interventions should be implemented to improve the wetland structure and functioning. This must address in particular afforestation related rehabilitation measures.
1	B81B Let_1.2	Tzaneen Dam wetland Unchannelled valley bottom Channelled valley bottom	-23.729	30.200	D/E	Moderate	D	The unchannelled nature of sections of the wetland must be maintained. Lateral flow inputs to the wetland must be protected through application of hydrological buffers determined via hydro-pedological assessments undertaken as part of EIA and/or WUL applications, and strict licensing conditions including monitoring of the systems should apply. Strict application of suitable forestry buffers.
2	B81D Let_2.1	Thabina wetland Channelled valley bottom	-23.992	30.260	C	High	B	The unchannelled nature of sections of the wetland must be maintained. Existing vegetation types and structure must be maintained or improved within natural seasonal variability. Targeted wetland management actions and rehabilitation interventions should be investigated and implemented if required to improve the wetland structure and functioning. Site specific management measures should be developed in consultation with the local community to ensure the maintenance and controlled utilisation of the wetland.
9	B82G Let_9.1	Baleni hot spring Spring	-23.419	30.912	B	Very High	A/B	Maintenance of permanent water inputs to the wetland is critical for peat formation and to prevent oxidation. Maintain existing vegetation structure and composition. Any applications for groundwater use in the area will need to consider the impacts on this system, both from an EIA and WUL perspective, and strict licensing conditions including monitoring of the system should apply. Control of cultural activities within the wetland, e.g. salt harvesting. Site specific management measures should be developed in consultation with the local community to ensure the continued protection of this

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IUA	Quat & Wetland ID	Wetland Name & Type	Co-ordinates		PES	EIS	REC	Ecological Specifications*
			Latitude	Longitude				
								system.
12	B83C Let_12.1	Nshawu Unchannelled valley bottom Channelled valley bottom	-23.537	31.487	C	High	B	Maintain the existing flow distribution and retention patterns in the system. Maintain existing vegetation structure and composition. No new activities that could lead to flow concentration should be allowed in the system without following a detailed authorisation process.
12	B83D Let_12.2	Manyeleti/ Makhadzi wetland Unchannelled valley bottom	-23.657	31.607	A	High	A	Unchannelled nature of the wetland must be maintained. Maintain existing vegetation structure and composition. No new activities that could lead to flow concentration should be allowed in the system without following a detailed authorisation process. No increase in groundwater abstraction within the immediate vicinity of the wetland unless a detailed authorisation process has been followed.

***Note:** Ecological specifications (Ecospecs) defined for drivers and responses serve as the ecological objectives that must be met. The monitoring of these specifications and the drivers would determine how a resource is changing over time and whether the Reserve is being met. If not met, management intervention may be required in order to attain the desired ecological category. The monitoring requirements are indicated on the Ecological Specifications Report No: **RDM/WMA02/00/CON/0516**.

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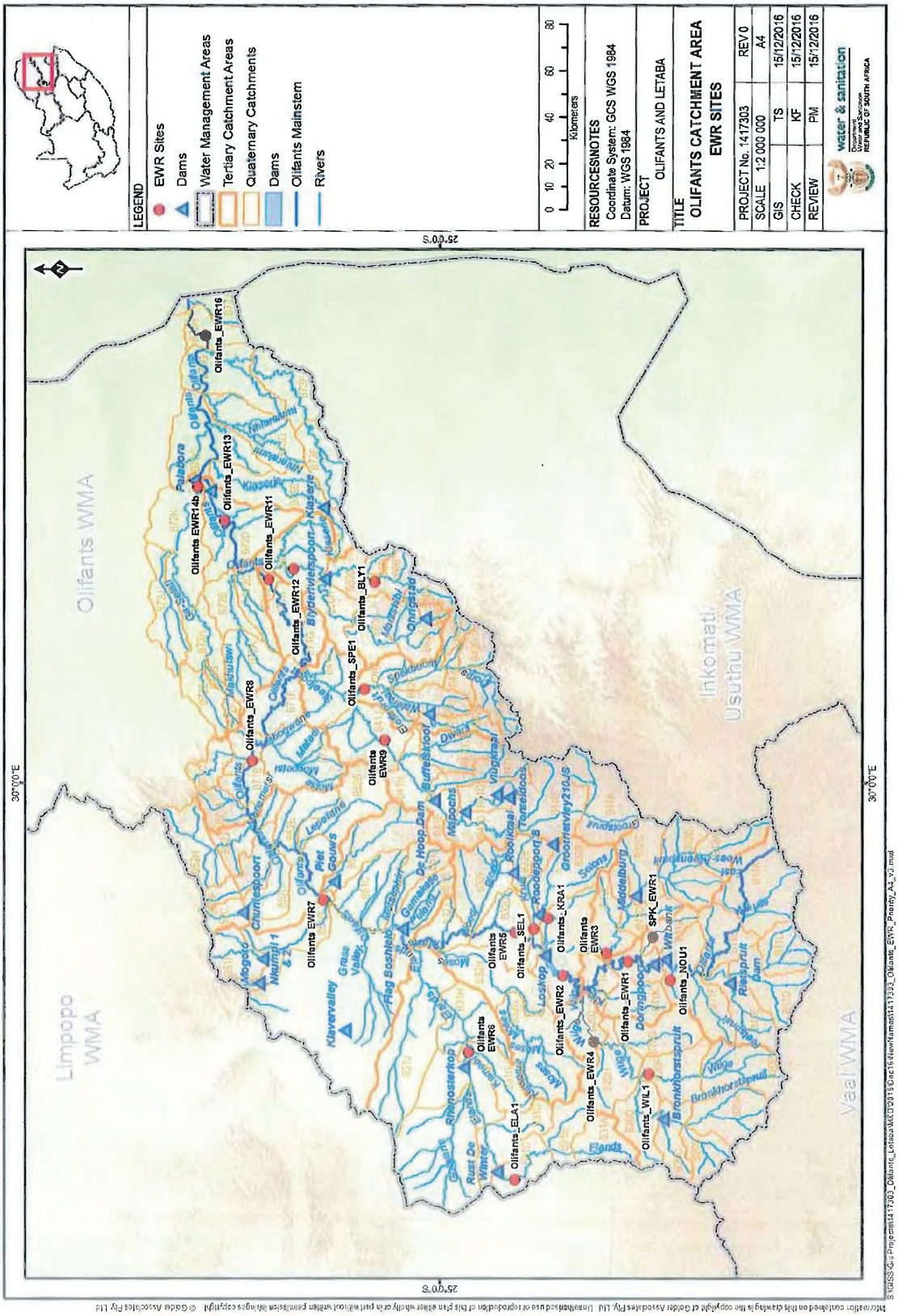


Figure 1: Locality map of the Olifants Catchment illustrating the prioritised EWR sites

80

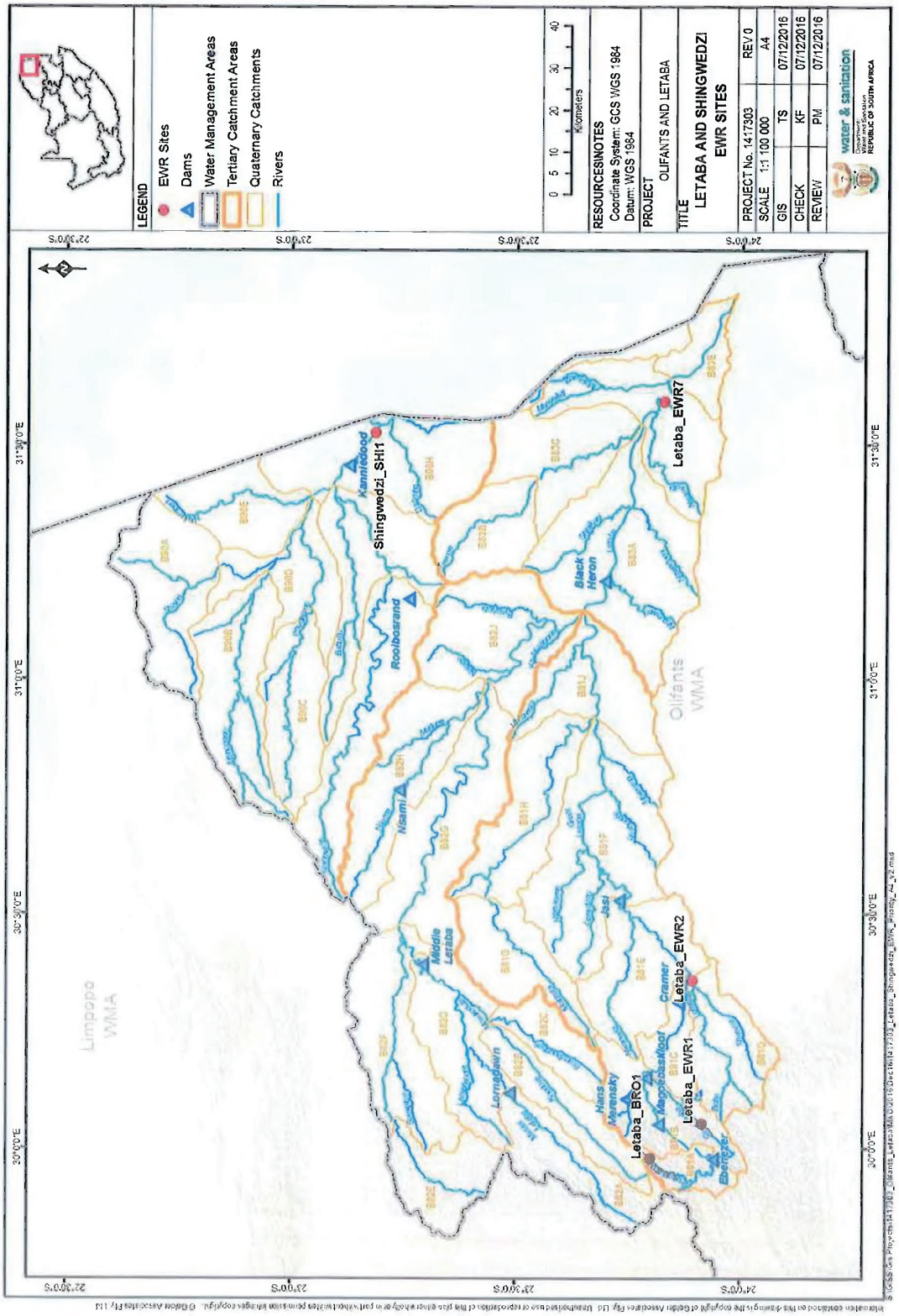


Figure 2: Map of the Letaba and Shingwedzi Catchments illustrating the priorttised EWR sites

81

ANNEXURE B:
OLIFANTS & LETABA NOTICE (SEPEDI)

NOTHISI YA TŠENERALE

KGORO YA MEETSE LE KELELATŠHILA

MOLAWANA WA NAGA WA MEETSE, 1998

(MOLAWANA NO.36 WA 1998)

BOINEELO BJA PEELO YA DIDIRIŠWA TŠA MEETSE GO DITSHWARO TŠA OLIFANTS LE LETABA

Nna, Deborah Mochotlhi, ka khaphasithi ya ka bjalo ka Taerektha Tšenerale ya Motšwaotshwere ya Kgoro ya Meetse le Kelelatšhila, ka morago ga go latela karolo 13 a Molawana wa Naga wa Meetse, (Molawana No.36 wa 1998) ("Molawana") le Molawana 3 wa Melawana ya hlomo ya Sesteme ya Hlopo ya Didirišwa tša Meetse (No. R. 810 Gazete ya Mmušo No. 33541, 17 Setemere 2010), ebile e filwe tumelelo ya maleba go ya ka karolo 16(1) le 63(1)(a) ya Molawana, morago ga go latela karolo 16(2) le (3) ya Molawana, mo o phatlalatša boineelo bja Peelo ya didirišwa tša meetse tša ditshwaro tša Olifants le Letaba.

Taerektha: Boineelo bja Peelo
Athenšene: Mr Yakeen Atwaru
Kgoro ya Meetse le Kelelatšhila
178 Francis Baard Street
Private Bag X313
Pretoria
0001

Emeile: atwaruy@dws.gov.za

MS DEBORAH MOCHOTLHI
MOTŠWAOSWERE TAEREKTHA TŠENERALE
LETŠATŠIKGWEDI: 25/07/2018

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BOINEELO BJA PEELO YA DIDIRIŠWA TŠA MEETSE LE KELELATŠHILA TŠA TSHWARO YA OLIFANTS LE LETABA GO YA KA KAROLO 16(1) LE YA MOLAWANA WA MEETSE WA NAGA, 1998 (MOLAWANA NO. 36 YA 1998)

LENANEO

TLHALOŠO YA DIDIRIŠWA TŠA MEETSE

1. (1) Peelo e ineetše go tšohle le seripa sa bohlokwa bjo bongwe le bjo bongwe bja sedirišwa sa meetse ka gare ga tshwaro ya Olfants le Letaba bjale ka ge di boletšwe ka fase:

Bolaodi bja Lefelo la Meetse:	Olifants
Diretšhene tša Kgamollo:	B Motheo wa Retšene ya Kgamollo (go sa balwe tshwaro ya Shingwedzi (B90))
Dinoka:	Disesteme tša Olifants le Noka ya Letaba

(2) Tona go ya ka karolo 16 ya Molawana wa Naga wa Meetse (Molawana No. 36 wa 1998) ("Molawana"), e laetše sesteme ya go hlopa didirišwa tša meetse ka go ntšha Nothisi ya Mmušo No. R. 810 yeo e gatišitšwego ka gare ga Gazete ya Mmušo No. 33541 ya 17 Setemere 2010. Go ya ka karolo 16(1) ya Molawana, Tona e swanetše, ka potlako ka mabaka a go kwagala a go kgonega, morago ga tlase yohle goba seripa sa sedirišwa sa meetse se hweditšwe, ka Nothisi ka gare ga Gazete, a hwetše Peelo ya tšohle goba seripa sa sedirišwa sa meetse.

(3) Tona, go ya ka karolo 16(1) le (2) ya Molawana, o bega, Peelo yeo e latelago ya tshwaro ya Olifants le Letaba.

DEMINEIŠENE YA PEELO BJALO KA GE E NYAKEGA GO YA KA KAROLO 16(1) LE (2) YA MOLAWANA WA NAGA WA MEETSE, 1998

2. (1) Kakaretšo ya khwanthithi ya seripana sa Dinoka tšeo di akaretšago EWR (**Fikara 1 & 2**) le BHN go ya ka karolo 16(1) ya Molawana wa ditshwaro tša Olifants le Letaba bjalo ka ge e boletšwe go aethemo 4. **Tafola 4.1** e akaretša dipoelo tša mafelo a bohlokwa kudu, le **Tafola 4.2** e akaretša dinoute tša bayofisikhale le mafelo a EWR ao a šetšego.

(2) Kakaretšo ya khwalithi ya seripana sa Noka go mafelo a EWR go ya ka karolo 16(1) ya Molawana wa ditshwaro tša Olifants le Letaba e boletšwe go **Tafola 5.1-5.29**.

(3) Kakaretšo ya seabe sa meetse a fase go Peelo ya Kwanthithi ya Meetse go ya ka karolo 16(1) ya Molawana wa tshwaro ya Olifants le Letaba e boletšwe go **Tafola 6.1**.

(4) Kakaretšo ya seabe sa meetse a fase go Peelo ya Khwalithi ya Meetse go ya ka karolo 16(1) ya Molawana wa tshwaro ya Olifants le Letaba e boletšwe go **Tafola 7.1, 7.2** le **7.3.**

(5) Kakaretšo ya Peelo ya lefelo la monola ya Khwanthithi ya Meetse le Khwalithi go ya ka karolo 16(1) ya Molawana wa tshwaro ya Olifants le Lataba e boletšwe go **Tafola 8.1**.

(6) Peelo e tla ama go tloga ka letšatšikgwedi leo e saenilwego ka ge e laetšwe go ya ka karolo 16(1) ya Molawana, ntle le ge e laetšwe ke Tona.

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3. Diakronimi le Ditlhalošo

3.1. Diakronimi

BHN	Theo ya Dinyakwa tša Batho
EcoSpecs	Taetšo ya Ekholotšikhale
EIS	Bohlokwa bja Ekholotšikhale le go tšea ka Maikutlo
EWR	Senyakwa sa Ekolotšikhale ya Meetse
GRAII	Feise II ya go Lekodišo ya Didirišwa tša Meetse a Fase
GRDM	Methotolotši wa Dithemineišene ya Peelo ya Meetse a Fase
GRUs	Diyuniti tša Didirišwa tša Meetse a Fase
NMAR	Mokgwa wa Hlago le Poelo ya Ngwaga
MCM	Dimithara tša Khubiki tše Milione
PES	Seemo sa Bjale sa Ekholotšikhale
REC	Khatekori yeo e Akantšwego ya Ekholotšikhale
TEC	Nepišo ya Khatekori ya Ekholotšikhale
TPCs	Dithrešolte tša Dikamo tšeo di ka bago gona

3.2. Ditlhalošo

Kelelelo ya beise ke tshwarelelo ya kelo ya fase ka dinokeng ka nako ya komelelo goba boemo bja go se kgahliše bja boso, efela e sego kabelo ka moka ya meetse a fase; go balwa le kabelo go tšwa go kelelo ya ka gare yeo e šaletsego morago le go ntšha meetse a fase.

EWR (Senyakwa sa Ekholotšikhale sa Meetse) e bolela ka mokgwa wa kelo (maknitšhute, tebelelo ya nako le nako) le khwalitihi yeo e hlokegago go swarelela ekhosestemo ya ribaraene go maemo a itšego.

Retšhatše ke koketšo ya meetse go ya go zoune ya satšhureišene, e kaba ka phekholeišene ya go ya fase ya prespitheišene goba bokagodimo bja meetse le/goba maekreišene ya letherale ya meetse a fase go tšwa go adtšeisente ya dikhwifaya.

Peelo ke khwanthithi le khwalithi ya meetse ao a nyakegago go fihliša theo ya dinyakwa tša batho ka go hwetša theo ya kabo ya meetse le go šireletša ekhosesteme ya akhwathiki go hwetša tšweletšopele ya ekholotšikhale yeo e swarelelago le go šomiša sedirišwa sa maleba sa meetse.

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4. MEETSE A- BOKAGODIMO- KHOMPHONENTE YA KHWANTHITHI YA DINOKA

Dipoelo tša hwetšo ya Peelo le khatekoraeseišene ya ekholotšikhale ya Disesteme tša Olifants le Letaba, moo Peelo e hlagišwago bjalo ka phesenthetše ya NMAR ya ditshwaro tše itšego (khumuleithifi) go ya ka karolo (16)(1).

Tafola 4.1: Kakaretšo ya **khwanthithi** ya khomponente ya Dinoka yeo e balago le EWR & BHN ya mafelo a bohlokwa le go feta.

Ditshwaro tša Khwathenari	Sedirišwa sa Meetse	PES	EI_ES	TEC[5]	Peelo ya Ekholotšikhale[3] (%NMAR)	BHN Peelo[4] (%NMAR)	Kakaretšo ya Peelo[2] (%NMAR)	NMAR (MCM)[1]
B31C	Elands ya ka Godimo-Olifants_ELA1	C/D	Godimo kudu	C	20.87	0.003	20.873	31.08
B20J	Wilge ya Fase - Olifants_EWR4	C	Godimo	B	36.28	0.013	36.293	175.59
B20F	Noka ya Wilge - Olifants_WIL1	C/D	Godimo	C	15.11	0.008	15.118	44.76
B11J	Olifants - Olifants_EWR1	D	Magareng	D	17.80	0.052	17.852	184.54
B32A	Olifants - Olifants_EWR2	C	Godimo	B/C	29.83	0.008	29.838	500.63
B32A	Kranspoortspruit - OLI_EWR3	C	Godimo kudu	B	30.26	0.008	30.268	13.86
B32C	Selons - Olifants_SEL1	D	Godimo kudu	C	21.86	0.020	21.88	33.11
B71D	Olifants - Olifants_EWR8	C	Magareng	C/D	15.19	0.020	15.21	813.17
B42H	Spekboom ya Fase - Olifants_SPE1	C	Godimo	C	23.16	0.091	23.251	148.19
B60B	Blyde ya Godimo - Olifants_BLY1	C	Godimo	B	46.08	0.005	46.085	164.45
B71J	Olifants - Olifants_EWR11	C	Godimo	C/D	12.81	0.052	12.862	1321.92
B60J	Blyde ya Fase - Olifants_EWR12	C	Godimo	B	31.14	0.052	31.192	383.27
B72D	Olifants - Olifants_EWR13	C	Magareng	C	22.37	0.301	22.671	1762.10
B73H	Olifants - Olifants_EWR16	D	Godimo	C	21.06	0.002	21.062	1918.30
B83D	Letaba - Letaba_EWR7	C/D	Godimo	C	17.34	0.000	17.34	646.28
B81D	Letsitele - Letaba_EWR2	D	Godimo	D	17.59	0.078	17.668	116.55
B81B	Great Letaba - Letaba_EWR1	C/D	Godimo	C	24.76	0.030	24.79	99.85
B81A	Broederstroom - Letaba_BRO1	B/C	Godimo	B/C	49.22	0.012	49.232	6.68
B12E	Klein Olifants - Olifants-EWR3	D	Godimo	C/D	19.8	0.009	19.809	81.54
B32D	Olifants - Olifants-EWR5	C	Godimo	C	12.51	0.060	12.57	571.13
B31G	Elands ya Fase - Olifants-EWR6	C/D	Magareng	D	10.48	0.033	10.513	60.32
B51G	Olifants - Olifants-EWR7	E	Magareng	D	9.89	0.365	10.255	736.94
B41H	Steelpoort - Olifants-EWR9	D	Godimo	C/D	23.33	3.086	26.416	137.50
B72K	Ga-Selati ya Fase-Olifants_EWR14b	E	Magareng	D	19.45	0.043	19.493	72.74
B11H	Spookspruit - SPK_EWR1	C	Magareng	C	30.12	0.001	30.121	9.32
B41H	Dwars - DWA_EWR1	B/C	Godimo	B/C	31.24	3.086	34.326	26.10
B41K	Steelpoort - Olifants_EWR10	D	Godimo	D	12.69	0.480	13.17	342.75
B60H	Ohrigstad - OLI_EWR8	C	Magareng	C	17.41	0.512	17.922	67.79
B72H	Ga-Selati ya Godimo - Olifants_EWR14a	C	Magareng	C	27.53	0.123	27.653	52.20

1) NMAR ke Mokgwa wa Hlago wa Peelo ya Ngwaga
2) Kakaretšo ya kelo e akhaonta go bobedi, Peelo ya Ekholotšhikhale le Theo ya Dinyakwa tša Batho (BHN).
3) Kelo ye e emela mokgwa wa nako ye telele go NMAR. Ge NMAR e fetoga, bolumo ye etla fetoga.
4) E emala phesenthetše ya BHN.
5) Nepišo ya Khathekori ya Ekholotšikhale (TEC): Nepišo yeo e lebeletšwego go fihlelela sesteme yeo e swarelelago bobedi go ekholotšikhale le ikhonomikhale go sa lebalwe PES le REC.

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Tafola 4.2: Kakaretšo ya khomponente ya **khwanthithi** ya Dinoka tša EWR & BHN tša dinoute tša payofisikhale le mafelo ao a šetšego a EWR.

Tshwaro ya Kwhwathenari	Sedirišwa sa Meetse	PES	EI	ES	REC	Peelo ya Ikholoitšikhale (%NMAR)	BHN Peelo (%NMAR)	Kakaretšo ya Peelo (%NMAR)	NMAR (MCM)
B11A, B11B	Olifants (Khonfluense le Steenkoolspruit)	C	Godimo	Godimo	C	10.25	0.001	10.251	61.30
B11D	Steenkoolspruit (bo ntle bja khwathenari)	D	Magareng	Godimo	D	4.70	0.006	4.706	44.60
B11E	Steenkoolspruit (khonfluense le Olifants)	D	Magareng	Godimo	D	4.70	0.004	4.704	65.40
B11F	Olifants (bo ntle bja khwathenari)	D	Magareng	Godimo	D	4.70	0.007	4.707	147.90
B11G	**Noupoortspruit (EWR lefelo – NOU-EWR1) (existing)**	**C/D**	**EIS- Magareng**		**C/D**	**13.90**	**0.075**	**13.975**	**4.28**
B11G	Olifants (e ntša go Letamo la Witbank)	D	Magareng	Godimo	D	4.70	0.075	4.775	164.00
B11H	Spookspruit (khonfluense le Olifants)	C	Godimo	Godimo	C	10.25	0.001	10.251	11.40
B11K, B11L	Klipspruit (khonfluense le Olifants)	D	Godimo	Magareng	D	4.67	0.052	4.722	45.70
B12A	Klein Olifants (bo ntle bja khwathenari)	C	Godimo	Godimo	C	18.85	0.001	18.851	12.70
B12B	Klein Olifants (bo ntle bja khwathenari)	D	Magareng	Godimo	D	8.11	0.000	8.110	16.90
B12C	**Klein Olifants (EWR lefelo – OLI-EWR1) (Lefelo la Lebelo)**	**C**	**EIS-Fase**		**C**	**18.85**	**0.003**	**18.853**	**44.50**
B12C	Klein Olifants (e ntša go Letamo la Middelburg)	D	Godimo	Godimo	D	5.52	0.003	5.523	53.50
B12D	Klein Olifants (bo ntle bja khwathenari)	D	Magareng	Godimo	D	5.52	0.004	5.524	67.30
B20A	Bronkhorstpruit (bo ntle bja khwathenari)	C	Magareng	Godimo	C	13.38	0.003	13.383	27.70
B20B	Koffiespruit (khonfluense le Bronkhorstspruit)	C	Magareng	Godimo	C	13.38	0.005	13.385	15.50
B20C	Bronkhorstpruit (ka ntle go tloga Letomong la Bronkhorstspruit)	C	Godimo	Godimo	C	13.44	0.003	13.443	56.40
B20D	Hondespruit (khonfluense le Bronkhorstspruit)	C	Godimo	Godimo	C	13.39	0.002	13.395	11.90
B20D	Bronkhorstpruit (khonfluense le Wilge)	C	Godimo	Godimo kudu	C	13.45	0.002	13.452	79.90
B20E, B20F	Wilge (khonfluense le Bronkhorstspruit	C	Godimo	Godimo	C	13.42	0.003	13.423	45.80
B20G	Saalboomspruit (khonfluense le Wilge)	C	Magareng	Godimo	C	13.40	0.025	13.425	22.10
B20H	Grootspruit (khonfluense le Wilge)	C	Godimo	Godimo kudu	C	13.40	0.006	13.406	12.80
B20H	Wilge (bo ntle bja khwathenari)	B	Godimo	Godimo kudu	B	17.92	0.006	17.926	158.20
B32C	Olifants (e ntša go Letamo Loskop)	D	Godimo	Godimo	D	7.22	0.020	7.240	568.60
B32C	Olifants (bo ntle bja khwathenari – bo ntle	D	Godimo	Godimo	D	7.22	0.020	7.240	576.80
B31A, B, C	B31A (Elands) B31B (Hartbeesspruit)	C C	Godimo Godimo	Godimo Godimo	C		0.003	12.343	33.50

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Tshwaro ya Kwinwathenari	Sedirišwa sa Meetse	PES	EI	ES	REC	Peelo ya Ikholoitšikhale (%NMAR)	BHN Peelo (%NMAR)	Kakaretšo ya Peelo (%NMAR)	NMAR (MCM)
	B31C (Elands) Note ka bo ntle of B31C e ntšha Letamong la Rust de Winter.	C	Godimo	kudu Godimo kudu		12.34			
B31F	Elands (e ntšha go Letamo la Mkumbe)	C	Godimo	Godimo	C	12.34	0.008	12.348	59.80
B31H, B31J	Elands (bo ntle bja khwathenari, khonfluense le Olifants))	D	Magareng	Magareng	D	6.32	0.084	6.404	84.10
B32E, B32F	B32E (Bloed) B32F (Doringpoortloop) Noute ya khonfluense le Olifants go B32F.	B	Magareng Godimo	Godimo Magareng	B	13.90	0.397	14.297	17.20
B32G, B32H	B32G (Moses) B32H (Mametse le Moses) Note ka bo ntle bja B32H	C	Godimo Godimo	Godimo Godimo	C	9.93	0.084	10.014	35.40
B51B	Olifants (e ntšha go Letamo la Flag Boshielo)	D	Magareng	Godimo	D	3.91	1.009	4.919	723.40
B51D, B51E	Olifants (bontle bja khwathenari– bo ntle bja IUA5)	D	Magareng	Godimo	D	3.81	0.000	3.810	726.60
B41A	Grootspruit (bo ntle bja khwathenari) Langspruit, go akaretšwa le Lakenvleispruit le Kleinspruit	C D	Godimo Godimo	Godimo Godimo kudu	C	20.78	0.003	20.783	41.90
B41B	**Steelpoort (EWR lefelo – OLI-EWR2) (lefelo la Lebelo)**	**C**	**EIS=Magareng**		**C**	**20.78**	**0.006**	**20.786**	**63.50**
B41D, B41E	Steelpoort (kelelo go Letamo la De Hoop Dam)	C	Godimo	Godimo kudu	C	20.78	0.394	21.174	117.00
B41F	**Klip (EWR site – OLI-EWR4) (lefelo la Lebelo)**	**C**	**EIS=Magareng**		**C**	**12.44**	**0.019**	**12.459**	**5.20**
B41G	Phihlo ya ka Godimo ya Dwars (pele ga thulano ya tša moepo)	C	Godimo	Godimo kudu	C	13.33	0.015	13.345	24.50
B51F	Nkumpi (bo ntle bja khwathenari)	C	Godimo	Magareng	C	10.73	0.023	10.753	3.80
B52A, E,G,H	Olifants (bo ntle bja khwathenari – bo ntle bja IUA7)	D	Magareng	Godimo	D	3.88	0.541	4.421	799.7
B42B	**Dorpspruit (EWR lefelo – OLI-EWR9) (lefelo la Lebelo)**	**C/D**	**EIS=Fase**		**C/D**	**11.99**	**0.006**	**11.996**	**63.20**
B42D, B42E	Dorps (khonfluense le Spekboom) Spekboom (khonfluense le Dorps)	C C	Godimo Godimo	Godimo Godimo kudu	C	14.95	0.011	14.961	69.70
B42D	**Spekboom (EWR lefelo – OLI-EWR6) (lefelo la Lebelo)**	**C**	**EIS=Godimo**		**C**	**17.15**	**0.001**	**17.151**	**28.00**
B42F	Watervals (e ntšha go Letamo la Buffelskloof)	C	Godimo	Godimo kudu	C	17.36	0.011	17.371	28.60
B42G	**Watervals (EWR lefelo – OLI-EWR5) (lefelo la Lebelo)**	**C**	**EIS=Magareng**		**C**	**15.47**	**0.283**	**31.220**	**36.40**

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Tshwaro ya Kwinwathenari	Sedirišwa sa Meetse	PES	EI	ES	REC	Peelo ya Ikholoitšikhale (%NMAR)	BHN Peelo (%NMAR)	Kakaretšo ya Peelo (%NMAR)	NMAR (MCM)
B42H	Spekboom (bo ntle bja khwathenari – bo ntle bja IUA 8)	B	Godimo	Magareng	B	28.84	0.091	28.931	149.00
B60E, B60F	Kranskloofspruit (khonfluense le Ohrigstad) Mantshibi (khonfluense le Ohrigstad) Ohrigstad (bo ntle bja) Note ka bo ntle bja B60F.	C C D	Godimo Godimo Magareng	Godimo kudu Godimo kudu Godimo kudu	D	6.31	0.012	6.322	35.60
B60H	Ohrigstad (bo ntle bja khwathenari – bo ntle bja IUA9B)	D	Godimo	Godimo kudu	D	8.05	0.512	8.562	69.70
B60J	Blyde (khonfluense le Olifants)	C	Godimo kudu	Godimo kudu	C	16.13	0.052	16.182	385.70
B71C	Mohlapitse (go fihlela godimo)	B	Godimo kudu	Godimo kudu	B	26.50	0.103	26.603	42.10
B71D, B71F	Olifants (khonfluense le Steelpoort)	D	Godimo	Godimo kudu	D	4.30	0.253	4.553	937.9
B72A	Makhutswi, go akaretšwa le Moungwane le	C	Godimo	Godimo	C	12.89	23.721	36.611	38.00
B72C	Olifants (bo ntle – bo ntle IUA10)	C	Godimo	Godimo	C	18.07	0.616	18.686	1755.5
B72E	Ngwabatse (khonfluense le Ga-Selati)	D	Godimo	Godimo kudu	D	9.05	0.341	9.391	25.70
B72F, G	Ga-Selati (bo ntle bja khwathenari)	C	Godimo	Godimo kudu	C	19.59	0.023	19.613	13.50
B72J	Molatle (khonfluense le Ga-Selati)	B	Magareng	Magareng	B	12.67	0.038	12.705	11.40
B72K	Ga-Selati (bo ntle bja khwathenari – bo ntle bja UIA11)	E	Godimo	Godimo	D	11.95	0.043	11.993	72.70
B73A	**Klaserie (EWR lefelo – OLI-EWR7) (lefelo la Lebelo)**	**B/C**	**EIS=Godimo**		**B/C**	**22.31**	**0.033**	**22.343**	**25.50**
B73B	Klaserie (khonfluense le Olifants)	C	Godimo	Godimo	C	15.41	0.008	15.418	37.10
B73D	Nhlaralumi, go akaretšwa le Machaton, Nyameni le Thlaralumi	B	Godimo	Fase	B	13.65	0.006	13.656	6.80
B73E	Sesete (khonfluense le Timbavati)	B	Godimo	Fase	B	12.24	0.152	12.392	11.10
B73F	Timbavati (bo ntle bja khwathenari)	B	Godimo	Magareng	B	12.12	0.003	12.123	18.70
B73J	Olifants (bo ntle bja khwathenari – bo ntle bja IUA12)	C	Godimo	Fase	C	21.07	0.007	21.077	1931.7
B60A	Blyde (khonfluense le Lisbon)	C	Godimo	Godimo kudu	C	18.73	0.015	18.745	87.10
B60B	Blyde (bo ntle bja khwathenari)	B	Godimo	Godimo kudu	B	32.86	0.005	32.865	183.80
B60C	**Treur (EWR lefelo – TRE-EWR1) (ye e lego gona)**	**B**	**EIS=Godimo kudu**		**B**	**34.60**	**0.001**	**34.601**	**46.80**
B60D	Blyde (kelelo go ya go Letamo la Blyderivierpoort – bo ntle bja IUA13)	B	Godimo	Godimo kudu	B	31.57	0.008	31.578	283.90

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Tshwaro ya Kwhwathenari	Sedirišwa sa Meetse	PES	EI	ES	REC	Peelo ya Ikholoitšiknale (%NMAR)	BHN Peelo (%NMAR)	Kakaretšo ya Peelo (%NMAR)	NMAR (MCM)
B81A	00242 – Broederstroom	C	Magareng	Godimo	C	21.90	0.012	21.912	23.83
B81A	00256 – Tributhari yeo e se nago leina	D	Fase	Godimo	D	21.90	0.012	21.912	16.34
B81A	00263 – Tributhari yeo e se nago leina	D	Magareng	Magareng	D	21.90	0.012	21.912	5.75
B81A	00270 – Broederstroom	C	Magareng	Godimo kudu	C	27.10	0.012	27.112	44..47
B81B	00227 – Mahitse	D	Magareng	Godimo	D	22.10	0.030	22.130	13.60
B81B	00233 – Mahitse	C	Magareng	Godimo	C	27.40	0.030	27.430	2.69
B81B	00234 – Mahitse	C	Magareng	Godimo	C	29.80	0.030	29.130	10.13
B81B	00240 – Politsi	C	Magareng	Godimo	C	19.10	0.030	19.130	38.98
B81B	00246 – Politsi	C	Magareng	Godimo kudu	C	17.70	0.030	17.730	36.26
B81B	00251 – Tributhari yeo e se nago leina	D	Fase	Magareng	D	15.40	0.030	15.430	1.34
B81B	00269 – Morudi	B	Magareng	Godimo kudu	B	34.60	0.030	34.630	1.95
B81D	00272 – Letsitele	C	Godimo	Godimo kudu	C	22.00	0.078	22.078	91.27
B81D	00277 – Thabina	D	Godimo	Godimo	D	13.00	0.078	13.078	25.28
B81D	00280 – Bobs	B	Godimo	Godimo kudu	B	29.30	0.078	29.378	18.51
B81D	00296 - Mothlaka-Semeetse	B	Godimo	Godimo kudu	B	34.60	0.078	34.678	10.53
B81E	00213 - Nwanedzi	D	Magareng	Godimo	C	8.10	0.249	8.349	17.28
B81F	00189 - Merekome	C	Magareng	Magareng	C	7.10	0.244	7.344	4.74
B81F	00203 - Lerwatlou	C	Magareng	Godimo	C	8.80	0.244	9.044	3.74
B81F	00228 - Reshwele	B	Magareng	Fase	B	9.10	0.244	9.344	3.53
B81F	00232 - Makwena	B	Magareng	Fase	B	12.80	0.244	13.044	2.75
B81G	00164 - Molototsi	D	Magareng	Magareng	D	6.60	0.288	6.888	16.72
B81H	00162 - Metsemola	C	Magareng	Fase	C	9.80	0.545	10.345	0.64
B81H	00171 - Molototsi	D	Magareng	Magareng	D	6.50	0.545	7.045	25.84
B81J	00187 - Mbhawula	C	Magareng	Fase	C	9.80	0.024	9.824	2.53
B82A	00168 – Bogare bja Letaba	C	Magareng	Magareng	C	24.30	0.014	24.314	31.12
B82B	00173 – Koedoes	D	Magareng	Magareng	D	12.30	0.013	12.313	23.13
B82D	00154 – Bogare bja Letaba	D	Magareng	Magareng	D	17.30	0.116	17.416	40.53
B82D	00163 – Lebjelebore	C	Magareng	Godimo	C	25.80	0.116	25.916	4.90
B82D	00166 - Mosukodutsi	D	Magareng	Magareng	D	10.20	0.116	10.316	42.25
B82E	00149 – Khwali	B	Godimo	Fase	B	13.90	0.158	14.058	4.51
B82E	00150 - Klein Letaba	C	Magareng	Magareng	C	16.00	0.158	16.158	3.48
B82F	00128 - Klein Letaba	C	Magareng	Magareng	C	15.40	0.071	15.471	32.13
B82F	00137 - Klein Letaba	D	Magareng	Magareng	D	9.70	0.071	9.771	13.64
B82F	00141 – Soeketse	C	Magareng	Fase	C	12.80	0.071	12.871	7.32
B82H	00127 – Nsama	C	Magareng	Godimo	C	10.60	0.064	10.664	6.91
B82H	00139 – Magobe	B	Magareng	Fase	B	14.90	0.064	14.964	3.10
B82H	00157 – Nsama	B	Magareng	Magareng	B	14.40	0.064	14.964	11.72
B82J	00197 - Ka-Malilibone	B	Magareng	Fase kudu	B	13.80	0.013	13.813	0.66

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5. BOKAGODIMO BJA MEETSE- KHOMPHONENTE YA KHWALITHI YA DINOKA

Kakaretšo ya khomphonente ya khwalithi go mafelo a EWR

Tafola 5.1: Olifants_ELA1: **Elands tša ka Godimo**- EcoSpecs ye e tswananago le datha ya Fisikho-khemikhale

Noka: Elands tša Godimo		**EWR : Olifants_ELA1**	Lefelo la WQ la kgauswi (Letamo la kelelo ya fase la Rust De Winter) B3H013. Ga gona lefelo la WQ kgauswi le lefelo la EWR. Ka dipalo tša situ tšeo di hwetšagalago ka nako ya dinyakišišo
Dimetrikse tša khwalithi ya meetse		**ECOSPEC: PES AND REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 30 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 70 mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.40 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 32 mg/L	
Sebepego sa difariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 30 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitša	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 6.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubidithi ya go thoma go; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 2.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.058 mg/L	
Phetolo ya dibariepole	Chl- faethoplankthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L.	
	Chl-pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2.	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 72.5 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 78.5 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	

Tafola 5.2: Olifants_EWR4: **Wilge ya Fase**- EcoSpecs ye e tswananago le datha ya Fisikho-khemikhale

Noka: Wilge ya Fase		**EWR : Olifants_EWR4**	Kelelo ya fase B2H015Q01 Noka ya Wilge go la Zusterstroom
Dimatrikse tša khwalithi ya Meetse		**ECOSPEC: PES AND REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 150 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 92.5 mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.120 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitša	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng.	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 0.75 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ≤ 0.025 mg/L	
Phetolo ya dibariepole	Chl-faethoplankthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Aluminiamo	95th phesenthaele ya datha e swanetše go ba ≤ 62.5 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 2.50 mg/L	
	Manganese	95th phesenthaele ya datha e swanetše go ba ≤ 99.0 µg/L	

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Tafola 5.3: Olifants_WIL1: **Wilge ya Godimo**- EcoSpecs ye e tswananago le datha ya Fisikho-khemikhale

Noka: Olifants		**EWR : Olifants_EWR1**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 70 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 250 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 115mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.175 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 85 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.6 – 9.2	
	Themphereitša	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 6.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	Nitrite &Nitrite	50th phesenthaele ya datha e swanetše go ba ≤ 3.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.091 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	

Tafola 5.4: Olifants_EWR1: **Olifants** – EcoSpecs ye e tswalanago le datha ya go Fisikho-khemikhale

Noka: Olifants		**EWR : Olifants_EWR1**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 70 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 250 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 115mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.175 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 85 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.6 – 9.2	
	Themphereitša	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 6.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	Nitrite &Nitrite	50th phesenthaele ya datha e swanetše go ba ≤ 3.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.091 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	

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Tafola 5.5: Olifants_EWR2: **Olifants-** EcoSpecs ye e tswananago le datha ya Fisikho-khemikhale

Noka: Olifants		**EWR : Olifants_EWR2**	Ga gona lefelo la khwallthi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 150 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 92.5mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.120 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitša	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 1.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.025 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Aluminium	95th phesenthaele ya datha e swanetše go ba ≤ 62.5 µg/L	
	Fluoride	95th phesenthaele ya datha e swanetše go ba ≤ 2.5 mg/L	
	Manganese	95th phesenthaele ya datha e swanetše go ba ≤ 180 µg/L	

Tafola 5.6: OLI_EWR3: **Kranspoortspruit-** EcoSpecs ye e tswananago le datha ya Fisikho-khemikhale

Noka: Kranspoortspruit		**EWR : Olifants_EWR3**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 30 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 70mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.40 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 32 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 30 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitša	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 0.75 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.02 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 15 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 14.56 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	

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Tafola 5.7: Olifants SEL1: **Selons**- EcoSpecs ye e tswalanago le datha ya Fisikho-khemikhale

Noka: Selons		**EWR : Olifants_SEL1**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Dilyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 150 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 92.5mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.120 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.6 – 9.2	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 6.5 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 2.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.058 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	
	Aluminiamo	95th phesenthaele ya datha e swanetše go ba ≤ 0.15 µg/L	
	Manganese	95th phesenthaele ya datha e swanetše go ba ≤ 1.30 µg/L	
	Sinki	95th phesenthaele ya datha e swanetše go ba ≤ 36 µg/L	

Tafola 5.8: Olifants-EWR8: **Olifants**- EcoSpecs yeo e tswalanago le datha ya Fisikho-khemikhale

Noka: Olifants		**EWR : Olifants_EWR8**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Dilyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 150 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 92.5mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.120 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 2.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.058 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	

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Tafola 5.9: Olifants-SPE1: **Spekboom**- EcoSpecs yeo e tswalanago le datha ya Fisikho-khemikhale

Noka: Sekboom		**EWR : Olifants_SPE1**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 150 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 92.5 mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.120 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitša	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 1.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.025 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m²	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 9 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 14.56 µg/L	
	Aluminiamo	95th phesenthaele ya datha e swanetše go ba ≤ 15 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 9 mg/L	
	Manganese	95th phesenthaele ya datha e swanetše go ba ≤ 1.5 mg/L	

Tafola 5.10: Olifants-BLY1: **Upper Blyde**- EcoSpecs yeo e tswalanago le datha ya Fisikho-khemikhale

Noka: Sekboom		**EWR : Olifants_SPE1**	Downstream site B6H001Q01
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 30 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 70 mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤ 40 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 32 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 30 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitša	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 8.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 0.5 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.025 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 15 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 14.56 mg/m²	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 15 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 9 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 1.5 mg/L	

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Tafola 5.11: Olifants-EWR11: **Olifants**- EcoSpecs yeo e tswalanago le datha ya Fisikho-khemikhale

Noka: Olifants		**EWR : Olifants_EWR11**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: PES le REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 150 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 92.5mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.120 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitša	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 2.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.058 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	

Tafola 5.12: Olifants-EWR12: **Bylde ya Fase**- EcoSpecs yeo e tswalanago le datha ya Fisikho-khemikhale

Noka: Blyde ya Fase		**EWR : Olifants_EWR12**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: PES le REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 30 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 70 mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.40 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 32 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 85 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitša	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 8.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 0.5 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.020 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 15 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 14.56 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 15 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 19 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 1.0 mg/L	

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Tafola 5.13 Olifants-EWR13: **Olifants**-EcoSpecs yeo e tswalanago le datha ya go ya go Fisikho-khemikhale

Noka: Olifants		**EWR : Olifants_EWR13**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 150 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 92.5mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.120 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	Nitrite &Nitrite	50th phesenthaele ya datha e swanetše go ba ≤ 1.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.05 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 15 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 2.5 mg/L	

Tafola 5.14: Olifants_EWR16: **Olifants**-EcoSpecs yeo e tswalanago le datha ya go ya go Fisikho-khemikhale

Noka: Olifants		**EWR : Olifants_EWR16**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 30 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 70mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.40 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 32 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 30 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 8.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 0.75 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.02 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 2.5 mg/L	

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Tafola 5.15: Olifants_EWR5: **Klein Olifants**- EcoSpecs yeo e tswalanago le datha ya go ya Fisikho-khemikhale

Noka: Olifants		**EWR : Olifants_EWR5**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Dilyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 150 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 92.5mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.120 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.6 – 9.2	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 6.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	Nitrite &Nitrite	50th phesenthaele ya datha e swanetše go ba ≤ 2.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.058 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	

Tafola 5.16: Olifants_EWR6: **Olifants** - EcoSpec yeo tswalanago le datha ya go ya go Fisikho-khemikhale

Noka: Olifants		**EWR : Olifants_EWR5**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Dilyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 150 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 92.5mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.120 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	Nitrite &Nitrite	50th phesenthaele ya datha e swanetše go ba ≤ 2.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.058 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 72.5 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 78.5 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	

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Tafola 5.17 Olifants_EWR6: **Elands ya Fase-** EcoSpecs yeo e tswalanago le datha ya Fisikho-khemikhale

Noka: Elands		**EWR : Olifants_EWR6**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Dilyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 150 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 92.5mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.120 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.6 – 9.2	
	Themphereitša	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 6.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 3.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.091 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 30 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 42 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 72.5 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 78.5 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	

Tafola 5.18: Olifants_EWR7: **Olifants-** EcoSpecs yeo e tswalanago le datha ya Fisikho-khemikhale

Noka: Olifants		**EWR : Olifants_EWR7**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Dilyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 70 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 250 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 115mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.175 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 85 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.0 – 10.0	
	Themphereitša	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 5.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 4.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.125 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 30 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 42 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 72.5 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 78.5 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	

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Tafola 5.19: Olifants_EWR 9: **Steelport**- EcoSpecs yeo e tswalanago le datha ya Fisikho-khemikhale

Noka: Steelport		**EWR : Olifants_EWR9**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 70 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 250 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 115mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.175 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 85 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.0 – 10.0	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 5.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 4.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.125 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 30 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 42 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 72.5 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 78.5 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	

Tafola 5.20: Olifants-EWR10: **Steelpoort** - EcoSpecs yeo e swalanago le datha ya Fisikho-khemikhale

Noka: Steelpoort ya Fase		**EWR : Olifants_EWR10**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: PES, RQO le TEC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 40 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 40 mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 70 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.0 – 9.0	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 4.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.091 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 30 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 42 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 72.5 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.8 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 0.7 mg/L	
	Aluminiamo	95th phesenthaele ya datha e swanetše go ba ≤ 62.5 µg/L	
	Sinki	95th phesenthaele ya datha e swanetše go ba ≤ 14.4 µg/L	
	Manganese	95th phesenthaele ya datha e swanetše go ba ≤ 0.68 µg/L	

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Tafola 5.21: Olifants_EWR14a: **Ga-Selati ka Godimo**- EcoSpecs yeo e tswalanago le datha ya Fisiko-khemikhale

Noka: Ga-Selati ka Godimo		**EWR : Olifants_EWR14a**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: PES le TEC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 20 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 10 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 15mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.15 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 30 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 35 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 6.4 – 8.6	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 1.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.01 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 0.7 mg/L	

Tafola 5.22: Olifants_EWR14b: **Ga-Selati ka Fase**- EcoSpecs yeo e tswalanago le datha ya Fisikho-khemikhale

Noka: Ga-Selati ka Fase		**EWR : Olifants_EWR14b**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: PES le TEC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 70 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 250 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 115mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.175 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 85 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.0 – 10.0	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 5.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 4.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.125 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 30 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 42 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 72.5 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 78.5 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 1.0 mg/L	

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Tafola 5.23: SPK_EWR1: **Spookspruit**- EcoSpecs yeo e tswalanago le datha ya go Fisikho-khemikhale

Noka: Spookspruit		**EWR : SPK_EWR1**	**Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR, efela go ka šomišwa kelo ya fase lifelong B1H200Q01**
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: PES le TEC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 250 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 92.5mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.120 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 1.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.025 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 2.5 mg/L	

Tafola 5.24: DWA_EWR1: **Dwars**- EcoSpecs yeo tswalanago le datha ya Fisikho-khemikhale

Noka: Dwars		**EWR : DWA_EWR1**	**Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR, šomiša lefelo la khwallthi ya meets B4H9**
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: PES le TEC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 30 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 25mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.20 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 45 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 7.0 – 8.7	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 1.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.025 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 0.7 pg/L	

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Tafola 5.25: Oli_EWR8: **Origstad**- EcoSpecs yeo e tswalanago le datha ya Fisikho-khemikhale

Noka: Ohrigstad		**EWR : OLI_EWR8**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR. Šomiša lefelo la kelelo ya godimo la khwalithi ya meets B60_1000009803
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: PES le TEC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 20 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 20 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 15mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.15 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 25 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 6.4 – 8.8	
	Themphereitša	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 1.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.025 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 0.5 mg/L	

Tafola 5.26: Letaba_EWR7: **Letaba**- EcoSpecs yeo e tswalanago le datha ya Fisikho-khemikhale

Noka: Letaba		**EWR : Letaba_EWR7**	Lefelo la kelelo ya fase B8H018Q01
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: PES le TEC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 150 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 92.5mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.120 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitša	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 2.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.058 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	

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Tafola 5.27: Letaba-EWR2: **Letsitele**- EcoSpecs yeo e tswalanago le datha ya Fisikho-khemikhale

Noka: Letsitele		**EWR : Letaba_EWR2**	Lefelo la kelelo ya godimo B8H01Q01
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: PES le REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 50 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 150 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 92.5mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.120 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 55 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.0 – 10.0	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 5.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 4.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.125 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 30 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 42 mg/m²	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 72.5 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 78.5 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	

Tafola 5.28: Letaba EWR1: **Great Letaba**- EcoSpecs yeo tswalanago le datha ya Fisikho-khemikhale

Noka: Great Letaba		**EWR : Letaba_EWR1**	Lefelo la kelelo ya fase B8H014Q01
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: PES le REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 30 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 70 mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤.40 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 32 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 30 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 2.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.058 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m²	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrabine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 3.52 mg/L	

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Tafola 5.29: Letaba_BRO1: **Broederstroom**- EcoSpecs yeo e tswalanago le datha ya go Fisikho-khemikhale

Noka: Broederstroom		**EWR : Letaba_BRO1**	Ga gona lefelo la khwalithi ya meetse kgauswi le lefelo la EWR
Dimetrikse tša khwalithi ya Meetse		**ECOSPEC: PES le REC**	
Diiyone tše Kgolo	Mg	95th phesenthaele ya datha e swanetše go ba ≤ 30 mg/L	
	SO_4	95th phesenthaele ya datha e swanetše go ba ≤ 80 mg/L	
	Na	95th phesenthaele ya datha e swanetše go ba ≤ 70 mg/L	
	Cl	95th phesenthaele ya datha e swanetše go ba ≤ 40 mg/L	
	Ca	95th phesenthaele ya datha e swanetše go ba ≤ 32 mg/L	
Sebopego sa dibariepole	EC	95th phesenthaele ya datha e swanetše go ba ≤ 30 mS/m	
	pH	5th le 95th phesenthaele ya datha e swanetše go thoma go 5.9 – 8.8	
	Themphereitšha	Phapano ya 2°C goba 10% go tšwa go bokamorago bja themphereitša ya magareng	
	Oksitšene yeo e tologilego	5th phesenthaele ya datha e swanetše go ba ≥ 7.0 mg/L	
	Thubidithi	Go fapana (kelo ye nnyane) go tšwa go thubithi ya hlago; silthing ya nnyane ya kelo ya ka gare ya dihabithate tšeo di dumelegago.	
Dinutriente	TIN	50th phesenthaele ya datha e swanetše go ba ≤ 1.0 mg/L	
	PO_4-P	50th phesenthaele ya datha e swanetše go ba ≤ 0.025 mg/L	
Phetolo ya dibariepole	Chl-fithoplakthone	50th phesenthaele ya datha e swanetše go ba ≤ 20 µg/L	
	Chl-a pherifaethone	50th phesenthaele ya datha e swanetše go ba ≤ 21 mg/m^2	
	Amonia	95th phesenthaele ya datha e swanetše go ba ≤ 43.75 µg/L.	
	Atrasine	95th phesenthaele ya datha e swanetše go ba ≤ 48.75 µg/L	
	Aluminiamo	95th phesenthaele ya datha e swanetše go ba ≤ 62.5 µg/L	
	Floraete	95th phesenthaele ya datha e swanetše go ba ≤ 2.5 mg/L	

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6. MEETSE A FASE – KHOMPHONENTE YA KHWALITHI

Tafola 6.1 ya ka fase e bontšha disete tša datha ya go tšwa go Dimešara tšeo di Laeditšwego tša Didirišwa tše tharo tša meetse a fase (RDM), dipoelo tša dinyakišišo go tloga 2005 go lefelo la nyakišišo

Methopo ya disete tša datha e be ele: (i) Faese II ya go Lekodišiša Didirišwa tša Meetse a Fase (DWAF, 2005), (ii) Bolaodi bja Disesteme tša Meetse a Leshika (2013 le 2014), (iii) Exigo (2009) le SRK (2009).

Dibariešene tše dingwe ka gare ga retšhatše ya meetse a fase le botlase bja kelelo di noutilwe ebile di be di kgonega, kelo ya mabaka e amogetšwe. Go šomišitšwe alkorithimi ya GIS go hlakantša Kelo ya BHN go dikologa pherenial ya disesteme tša noka go kgethologanya magareng ga bokagodimo bja meetse le bašomi ba meetse a fase- aplikheišene ye ga se ya nepagala gabotse bjalo ka kgethologanyo ya phereniale le ya go sebe phereniale ya disesteme tša noka ye e sa kwagalego ka nako ya kgonthe.
Alkoriteme ya GRDM yeo e laetšwego e šomišitšwe le "meetse a fase a go abelega") bolumo (MCM/a) e hlakantšhitšwe.

Distrese Idekse tše pedi tša go fapana (SRK, 2009, Exigo, 2009 le WSM, 2014) di amogetšwe- le ge e le gore dibariešene tše bohlokwa magareng ga didirišwa tše pedi di noutilwe go dikheisi tše mmalwa.

Tatelo ya rankingi ya khwalithi ya meetse a fase e diragaditšwe, e beilwe godimo ga tatelo ya rankingi yeo e latelwago ke SRK 2009, go tšwa go Sesteme yeo e sa Fetošwago (A) go ya go Sesteme yeo e Fetošitšwego ka Bohlokwa (F). Tatelo ye ya rankingi e diragaditšwe ka go lebeletšwe diphapano magareng ga didirišwa tša datha tša go fapana, efela go šomišwa tše itšego ka weite ye kgolo go meetse a fase ao a abelegago ka nnete (SRK-WSM) le tekolo ya fisikhale go tšwa go sete ya datha ya Exigo.

Kelo ya meetse a fase ao a abelegago (MCM/a), gape le diphendense (%) ya Peelo go ya ka tshepedišo ya beisese ya dirankingi tša difomo tša ritšhatše tša meetse a fase. Dikheisi tše mmalwa moo meetse a fase ao a abelegago kelo ya gona ke NNOTO, rankingi ya khwanthithi e išitšwe fase ka maleba (go ya go D, E goba F) go ya ka diphendense ya peelo go ritšhatše.

Thulano ye e kabago gona ya apstrkšene ya meetse a fase go khomphonente ya bokagodimo bja meetse ka gare ga tshwaro ya khwathenari le yona e ngwadilwe ka tatelano le go šoma bjalo ka factha moo kabelo ya meetse a fase e lego NNOTO.

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Tafola 6.1: Diela tša go Lebantša tša Sedirišwa sa Meetse a Fase (GRDM) Thempleiti (pontšho ya dithulo tšeo di ka bago gona tša bokagodimo bja meetse ka ge gona le apstrakšene ya godimo ya meetse a fase yeo e tlaleleditšwego) (Thulano ya bokagodimo bja meetse)

Tshwaro ya Khwanthenari	Lefelo (km^2)	Ritšhate (Mm^3/a)		Rech go ya go Aqf	Botlase bja kelelo ($Mm3/a$)				EWR_MLF ($Mm3/a$)	BHN Peelo ($Mm3/a$)	Kakaretšo ya Peelo ya Gw ($Mm3/a$)	Kakaretšo ya tšhomišo ya meets a Gw ($Mm3/a$)	SI = Gw Tšhomišo / Aqf Rech	($Mm3/a$)	Peelo (% ya Ritšhatše)	Khwanthithi (GRDM)	$ Thulano ya meetse	Meets a G ao a ka Abiwago ($Mm3/a$)
	GRA II	WSM_{2009}	$Exigo_{2009}$	Ave	WSM_{2013}	$Exigo_{2009}$	SRK_{2009}	Ave			=AW+BB	Calc'd	WSM2013	$Exigo_{2009}$		A beilwe go seemo se	Nareithifi	Cal'd
B11A	945.4	15.45	8.52	11.99	12.2	6.72	8.37	10.29		0.10	12.30	0.57	0.04	0.21	79.6	A- Ao a sa fetošwago	Fase	2.98
B11B	435.3	6.84	4.47	5.66	5.37	2.73	3.71	4.54	0.068	0.12	5.49	0.20	0.03	0.39	80.3	A-Ao a sa fetošwago	Fase	1.32
B11C	385.4	5.71	5.59	5.65	4.85	4.43	3.14	4.00		0.04	4.89	4.37	0.77	0.21	85.6	C-Fetošwa ga Magareng	Fase	0.00
B11D	550.9	7.66	10.79	9.23	6.5	8.45	4.3	5.40		0.18	6.68	2.34	0.31	0.33	87.2	B- Tlhago ka Bogolo	Fase	0.00
B11E	466.7	6.80	6.27	6.53	5.36	3.28	3.75	4.56	0.048	0.11	5.47	3.53	0.52	0.48	80.4	C-Go Fetošwa ga Magareng	Fase	0.00
B11F	428.3	6.44	4.43	5.44	5.07	0.48	3.57	4.32		0.08	5.15	0.37	0.06	0.89	80.0	B-Tlhago ka Bogolo	Fase	1.08
B11G	367.8	5.61	3.56	4.58	4.42	14.11	3.03	3.73	0.103	0.07	4.49	0.10	0.02	0.41	80.0	A-Ao a sa fetošwago	Fase	1.17
B11H	246.0	3.78	3.01	3.40	2.97	2.33	2.03	2.50	0.024	0.04	3.01	0.46	0.12	0.23	79.6	B-Tlhago ka Bogolo	Fase	0.41
B11J	269.4	7.08	1.90	4.49	5.6	4.03	5.17	5.39		0.45	6.05	1.88	0.06	0.15	85.5	B-Tlhago ka Bogolo	Magareng	0.00
B11K	378.3	9.84	3.16	6.50	7.59	0.00	7.06	7.33		0.03	7.62	0.22	0.02	0.92	77.4	B-Tlhago ka Bogolo	Magareng	2.25
B11L	241.8	6.05	3.48	4.77	4.95	3.28	4.6	4.78	0.996	0.01	4.96	0.06	0.01	0.06	82.0	A-Ao a sa fetošwago	Magareng	1.21
B12A	406.9	4.72	5.44	5.08	4.31	4.29	3.09	3.70		0.18	4.49	0.16	0.03	0.21	95.1	A-Ao a sa fetošwago	Fase	0.26
B12B	658.5	8.62	8.79	8.70	7.81	6.09	5.15	6.48		0.08	7.89	3.84	0.45	0.31	91.5	B-Tlhago ka Bogolo	Fase	0.00
B12C	529.0	7.20	4.58	5.89	6.54	9.52	4.24	5.39	0.109	0.04	6.58	0.21	0.03	0.23	91.4	A-Ao a sa fetošwago	Fase	0.70
B12D	362.3	5.16	4.10	4.63	4.72	0.32	3.09	3.91	0.179	0.98	5.70	0.24	0.05	0.92	110.5	E – Fetošwa ka Tiišetšo	Fase	0.00
B12E	435.8	11.49	8.63	10.06	9.15	8.16	8.73	8.94	0.187	0.04	9.19	0.45	0.04	0.05	80.0	A-Ao a sa fetošwago	Magareng	2.21
B20A	574.3	10.26	14.45	12.35	6.6	9.21	7.39	7.00		0.48	9.84	20.57	2.00	1.00	95.9	F-Fetošwa ka Tiišetšo	Fase	0.00
B20B	321.0	5.72	5.69	5.71	3.62	0.00	4.07	3.85		0.36	4.72	58.03	10.02	1.00	82.5	F-Fetošwa ka Tiišetšo	Fase	0.00
B20C	363.7	6.53	4.50	5.52	4.13	12.36	4.71	4.42		0.03	4.16	0.91	0.14	0.12	63.7	B-Tlhago ka Bogolo	Godimo	1.59
B20D	480.4	8.52	10.03	9.27	5.3	13.77	6.1	5.70	0.293	0.26	5.56	1.43	0.17	0.11	65.3	B-Tlhago ka Bogolo	Magareng	1.70

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Quaternary catchment	MAR (Mm3/a)			Recharge (Mm3/a)					BAR_ALF (Mm3/a)	BHN Peelo (Mm3/a)	Kakaretšo ya Peelo ya Gw (Mm3/a)	Kakaretšo ya Nhomišo ya Gw (Mm3/a)	SI = GW Tlhomišo / Aqf Rech	(Mm3/a)	Peelo (%) ya Rainfall	Khemithuthi (GROW)	S Thuleno ya meetse	Meetse a Gaposa ka Ablwago (Mm3/a)
	WR2012	MSM2009	Exigo2009	Ave	MSM2009	Exigo2009	SRK2009	Ave			=AW+BB	Calcd	MSM2013	Exigo2009		Abelwe-go-seemo se	Nareithiili	Cal'd
B20E	619.9	9.81	8.69	9.25	7.27	3.93	7.75	7.51		0.37	7.64	3.58	0.36	0.55	77.9	C-Fetošwa ga Magareng	Magareng	0.00
B20F	504.2	9.05	9.44	9.25	5.71	8.74	6.26	6.00	0.081	0.05	5.76	0.80	0.09	0.07	63.6	B-Tlhago ka Bogolo	Magareng	2.62
B20G	522.4	13.15	9.31	11.23	10.28	8.28	9.31	9.80	0.067	0.30	10.58	1.87	0.14	0.12	80.5	B-Tlhago ka Bogolo	Magareng	1.04
B20H	562.5	13.70	5.55	9.63	11.03	3.57	9.79	10.41		0.36	11.39	1.77	0.13	0.36	83.1	B-Tlhago ka Bogolo	Magareng	0.87
B20J	407.4	10.03	7.12	8.58	8.03	6.20	7.34	7.69	0.958	0.05	8.08	1.09	0.11	0.13	80.6	B-Tlhago ka Bogolo	Magareng	1.14
B31A	386.6	6.09	4.43	5.26	3.77	1.99	3.15	3.46		0.04	3.81	4.81	0.79	0.55	62.6	C-Fetošwa ga Magareng	Magareng	0.00
B31B	385.1	5.56	9.40	7.48	3.45	6.64	2.64	3.05		0.19	3.64	1.22	0.22	0.29	65.5	B-Tlhago ka Bogolo	Magareng	0.71
B31C	373.4	5.14	9.23	7.19	2.75	8.71	2.27	2.51	0.076	0.00	2.75	0.82	0.16	0.07	53.5	B-Tlhago ka Bogolo	Magareng	1.59
B31D	557.0	7.58	10.19	8.89	4.06	6.92	3.3	3.68		0.42	4.48	1.96	0.26	0.32	59.1	B-Tlhago ka Bogolo	Fase	1.16
B31E	1382.4	8.34	47.74	28.04	0	43.36	0	0.00		0.14	0.14	9.24	1.11	0.09	1.7	C-Fetošwa ga Magareng	Fase	0.00
B31F	637.5	3.69	8.09	5.89	0	3.85	0	0.00		0.43	0.43	2.31	0.63	0.52	11.7	C-Fetošwa ga Magareng	Fase	0.95
B31G	433.2	4.67	7.29	5.98	1.4	4.26	2.54	1.97	0.096	0.31	1.71	1.42	0.30	0.42	36.6	B-Tlhago ka Bogolo	Fase	1.59
B31H	611.8	6.85	6.31	6.58	1.96	4.67	3.26	2.61		1.64	3.60	4.36	0.64	0.26	52.6	C-Fetošwa ga Magareng	A ma nnyane go kaba bohlokwa	0.00
B31J	1379.9	7.84	27.75	17.80	0	25.02	0	0.00	0.085	0.10	0.10	30.84	3.93	0.10	1.3	E – Fetošwa ka Tilšetšo	A ma nnyane go kaba bohlokwa	0.00
B32A	801.4	21.18	15.31	18.24	16.26	25.10	15.2	15.73	1.717	0.05	16.31	0.54	0.03	0.07	77.0	A-Ao a sa fetošwago	Fase	4.36
B32B	613.8	13.40	8.72	11.06	9.7	7.68	10.83	10.27		0.04	9.74	0.25	0.02	0.12	72.7	A-Ao a sa fetošwago	Fase	3.59
B32C	302.8	3.19	4.04	3.62	1.09	2.92	4.5	2.80	0.094	0.01	1.10	3.47	1.09	0.28	34.5	C-Fetošwa ga Magareng	Fase	0.00
B32D	521.1	4.95	9.03	6.99	3.15	8.39	1.79	2.47	0.875	0.07	3.22	3.14	0.63	0.07	65.1	C-Fetošwa ga Magareng	A ma nnyane go kaba bohlokwa	0.00
B32E	203.2	2.43	3.05	2.74	1.59	2.81	0.89	1.24		0.01	1.60	0.19	0.08	0.08	65.8	A-Ao a sa fetošwago	Fase	0.67
B32F	667.2	3.71	4.83	4.27	0.71	2.74	2.7	1.71	0.005	0.34	1.05	4.30	1.16	0.43	28.3	D – Fetošwa kudu	Fase	0.00
B32G	967.6	8.89	15.09	11.99	1.35	6.51	6.86	4.11		1.83	3.18	5.85	0.66	0.57	35.8	C-Fetošwa ga Magareng	Fase	0.07
B32H	693.9	10.21	13.42	11.81	5.77	11.22	4.42	5.10	0.046	0.06	5.83	2.90	0.28	0.16	57.1	B-Tlhago ka bogolo	Fase	1.49

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[illegible]	[illegible]	[illegible]	[illegible]	Recharge (Mm3/a)	Borehole Dia yeld (Mm3/a)				EMR_MLF (Mm3/a)	BHN Peelo (Mm3/a)	Kakaretšo ya Peelo ya Gw (Mm3/a)	Kakaretšo ya tšhomišo ya metsi a Gw (Mm3/a)	Si = Gw Tšhomišo / Aqif Wach	(Mm3/a)	Peelo (% ya Rit'fall'Se)	Khwantlhitlhi (GIS/RM)	S Thulano ya meetse	Meets a G.p.a ka Ab.wago (Mm3/a)
[illegible]	[illegible]	WSM2009	Exigo2009	Ave	WSM2013	Exigo2009	SRK2009	Ave			=AW+BB	Calc'd	WSM2013	Exigo2009		A beilwe go seemo se	Nareithifi	Cal'd
B32J	322.8	1.17	2.76	1.97	0	0.58	0.05	0.03		0.44	0.44	1.01	0.86	0.79	37.6	C-Fetošwa ga Magareng	A ma nnyane go kaba bohlokwa	0.00
B41A	764.5	18.28	8.43	13.36	14.79	5.87	12.35	13.57	0.122	0.14	14.93	0.06	0.00	0.32	81.7	A-Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	3.47
B41B	778.0	18.51	11.67	15.09	14.96	10.07	12.16	13.56		0.04	15.00	1.23	0.07	0.14	81.0	A-Ao a sa fetošwago	A mannyane go kaba bohlokwa	2.45
B41C	302.4	7.19	1.96	4.57	5.79	0.00	4.6	5.20		0.02	5.81	0.54	0.08	1.00	80.8	C-Fetošwa ga Magareng	A ma nnyane go kaba bhlokwa	0.90
B41D	402.9	4.97	6.22	5.60	2.61	5.50	5.03	3.82	0.506	0.09	2.70	1.72	0.35	0.12	54.3	B-Tlhago ka Bogolo	A ma nnyane go kaba bohlokwa	0.59
B41E	237.1	1.17	6.79	3.98	0	5.66	0.04	0.02		0.23	0.23	0.11	0.09	0.17	19.7	A-Ao a sa fetošwago	Magareng	0.83
B41F	379.8	10.88	7.21	9.04	9.99	6.84	7.92	8.96		0.01	10.00	0.00	0.00	0.05	91.9	A-Ao a sa fetošwago	Magareng	1.03
B41G	442.1	11.41	6.71	9.06	10.34	3.98	8.48	9.41		0.01	10.35	0.38	0.03	0.41	90.7	A-Ao a sa fetošwago	Magareng	0.88
B41H	410.3	2.57	7.57	5.07	0	5.03	0.1	0.05	0.537	0.35	0.35	0.16	0.06	0.34	13.6	A-Ao a sa fetošwago	Magareng	2.06
B41J	690.8	4.31	10.88	7.59	0	6.02	0.2	0.10		0.41	0.41	0.64	0.15	0.45	9.5	A-Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	3.26
B41K	635.2	3.53	7.00	5.27	0	4.64	0.23	0.12	0.495	0.47	0.47	1.99	0.56	0.34	13.3	B-Tlhago ka Bogolo	Godimo	1.07
B42A	318.9	10.64	1.86	6.25	9.81	1.41	15.41	12.61		0.02	9.83	3.46	0.33	0.24	92.4	B-Tlhago ka Bogolo	Godimo	0.00
B42B	213.7	7.65	7.45	7.55	6.28	6.33	12.8	9.54		0.17	6.45	0.06	0.01	0.15	84.3	A-Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	1.29
B42C	164.1	2.66	3.45	3.05	2.57	3.08	1.39	1.98	0.143	0.00	2.57	0.00	0.00	0.11	96.6	B-Tlhago ka Bogolo	A ma nnyane go kaba bohlokwa	0.28
B42D	154.6	6.33	3.64	4.98	5.72	3.39	11.44	8.58		0.00	5.72	0.00	0.00	0.07	90.4	A-Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	0.99
B42E	221.4	2.04	2.49	2.26	1.99	1.91	1.25	1.62		0.01	2.00	0.22	0.11	0.23	96.0	A-Ao a sa feošwago	A ma nnyane go kaba bohlokwa	0.00

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Tshwarô ya Khwanthenar	Lefelo (km^2)	Ritšhate (Mm^3/a)		Rech go ya go Aqf	Botlaae bja kelelo (Mm^3/a)				EWR_MLF (Mm^3/a)	BHN Peelo (Mm^3/a)	Kakaretšo ya Peelo ya Gw (Mm^3/a)	Kakaretšo ya tšhomišo ya meets a Gw (Mm^3/a)	SI = Gw Tšhomišo / Aqf Rech	(Mm^3/a)	Peelo (% ya Ritšhatše)	Khwanthithi (GRDM)	S Thulano ya meetse	Meets a Gao a ka Abiwago (Mm^3/a)
	GRA II	WSM_{2009}	$Exigo_{2009}$	Ave	WSM_{2013}	$Exigo_{2009}$	SRK_{2009}	Ave			=AW+BB	Calc'd	WSM2013	$Exigo_{2009}$		A beilwe go seemo se	Nareithifi	Cal'd
B42F	279.1	9.39	2.52	5.96	8.55	2.09	12.42	10.49		0.01	8.56	0.22	0.02	0.17	91.2	A-Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	0.67
B42G	327.2	3.86	3.28	3.57	3.59	2.59	2.13	2.86	0.265	0.01	3.60	3.26	0.84	0.21	93.3	B-Tlhago ka Bogolo	A ma nnyane go kaba bohlokwa	0.00
B42H	412.3	2.31	13.36	7.83	0	12.43	0.1	0.05	0.594	0.07	0.07	0.99	0.43	0.07	3.0	B-Tlhago ka Bogolo	A ma nnyane go kaba bohlokwa	1.25
B51A	311.5	2.24	2.75	2.49	0	0.84	0.07	0.04		0.40	0.40	0.08	0.04	0.69	17.9	B-Tlhago ka Bogolo	A ma nnyane go kaba bohlokwa	1.76
B51B	591.1	4.82	7.51	6.16	0	5.24	0.1	0.05		0.46	0.46	0.33	0.07	0.30	9.5	A-Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	4.03
B51C	638.1	4.52	6.65	5.58	0	4.67	0.07	0.04	1.785	0.45	0.45	0.22	0.05	0.30	10.0	A-Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	3.85
B51E	2926.8	6.31	38.17	22.24	0	22.43	0	0.00		0.34	0.34	8.56	1.36	0.41	5.4	D – Fetošwa ka Bogolo	A ma nnyane go kaba bohlokwa	0.00
B51F	394.6	2.71	4.87	3.79	0	4.27	0.07	0.04		0.01	0.01	3.02	1.11	0.12	0.4	D – Fetošwa ka Bogolo	A ma nnyane go kaba bohlokwa	0.00
B51G	590.7	3.79	6.25	5.02	0	1.85	0.07	0.04		0.97	0.97	12.43	3.28	0.70	25.6	F-Fetošwa ka tiišetšo	A ma nnyane go kaba bohlokwa	0.00
B51H	717.3	4.90	16.81	10.86	0	11.64	0.13	0.07		0.98	0.98	0.57	0.12	0.31	20.0	A-Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	3.35
B52A	566.1	2.58	9.96	6.27	0	6.37	0.02	0.01		0.48	0.48	0.28	0.11	0.36	18.6	A-Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	1.82
B52B	632.9	7.09	7.65	7.37	0	2.75	0.11	0.06		1.07	1.07	2.08	0.29	0.64	15.1	B-Tlhago ka Bogolo	Godimo	3.94
B52C	200.4	0.96	2.25	1.60	0	1.27	0	0.00		0.16	0.16	0.22	0.23	0.43	16.7	B- Tlhago ka Bogolo	Godimo	0.58
B52D	341.0	2.09	6.50	4.30	0	3.69	0.01	0.01		0.73	0.73	1.19	0.57	0.43	34.9	C-Fetošwa ga Magareng	Godimo	0.17
B52E	450.8	4.66	8.37	6.52	0	6.03	0.05	0.03		0.34	0.34	0.51	0.11	0.28	7.3	B-Tlhago ka Bogolo	Godimo	3.81
B52F	118.4	0.58	1.93	1.26	0	1.41	0	0.00		0.09	0.09	0.47	0.81	0.27	15.5	C-Fetošwa ga Magareng	Fase	0.02

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Quaternary Catchments	Area (km²)	MAR (Mm³/a)		Runoff (mm)	Baseflow (Mm³/a)				EWR_MLF (Mm3/a)	BHN Peelo [Mm3/a]	Kakaretšo ya Peelo ya Gw (Mm3/a)	Kakaretšo ya Nhomišo ya Gw (Mm3/a)	Si = Gw Thomišo / Aqf Rech	(Mm3/a)	Peelo (% ya MAPrecipSe)	Khwetlhišo (Catch)	S Thulano ya meetse	Meets a G ao a ka Ablwago (Mm3/a)
	Grid	WSM2015	Exigo2018	Ave.	WSM2015	Exigo2018	SRK2008	Ave.			=AW+BB	Calc'd	WSM2013	Exigo2018		A bellwego segomo se	Nareithifi	Cal'd
B52G	290.9	1.35	6.10	3.73	0	4.36	0	0.00		0.22	0.22	0.84	0.62	0.29	16.3	C- Fetoša ga Magareng	Godimo	0.29
B52H	563.3	3.38	5.19	4.28	0	1.80	0.27	0.14		0.66	0.66	0.77	0.23	0.65	19.5	B- Tlhago ka Bogolo	Fase	1.95
B52J	394.7	2.09	11.73	6.91	0	9.16	0.05	0.03		0.22	0.22	0.14	0.07	0.22	10.5	A- Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	1.73
B60A	209.4	12.93	10.44	11.69	11.46	9.77	48.12	29.79		0.02	11.48	0.13	0.01	0.06	88.8	A- Ao a sa fetošwago	Godimo	2.23
B60B	302.2	20.22	15.36	17.79	17.18	15.09	56.91	37.05	1.501	0.01	17.19	0.00	0.00	0.02	85.0	A- Ao a sa fetošwago	Magareng	3.83
B60C	94.1	5.33	0.84	3.08	4.93	0.76	22.43	13.68	0.376	0.00	4.93	0.00	0.00	0.09	92.5	A- Ao a sa fetošwago	Magareng	0.97
B60D	243.5	15.98	9.27	12.62	14	7.61	20.57	17.29	1.694	0.15	14.15	0.00	0.00	0.18	88.5	A- Ao a sa fetošwago	Fase	2.52
B60E	83.4	1.73	1.30	1.52	0.76	1.36	6.45	3.61		0.00	0.76	0.00	0.00	0.05	43.9	A- Ao a sa fetošwago	Magareng	1.00
B60F	399.3	7.68	5.55	6.61	5.43	4.40	4.45	4.94	0.097	0.01	5.44	2.71	0.35	0.21	70.8	B- Tlhago ka Bogolo	A ma nnyane go kaba bohlokwa	0.00
B60G	448.0	4.52	7.49	6.00	1.32	6.64	3.69	2.51		0.03	1.35	3.71	0.82	0.11	29.9	C- Fetoša ga Magareng	**A ma nnyane go kaba bohlokwa**	0.00
B60H	384.6	7.58	11.30	9.44	6.15	9.84	4.37	5.26	0.181	0.14	6.29	5.34	0.70	0.16	83.0	D – Fetošwa ka Bogolo	Godimo	0.00
B60J	675.9	13.05	9.63	11.34	6.46	8.48	32.86	19.66	2.269	0.05	6.51	1.37	0.10	0.12	49.9	A- Ao a sa fetošwago	Godimo	5.21
B71A	297.6	3.37	13.61	8.49	0	12.76	0.16	0.08		0.03	0.03	0.23	0.07	0.06	0.9	A- Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	3.11
B71B	274.3	2.11	7.39	4.75	0	6.58	0.04	0.02		0.07	0.07	0.19	0.09	0.11	3.3	A- Ao a sa fetošwago	Godimo	1.85
B71C	262.5	5.87	6.85	6.36	2.17	6.45	16.52	9.35		0.03	2.20	0.00	0.00	0.06	37.5	A- Ao a sa fetošwago	Godimo	3.78
B71D	227.1	4.03	1.97	3.00	1.98	1.11	6.92	4.45	1.865	0.10	2.08	0.22	0.05	0.44	51.6	A- Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	1.77
B71E	781.9	6.25	4.15	5.20	0	0.00	0.3	0.15		0.80	0.80	1.55	0.25	0.90	12.8	B- Tlhago ka Bogolo	A ma nnyane go kaba bohlokwa	3.90
B71F	540.8	12.68	21.55	17.12	9.11	20.54	22.14	15.63	2.458	0.07	9.18	0.03	0.00	0.05	72.4	A- Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	3.84

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Primary Catchment	Area (km²)	MAR (Mm³/a)		Reach go ya go Aqf	Botlaase bja kelelo (Mm3/a)				EWR_MLF (Mm3/a)	BHN Peelo (Mm3/a)	Kakaretšo ya Peelo ya Gw (Mm3/a)	Kakaretšo ya kithomiso ya tlhoko a Gw (Mm3/a)	Si = Gw tlhomiso / Aqf Rech	(Mm3/a)	Peelo (Peipa Re Shaetse)	Khuranthithi (SIRDM)	$ Thulano ya meetse	Meets a Ggo a ka Abiwago (Mm3/a)
B71G	244.9	6.94	5.25	6.10	3.97	4.32	11.3	7.64		0.13	4.10	0.22	0.03	0.18	59.1	A- Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	2.87
B71H	329.7	1.56	2.47	2.02	0	1.40	0	0.00		0.20	0.20	2.52	1.62	0.43	12.8	C- Fetošwa ga Magareng	A ma nnyane go kaba bohlokwa	0.00
B71J	78.5	0.18	0.48	0.33	0	0.36	0	0.00	3.011	0.01	0.01	0.00	0.00	0.26	5.6	A- Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	0.17
B72A	534.0	12.53	8.29	10.41	8.64	5.57	19.8	14.22		0.54	9.18	3.01	0.24	0.33	73.3	B- Tlhago ka Bogolo	**Magareng**	0.56
B72B	331.7	1.37	3.02	2.20	0	2.81	0	0.00	0.285	0.00	0.00	0.06	0.04	0.07	0.0	A- Ao a sa fetošwago	Godimo	1.31
B72C	334.7	1.88	3.87	2.88	0	3.46	0	0.00		0.05	0.05	0.07	0.04	0.11	2.7	A- Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	1.76
B72D	922.2	6.54	8.72	7.63	0	7.55	0	0.00	7.339	0.01	0.01	4.49	0.69	0.13	0.2	B- Tlhago ka Bogolo	A ma nnyane go kaba bohlokwa	2.04
B72E	320.1	8.54	2.76	5.65	4.9	0.36	12.71	8.81	0.024	0.45	5.35	0.90	0.11	0.87	62.6	B- Tlhago ka Bogolo	A ma nnyane go kaba bohlokwa	2.48
B72F	81.2	2.27	2.31	2.29	1.3	2.26	4.11	2.71		0.00	1.30	0.00	0.00	0.02	57.3	A- Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	1.07
B72G	47.9	0.12	0.56	0.34	0	0.48	0	0.00		0.01	0.01	0.43	3.58	0.13	8.3	E – Fetošwa ka tiišetšo	Godimo	0.00
B72H	385.7	1.94	3.25	2.60	0	2.69	0	0.00		0.01	0.01	0.92	0.47	0.17	0.5	B- Tlhago ka Bogolo	A ma nnyane go kaba bohlokwa	1.01
B72J	537.4	2.91	2.64	2.77	0	2.22	0	0.00		0.03	0.03	0.16	0.05	0.16	1.0	A- Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	2.72
B72K	965.9	3.45	10.73	7.09	0	7.27	0	0.00	0.172	0.52	0.52	0.61	0.18	0.38	15.1	A- Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	2.32
B73A	164.5	2.20	2.76	2.48	1.29	1.07	11.37	6.33		0.00	1.29	0.00	0.00	0.61	58.6	A- Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	1.04
B73B	687.7	2.19	4.53	3.36	0	3.34	0	0.00	0.122	0.01	0.01	2.75	1.26	0.26	0.5	C- Fetošwa ga Magareng	A ma nnyane go kaba bohlokwa	0.00

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Tšhwaro ya Khwanthenel	Lefelo (km^2)	Ritšhate (Mm^3/a)		Rech go ya go Aqf	Botlase bja kelelo (Mm^3/a)				EWR_MLF (Mm^3/a)	BHN Peelo (Mm^3/a)	Kakaretšo ya Peelo ya Gw (Mm^3/a)	Kakaretšo ya tšhomišo ya meets a Gw (Mm^3/a)	Si = Gw Tšhomišo / Aqf Rech	(Mm^3/a)	Peelo (% ya Ritšhartše)	Khwanthithi (GRDM)	S Thulano ya meetse	Meets a G ao a ka Ablwago (Mm^3/a)
	GRA II	WSM_{2009}	$Exigo_{2009}$	Ave	WSM_{2013}	$Exigo_{2009}$	SRK_{2009}	Ave			=AW+BB	Calc'd	WSM2013	$Exigo_{2009}$		A beilwe go seemo se	Nareithifi	Cal'd
B73C	880.0	3.19	11.16	7.18	0	10.12	0	0.00		0.65	0.65	1.01	0.32	0.09	20.4	A- Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	1.53
B73D	687.0	2.34	7.40	4.87	0	6.58	0	0.00		0.00	0.00	1.20	0.51	0.11	0.0	B- Tlhago ka Bogolo	A ma nnyane go kaba bohlokwa	1.14
B73E	430.5	2.51	3.55	3.03	0	0.00	0	0.00		0.00	0.00	0 35	0.14	1.00	0.0	B- Tlhago ka Bogolo	A ma nnyane go kaba bohlokwa	2.16
B73F	506.8	3.37	9.96	6.66	0	9.79	0	0.00		0.00	0.00	0.00	0.00	0.02	0.0	A- Ao a sa fetošwago	Godimo	3.37
B73G	733.2	4.31	15.44	9.88	0	12.84	0	0.00		0.00	0.00	0.00	0.00	0.07	0.0	A- Ao a sa fetošwago	Godimo	4.31
B73H	301.8	1.50	2.40	1.95	0	2.32	0	0.00		0.00	0.00	0.00	0.00	0.03	0.0	A- Ao a sa fetošwago	Godimo	1.50
B73J	254.5	1.55	2.07	1.81	0	0.00	0	0.00	7.713	0.00	0.00	0.00	0.00	0.69	0.0	A- Ao a sa fetošwago	Godimo	1.55
B81A	169.1	10.34		10.34	7.57			7.57	0.058	0.00	7.57	0.15	0.01	0.01	73.2	A- Ao a sa fetošwago	Godimo	10.19
B81B	481.2	20.32		20.32	1.12			1.12	0.398	0.00	1.12	2.64	0.13	0.13	5.5	B- Tlhago ka Bogolo	Godimo	17.68
B81C	208.4	16.27		16.27	10.54			10.54		0.00	10.54	5.47	0.34	0.34	64.8	C – Moderately modified	Magareng	10.80
B81D	478.8	12.84		12.84	1.59			1.59		3.00	4.59	4.13	0.32	0.32	35.7	C- Fetošwa ga Magareng	A ma nnyane go kaba bohlokwa	8.71
B81E	664.9	18.20		18.20	0.04			0.04	0.32	0.59	0.63	15.75	0.87	0.87	3.5	D – Fetošwa ka Bogolo	A ma nnyane go kaba bohlokwa	2.45
B81F	1199.7	18.47		18.47	0.06			0.06		0.00	0.06	7.94	0.43	0.43	0.3	D – Fetošwa ka Bogolo	A ma nnyane go kaba bohlokwa	10.53
B81G	512.5	12.58		12.58	0.13			0.13		0.00	0.13	5.06	0.40	0.40	1.0	D – Fetošwa ka Bogolo	A ma nnyane go kaba bohlokwa	7.52
B81H	667.7	8.80		8.80	0.01			0.01		0.00	0.01	2.62	0.30	0.30	0.1	C- Fetošwa ga Magareng	A ma nnyane go kaba bohlokwa	6.18
B81J	567.0	6.34		6.34	0			0		0.00	0.00	0.00	0.00	0.00	0.0	A –Ao a sa fetošwago	A ma nnyane go kaba bohlokwa	6.34
B82A	466.6	11.36		11.36	6.45			6.45		1.45	7.90	2.93	0.26	0.26	69.5	B- Tlhago ka Bogolo	Fase	8.43

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Lihlopha/Kwarternêre	Tlhago (GW)	Sitlhalo (Mm3/a)		Recharge ya go Aqf	Bólaelo bja kelelo (Mm3/a)				BNR : MLF (Mm3/a)	BHN Peelo (Mm3/a)	Kakaretšo ya Peelo ya Gw (Mm3/a)	Kakaretšo ya tlhomiso ya ntlafo ya Gw (Mm3/a)	SI = Gw tlhomiso / Aqf Reph	(Mm3/a)	Peelo (%) ya RnShaSeq	Khwanthithi (GEDM)	$ Thulano ya mmetse	Mmetse a Gao a ka Abiwago (Mm3/a)
	GRAI	WSM$_{2000}$	Exigo$_{2009}$	Ave	MSM$_{2000}$	Exigo$_{2009}$	SRK$_{2009}$	Ave			=AW+BB	Calc'd	WSM2843	Exigo$_{2009}$		Abelilwe go seamo se	Nareithiši	Cal'd
B82B	406.3	9.50		9.50	5.47			5.47		0.00	5.47	14.50	1.53	1.53	57.6	F- Fetoša ka Bohlokwa	Fase	0.00
B82C	299.7	7.14		7.14	3.27			3.27		0.00	3.27	13.00	1.82	1.82	45.8	E – Fetoša ka tiišetšo	Fase	5.83
B82D	631.7	10.35		10.35	4.76			4.76		4.00	8.76	4.52	0.44	0.44	64.6	D- Fetoša ka Bogolo	Fase	0.00
B82E	423.4	8.05		8.05	0.21			0.21		0.00	0.21	1.45	0.18	0.18	2.6	C – Fetoša ga Magareng	Fase	6.60
B82F	759.8	14.30		14.30	1			1		0.00	1.00	1.43	0.10	0.10	7.0	B - Tlhago ka Bogolo	Fase	12.87
B82G	920.2	10.75		10.75	0.01			0.01		0.00	0.01	0.06	0.01	0.06	0.1	B - Tlhago ka Bogolo	A ma nnyane go kaba bohlokwa	10.15
B82J	748.7	9.27		9.27	0.01			0.01		0.00	0.01	0.00	0.00	0.00	0.1	A – Ao a sa fetoša wago	A ma nnyane go kaba bohlokwa	9.27
B82H	793.7	8.36		8.36	0.01			0.01		0.00	0.01	0.16	0.02	0.02	0.1	A – Ao a sa fetoša wago	A ma nnyane go kaba bohlokwa	8.36
B83A	1250.0	11.77		11.77	0.01			0.01		0.00	0.01	0.00	0.00	0.00	0.1	A – Ao a sa fetoša wago	A ma nnyane go kaba bohlokwa	11.77
B83B	438.8	5.71		5.71	0			0		0.00	0.00	0.00	0.00	0.00	0.0	A – Ao a sa fetoša wago	A ma nnyane go kaba bohlokwa	5.71
B83C	596.0	7.70		7.70	0.01			0.01		0.00	0.01	0.00	0.00	0.00	0.1	A – Ao a sa fetoša wago	A ma nnyane go kaba bohlokwa	7.70
B83D	783.7	7.88		7.88	0			0	2.015	0.00	0.00	0.00	0.00	0.00	0.0	A – Ao a sa fetoša wago	A ma nnyane go kaba bohlokwa	7.88
B83E	311.8	3.11		3.11	0			0		0.00	0.00	0.00	0.00	0.00	0.0	A – Ao a sa fetoša wago	A ma nnyane go kaba bohlokwa	3.11

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7. MEETSE A FASE- KHOMPHONENTE YA KHWALITHI

Peelo ya dinyakwa tše bohlokwa tša batho efa ditshwanelo tša dinyakwa tša batho bao ba hlankelwago ke sedirišwa sa meetse seo go bolelwago ka sona gomme se se akaretša meetse a gonwa, tokišetšo ya dijo le haetšini ya motho. Meetse a kelo ya dilithara tše 25 di filwe motho gore a šomiše ka letšatši.

Go Peelo ya dithemineišene ya khomphonente ya khwalithi ka nako ya tsenelobogare/ditekolo tša Khomprohensifi ambiente ya khwalithi ya meetse e fase go ya go kelo yeo e akantšwego go Tlase 1 (SANS 241:2006). Kelo ya fase goba ya khonsebethibi kudu ya tše tše pedi e kgethilwe. Ka lebaka leo kelo ya ambiete e kgethilwego, e oketšwa ka diperesente tše 10. Ka lebaka leo khwalithi ya ambiente, ya setlogo sa tšiolotšikhale e fetago kelo yeo e akantšwego. Khwalithi ya ambiente ya meetse e a šomišwa. Mafelo a khwalithi ya fase a tlaba dizoune tšeo di tlogelwago ge go laetšwa Dinyakego tša Peelo ya Theo ya Dihlokwa tša Batho. Khwalithi ya meetse a fase e swanetše go latela direntše tša nepišo ya khwalithi ya meetse ka ge di bontšhitšwe **Tafola 7.1**, **Tafola 7.2** le **Tafola 7.3** a bontšha kakaretšo ya dipoelo tša diaspekte tša khwalithi go lebele ya khwathenari go ya ka BHN.

Tafola 7.1 Khwalithi ya khemikhale ya meetse

Pharamitha ya khemikhale	**Nepišo ya Direntšhe tša Khwalithi ya Meetse**[1]				
	Diyuniti	**Tlase 0**	**Tlase I**	**Tlase II**	**Tlase III**
Khalsiamo bjalo ka Ca	mg/l	0 - 80	80 - 150	150 – 300	> 300
Maknesiamo bjalo ka Mg	mg/l	0 - 30	30 - 70	70 – 100	> 100
Sodiamo bjalo ka Na	mg/l	0 – 100	100 - 200	200 – 400	> 400
Tlorine bjalo ka Cl	mg/l	0 – 100	100 - 200	200 – 600	> 600
Salfeiti bjalo ka SO_4	mg/l	0 – 200	200 - 400	400 – 600	> 600
Nitreite bjalo ka NO_x-N	mg/l	0 - 6	6 - 10	10 – 20	> 20
Floraete bjalo ka F	mg/l	0 – 1	1 - 1.5	1.5 - 3.5	> 3.5
Faekhale kholifomose	dipalo/100ml	0	0 – 1	1 – 10	> 10

1) Ref: methalotlhatlhi ya Afrika Borwa ya Khwalithi ya Meetse, Bolumo 1: Tšhomišo ya meetse ya ka gae, 2nd Ed. 1996. Kgoro ya Ditaba tša Meetse le Kagodikgwa. Pretoria, Afrika Borwa
2) Ref: Methalotlhi ya Afrika Borwa ya Khwalithi ya Meetse, Bolumu 1: Tšhomišo ya meetse ya ka gae, 2nd Ed. 1996. Kgoro ya Ditaba tša Meetse le Kagodikgwa. Pretoria, Afrika Borwa.

Tafola 7.2: Khwalithi ya meetse a fisikhale

Paramitha ya Fisikhale	**Nepišo ya Direntše tša Khwalithi ya Meetse**[2]				
	Diyuniti	**Tlase 0**	**Tlase I**	**Tlase II**	**Tlase III**
pH (pH Diyuniti)		6 – 9	5 - 6 & 9 - 9.5	4 - 5&> 9.5 – 10	< 4 or > 10
Kakaretšo ya tša go Tia tšeo di Tološitšwego	mg/l	0 - 450	450 - 1000	1000 – 2450	> 2450
Khondakthivithi ya ilektrikhale	mS/m	0 - 70	70 - 150	150 – 300	> 370

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NOUTE

Tlase 0 Ye ke khwalithi ya meetse yeo e akantšwego, ya maleba go tšhomišo ya bophelo ka moka, go sena dikhuetšo tše mpe tša maphelo go mošomiši. Tlase ye e a tshwanelega go swana le nepišo ya khwalithi ya meetse ya mehutahuta go edišene ya 2nd *ya Methalotlhatlho ya Khwalithi ya Meetse a Afrika Borwa ya Tšhomišo ya ka Gae* (DWAF, 1996).

Tlase I Meetse a tlase ye a bolokegile go šomišwa bophelo ka moka, efela a šalela morago ka khwalithi ya meetse yeo e akantšwego go ka ba le mabaka moo go ka bago le dikhuetšo tša advese tša maphelo, efela tše gantši di magareng, gape dikhuetšo tša obete tša maphelo di ka nyaka goba sap-klinikhale le go ba bothata go bontšha. Meetse go Tlase I ga a dira khuetšo ye mpe go maphelo ka fase ga mabaka ao a tlwaelegilego. Dikamano tša Aesthetiki di ka, eupša, di ka ba ka go bonala.

Tlase II Meetse a tlase ye a hlaloswa bjalo a moo khuetšo ya adbese ya maphelo di ka ba go tša go se tlwaelege di ka ba tše di lekantšwego go tšhomišo ya lebakanyana. Dikhuetšo tša Adbese tša maphelo di ka ba tša go tlwaelega gagolo go tšhomišo yeo e okeditšwego go mengwaga ye mentši, goba go tšhomišo ya bophelo ka moka. Tlase ye e emela meetse a maleba go tšhomišo fela ya lebakanyana goba ya tšhoganetšo, efela ga a name a le a maleba go tšhomišo yeo e tšwelago pele bophelo ka moka.

Tlase III Meetse a a na le dikhonstitšhuente go mehutahuta ya khonsentreišene moo dikhuetšo tše kgolo tša maphelo di ka letelwago, gagolo bana ba ba nnyane le batšofe go tšhomišo ya lebakanyana, kudu le go tšhomišo ya lebaka le le telele. Meetse a tlase ye ga se a maleba go šomišwa go nwa ntle le kalafo yeo e lekanego go tloša meetse go ya go tlase ya fase le ye e bolokegilego.

NOUTE: KHWALITHI YA MEETSE YA DIPEELO TŠA KHWATHENARI TŠEO DI LATELAGO GA DIA LEKODIŠIŠWA KA LEBAKA LA HLAELELO YA TSHEDIMOŠO (HLOKEGO YA KHWALITHI YADATHA YA MEETSE A FASE AO A KA BONTŠHWAGO):

B11A, B11B, B11C, B11D, B11E, B11F, B11G, B11H, B11K, B11L, B11K, B11L, B12A, B12B, B12C, B12D, B12E, B20B, B20D, B20E, B20F, B20G, B20H, B20J, B21A, B31A, B31B, B31C, B31D, B31E, B31F, B31G, B32A,B32B, B32C, B32D, B32E, B41A, B41B, B41F, B42A, B42C, B42D, B42E, B42G, B42H, B51D, B51E, B51F, B60A, B60B, B60C, B60E, B60F, B60H, B60J, B71A, B71B, B71C, B71D, B71E, B71F, B71G, B71H, B771J, B72A, B72B, B72C, B72D, B72E, B72F, B72G, B72H, B72J, B73B, B72C, B72D, B72G, B72H, B72J, B81A, B81B, B81F, B81J, B82B, B82H, B83A, B83C, B83D, B83E

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Tafola 7.3: Sephetho sa khomphonente ya Meetse a Fase- Kokwane ya Khwalithi

Pharamitha ya Khemikhale	Yuniti	Peelo ya Noka ya Olifants QC B20A			
		No. ya Disampolo	Ambiente GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	95	8.23	5.0 – 9.5	8.5
Khondakthivithi ya Ilektrikhale	mS/m	95	43.7	<150	48
Khalsiamo bjalo ka Ca	mg/l	95	32.1	<150	35
Maknesiamo bjalo ka Mg	mg/l	95	22.2	<100	24
Sodiamo bjalo ka Na	mg/l	95	10.0	<200	11
Phothesiamo bjalo ka K	mg/l	95	2.14	<50	2.3
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	95	150.8	N/A	165
Tloraete bjalo ka Cl	mg/l	95	15.5	<200	17
Salfeiti bjalo ka SO_4	mg/l	95	15.2	<400	16
Nitreite bjalo ka NO_x-N	mg/l	95	0.36	<10	0.40
Floraete bjalo ka F	Mg/l	95	0.17	<1.0	0.19
				Tlase ya khwalithi ya meets	Tlase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

Pharemitha ya Khemikhale	Yuniti	Peelo ya Noka ya Olifants QC B31H			
		No. ya Disampolo	Ambiente ya GW ya khalithi goba mediene[1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	28	8.201	5.0 – 9.5	8.50
Khodakthilvithi ya Ilektrikhale	mS/m	28	123.85	<150	136
Khalsiamo bjalo ka Ca	mg/l	28	74.3495	<150	81
Maknesiamo bjalo ka Mg	mg/l	28	74.3055	<100	81
Sodiamo bjalo ka Na	mg/l	28	93.461	<200	102
Phothesiamo bjalo ka K	mg/l	28	3.2095	<50	3.5
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	28	402.9	N/A	403[4]
Tloraete bjalo ka Cl	mg/l	28	71.0795	<200	78
Salfeiti bjalo ka SO_4	mg/l	28	44.199	<400	48
Nitreite bjalo ka NO_x-N	mg/l	28	25.0555	<10	25.0
Floraete bjalo ka F	Mg/l	28	0.6355	<1.0	0.7
				Tlase ya khwalithi ya meets	Tlase III

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

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Pharemitha ya Khemikhale	Yunit	Peelo ya Noka ya Olifants QC B31J			
		No. ya Disampolo	Ambiente ya GW khwalithi goba mediene[1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	83	7.927	5.0 – 9.5	8.25
Khondakthivithi ya Ilektrikhale	mS/m	83	89.3	<150	98
Khalsioma bjalo ka Ca	mg/l	83	64.445	<150	70
Magnesiamo bjalo ka Mg	mg/l	83	34.851	<100	38
Sodiamo bjalo ka Na	mg/l	83	41.59	<200	45
Phothesiamo bjalo ka K	mg/l	83	6.61	<50	7.2
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	83	156.554	N/A	172
Tloraete bjalo ka Cl	mg/l	83	113.12	<200	124
Salfeiti bjalo ka SO_4	mg/l	83	71.082	<400	78
Nitreite bjalo ka NO_x-N	mg/l	83	9.768	<10	9.8
Floraete bjalo ka F	Mg/l	83	0.387	<1.0	0.5
				Tlase ya khwalithi ya meetse	Tlase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharemitha ya Khemikhale	Yuniti	Peelo ya Noka ya Olifants QC B32F			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	71	7.53	5.0 – 9.5	7.75
Khondakthivithi ya Ilektrikhale	mS/m	71	10.9	<150	11
Khalsiamo bjalo ka Ca	mg/l	71	5.129	<150	5
Maknesiamo bjalo ka Mg	mg/l	71	1.8	<100	1
Sodiamo bjalo ka Na	mg/l	71	9.383	<200	10
Phothesiamo bjalo ka K	mg/l	71	2.98	<50	3.2
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	71	30	N/A	33
Tloraete bjalo ka Cl	mg/l	71	5	<200	5
Salfeiti bjalo ka SO_4	mg/l	71	4.1	<400	4
Nitreite bjalo ka NO_x-N	mg/l	71	0.462	<10	0.5
Floraete bjalo ka F	Mg/l	71	0.26	<1.0	0.3
				Tlaseya khwalithi ya meetse	Tlase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Peelo ya Noka ya Olifants QC B32H			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	10	8.07	5.0 – 9.5	8.5
Khodakthivithi ya Ilektrikhale	mS/m	10	32.75	<150	36
Khalsiamo bjalo ka Ca	mg/l	10	15.4205	<150	16
Maknesiamo bjalo ka Mg	mg/l	10	3.919	<100	4
Sodiamo bjalo ka Na	mg/l	10	27.375	<200	30
Phothesiamo bjalo ka K	mg/l	10	1.7715	<50	1.9
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	10	76.44	N/A	84
Tloraete bjalo ka Cl	mg/l	10	19.831	<200	21
Salfeiti bjalo ka SO_4	mg/l	10	3.1255	<400	3
Nitreite bjalo ka NO_x-N	mg/l	10	2.7245	<10	2.9
Floraete bjalo ka F	Mg/l	10	0.684	<1.0	0.75
				Tlase ya khwalithi ya meetse	**Tlase 0**

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Peelo ya Noka ya Olifants QC B32J			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	20	8.1255	5.0 – 9.5	8.5
Khondakthivithi ya Ilektrikhale	mS/m	20	34.75	<150	38
Khalsiamo bjalo ka Ca	mg/l	20	25.0525	<150	27
Maknesiamo bjalo ka Mg	mg/l	20	3.9455	<100	4
Sodiamo bjalo ka Na	mg/l	20	36.878	<200	40
Phothesiamo bjalo ka K	mg/l	20	3.288	<50	3.6
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	20	119.036	N/A	130
Tloraete bjalo ka Cl	mg/l	20	22.976	<200	25
Salfeiti bjalo ka SO_4	mg/l	20	6.497	<400	7
Nitreite bjalo ka NO_x-N	mg/l	20	0.6245	<10	0.6
Floraete bjalo ka F	Mg/l	20	2.7755	<1.0	2.8
				Tlase ya khwalithi ya meetse	**Ttlase III**

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B41C			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN [2]	Peelo ya Khwalithi ya Meetse a Fase [3]
pH	–	35	8.13	5.0 – 9.5	8.5
Khondakthivithi ya Ilektrikhale	mS/m	35	55.2	<150	60
Khalsiamo bjalo ka Ca	mg/l	35	66.099	<150	72
Maknesiamo bjalo ka Mg	mg/l	35	26.2	<100	28
Sodiamo bjalo ka Na	mg/l	35	13.01	<200	14
Phothesiamo bjalo ka K	mg/l	35	0.5	<50	0.5
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	35	274.083	N/A	275
Tloraete bjalo ka Cl	mg/l	35	10.8	<200	11
Salfeiti bjalo ka SO_4	mg/l	35	11.118	<400	12
Nitreite bjalo ka NO_x-N	mg/l	35	0.703	<10	0.7
Floraete bjalo ka F	Mg/l	35	0.11	<1.0	0.12
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B41D			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN [2]	Peelo ya Khwalithi ya Meetse a Fase [3]
pH	–	20	7.345	5.0 – 9.5	7.75
Khondakthivithi ya Ilektrikhale	mS/m	20	10.78	<150	11
Khalsiamo bajlo ka Ca	mg/l	20	6.4	<150	7
Maknesiamo bjalo ka Mg	mg/l	20	2.059	<100	2
Sodiamo bjalo ka Na	mg/l	20	7.424	<200	8
Photasiamo bjalo ka K	mg/l	20	2.5015	<50	2.7
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	20	32.708	N/A	35
Tloraete bjalo ka Cl	mg/l	20	5	<200	5
Salfeiti bjalo ka SO_4	mg/l	20	4.956	<400	5
Nitreite bjalo ka NO_x-N	mg/l	20	0.294	<10	0.3
Floraete bjalo ka F	Mg/l	20	0.4065	<1.0	0.44
				Tllase ya Khwalithi ya Meetse	Tllase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B41E			
		No. ya Sampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse ya Fase[3]
pH	–	37	8.028	5.0 – 9.5	8.5
Khondakthivithi Ilektrikhale	mS/m	37	29	<150	31
Khalsiamo bjalo ka Ca	mg/l	37	18.1	<150	19
Maknesiamo bjalo ka Mg	mg/l	37	4.039	<100	4
Sodiamo bjalo ka Na	mg/l	37	21.117	<200	23
Phothisiamo bjalo ka K	mg/l	37	4.456	<50	4.9
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	37	109.16	N/A	120
Tloraete bjalo ka Cl	mg/l	37	7.398	<200	8
Salfeiti bjalo ka SO_4	mg/l	37	6.603	<400	7
Nitreite bjalo ka NO_x-N	mg/l	37	1.531	<10	1.6
Floraete bjalo ka F	Mg/l	37	0.379	<1.0	0.41
				Tllase ya Khwalithi ya Meetse	Tllase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B41G			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Kwalithi ya Meetse a Fase[3]
pH	–	13	8.055	5.0 – 9.5	8.5
Khondakthivithi ya Ilektrikhale	mS/m	13	59.2	<150	65
Khanlsiamo bjalo ka Ca	mg/l	13	51.605	<150	56
Maknesiamo bjalo ka Mg	mg/l	13	29.374	<100	32
Sodiamo bjalo ka Na	mg/l	13	23.522	<200	25
Phothesiamo bjalo ka K	mg/l	13	0.796	<50	0.8
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	13	244	N/A	268
Tloraete bjalo ka Cl	mg/l	13	17.18	<200	18
Salfeiti bjalo ka SO_4	mg/l	13	10.187	<400	11
Nitreite bjalo ka NO_x-N	mg/l	13	0.055	<10	0.1
Floraete bjalo ka F	Mg/l	13	0.1	<1.0	0.11
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B41H			
		No. ya Disampolo	Ambiente ya GW ya khwalthi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya khwalithi ya Meetse a Fase[3]
pH	–	109	8.187	5.0 – 9.5	8.5
Khondakthivithi ya llektrikhale	mS/m	109	91	<150	100
Khalsiamo bjalo ka Ca	mg/l	109	70.6	<150	77
Maknesiamo bjalo ka Mg	mg/l	109	47.88	<100	52
Sodiamo ya Na	mg/l	109	45.1	<200	49
Phothesiamo bjalo ka K	mg/l	109	0.995	<50	1.1
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	109	259.5	N/A	285
Tloraete bjalo ka Cl	mg/l	109	58.3	<200	64
Salfeiti bjalo ka SO_4	mg/l	109	44.6715	<400	49
Nitreite bjalo ka NO_x-N	mg/l	109	5.692	<10	6.2
Floraete bjalo ka F	Mg/l	109	0.24	<1.0	0.26
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B41J			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	134	8.292	5.0 – 9.5	8.5
Khondakthibithi ya llektrikhale	mS/m	134	89.45	<150	98
Khalsiamo bjalo ka Ca	mg/l	134	37.69	<150	41
Maknesiamo bjalo ka Mg	mg/l	134	71.6125	<100	78
Sodiamo bjalo ka Na	mg/l	134	29.1	<200	32
Phothesiamo bjalo ka K	mg/l	134	1.2445	<50	1.3
Kakaretšo ya Alkhalinithi as $CaCO_3$	mg/l	134	345.7	<330	346[4]
Tloraete bjalo ka Cl	mg/l	134	43.5825	<200	47
Salfeiti bjalo ka SO_4	mg/l	134	30.315	<400	33
Nitreite bjalo ka NO_x-N	mg/l	134	6.5185	<10	7.1
Floraete bjalo ka F	Mg/l	134	0.1275	<1.0	0.14
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B41K			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	60	8.1035	5.0 – 9.5	8.5
Khodakbithi ilektrikhale	mS/m	60	110.75	<150	121
Khalsiamo bjalo ka Ca	mg/l	60	54.651	<150	60
Maknesiamo bjalo ka Mg	mg/l	60	61.1175	<100	67
Sodiamo bjalo ka Na	mg/l	60	81.835	<200	90
Phothesiamo bjalo ka K	mg/l	60	2.789	<50	3.1
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	60	362.1	N/A	362[4]
Tloraete bjalo ka Cl	mg/l	60	80.582	<200	88
Salfeiti bjalo ka SO_4	mg/l	60	40.9105	<400	45
Nitreite bjalo ka NO_x-N	mg/l	60	3.9235	<10	4.3
Floraete bjalo ka F	Mg/l	60	0.484	<1.0	0.53
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

Pharamithi ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B42B			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	39	7.523	5.0 – 9.5	7.75
Khodakthibithi ya Ilektrikhale	mS/m	40	5.76	<150	6
Khalsiamo bjalo ka Ca	mg/l	40	4.299	<150	4
Maknesiamo bjalo ka Mg	mg/l	40	2.176	<100	2
Sodiamo bjalo ka Na	mg/l	40	2.19	<200	2
Phothesiamo bjalo ka K	mg/l	40	0.3275	<50	0.3
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	40	17.932	N/A	19
Tloraete bjalo ka Cl	mg/l	40	3.25	<200	3.
Salfeiti bjalo ka SO_4	mg/l	40	3	<400	3
Nitreite bjalo ka NO_x-N	mg/l	40	0.6955	<10	0.8
Floraete bjalo ka F	Mg/l	40	0.104	<1.0	0.11
				Tllase ya khwaliti ya meetse	Tllase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B42F			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	37	7.93	5.0 – 9.5	8.25
Khondakthibithi ya llektrikhale	mS/m	37	59	<150	64
Khalsiamo bjalo ka Ca	mg/l	37	17.146	<150	18
Maknesiamo bjalo ka Mg	mg/l	37	52.835	<100	58
Sodiamo bjalo ka Na	mg/l	37	14.4	<200	15
Phothesiamo bjalo ka K	mg/l	37	0.853	<50	0.9
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	37	154.3	N/A	169
Tloraete bjalo ka Cl	mg/l	37	53.976	<200	59
Salfeite bjalo ka SO_4	mg/l	37	17.706	<400	19
Nitreite bjalo ka NO_x-N	mg/l	37	8.679	<10	9.5
Floraete bjalo ka F	Mg/l	37	0.206	<1.0	0.22
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B51A			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	50	7.568	5.0 – 9.5	7.75
Khodakthibithi ya llektrikhale	mS/m	50	14.4	<150	15
Khalsiamo bjalo ka Ca	mg/l	50	6.838	<150	7
Maknesiamo bjalo ka Mg	mg/l	50	2.27	<100	2
Sodiamo bjalo ka Na	mg/l	50	11.348	<200	12
Phothesiamo bjalo ka K	mg/l	50	3.835	<50	4.3
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	50	35.5425	N/A	39
Tloraete bjalo ka Cl	mg/l	50	6.6835	<200	7
Salfeiti bjalo ka SO_4	mg/l	50	2	<400	2
Nitreite bjalo ka NO_x-N	mg/l	50	3.5095	<10	3.8
Floraete bjalo ka F	Mg/l	50	0.418	<1.0	0.45
				Tllase ya khwalithi ya meetse	Tllase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B51B			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	62	7.908	5.0 – 9.5	8.25
Khondakthibithi ya lletrikhale	mS/m	62	20.95	<150	23
Khalsiamo bjalo ka Ca	mg/l	62	9.1095	<150	10
Maknesiamo bjalo ka Mg	mg/l	62	2.1195	<100	2
Sodiamo bjalo ka Na	mg/l	62	18.919	<200	20
Phothesiamo bjalo ka K	mg/l	62	2.91	<50	3.2
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	62	62.909	N/A	69
Tloraete bjalo ka Cl	mg/l	62	8.565	<200	9
Salfeiti bjalo ka SO_4	mg/l	62	3.091	<400	3
Nitreite bjalo ka NO_x-N	mg/l	62	1.0575	<10	1.2
Floraete bjalo ka F	Mg/l	62	0.9945	<1.0	1.0
				Tllase ya khwalithi ya meetse	Tllase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B51C			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	55	7.954	5.0 – 9.5	8.25
Khondakthibithi ya llektrikhale	mS/m	55	51.4	<150	56
Khalsiamo bjalo ka Ca	mg/l	55	40.544	<150	44
Maknesiamo bjalo ka Mg	mg/l	55	8.812	<100	9
Sodiamo bjalo ka Na	mg/l	55	47.532	<200	52
Phothesiamo bjalo ka K	mg/l	55	3.095	<50	3.4
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	55	122.026	N/A	134
Tloraete bjalo ka Cl	mg/l	55	41.026	<200	45
Salfeiti bjalo ka SO_4	mg/l	55	18.15	<400	19
Nitreite bjalo ka NO_x-N	mg/l	55	3.955	<10	4.3
Floraete bjalo ka F	Mg/l	55	2.171	<1.0	2.2
				Tllase ya khwalithi ya meetse	Tllase III

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B51E			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	117	8.04	5.0 – 9.5	8.5
Khondakthibithi ya llektrikhale	mS/m	117	112.2	<150	123
Khalsiamo bjalo ka Ca	mg/l	117	86.1	<150	94
Maknesiamo bjalo ka Mg	mg/l	117	54.055	<100	59
Sodiamo bjalo ka Na	mg/l	117	61.675	<200	67
Phothesiamo bjalo ka K	mg/l	117	4.345	<50	4.8
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	117	260.7	N/A	286
Tloraete bjalo ka Cl	mg/l	117	74.8	<200	82
Salfeite bjalo ka SO_4	mg/l	117	58.789	<400	64
Nitreite bjalo ka NO_x-N	mg/l	117	23.174	<10	23
Floraete bjalo ka F	Mg/l	117	0.345	<1.0	0.4
				Tllase ya khwalithi ya meetse	Tllase III

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B51G			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	168	8.2285	5.0 – 9.5	8.5
Khondakthibithi ya llektrikhale	mS/m	168	90.6	<150	99
Khalsiamo bjalo ka Ca	mg/l	168	54.406	<150	59
Maknesiamo bjalo ka Mg	mg/l	168	35.9285	<100	39
Sodiamo bjalo ka Na	mg/l	168	61.381	<200	67
Phothesiamo bjalo ka K	mg/l	168	3.785	<50	4.1
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	168	250.4975	N/A	275
Tloraete bjalo ka Cl	mg/l	168	82.078	<200	90
Salfeiti bjalo ka SO_4	mg/l	168	17.7	<400	19
Nitreite bjalo ka NO_x-N	mg/l	168	5.333	<10	5.8
Floraete bjalo ka F	Mg/l	168	0.2945	<1.0	0.32
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B51H			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	219	7.978	5.0 – 9.5	8.25
Khondakthibithi ya Ilektrikhale	mS/m	219	39.3	<150	43
Khalsiamo bjalo ka Ca	mg/l	219	25.6	<150	28
Maknesiamo bjalo ka Mg	mg/l	219	5.1	<100	5
Sodiamo bjalo ka Na	mg/l	219	33.852	<200	37
Phothesiamo bjalo ka K	mg/l	219	2.979	<50	3.3
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	219	103.8	N/A	114
Tloraete bjalo ka Cl	mg/l	219	27.699	<200	30
Salfeiti bjalo ka SO_4	mg/l	219	6.5	<400	7
Nitreite bjalo ka NO_x-N	mg/l	219	2.75	<10	3.1
Floraete bjalo ka F	Mg/l	219	0.818	<1.0	1.00[4]
				Tlase ya khwalithi ya meetse	Tlase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B52A			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	95	8.251	5.0 – 9.5	8.5
Khondakthibithi ya Ilektrikhale	mS/m	95	116.3	<150	127
Khalsiamo bjalo ka Ca	mg/l	95	69.871	<150	76
Maknesiamo bjalo ka Mg	mg/l	95	47.17	<100	51
Sodiamo bjalo ka Na	mg/l	95	113.292	<200	124
Phothesiamo bjalo ka K	mg/l	95	6.052	<50	6.6
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	95	320.786	N/A	321[4]
Tloraete bjalo ka Cl	mg/l	95	142.676	<200	156
Salfeiti bjalo ka SO_4	mg/l	95	48.865	<400	53
Nitreite bjalo ka NO_x-N	mg/l	95	14.852	<10	14.9
Floraete bjalo ka F	Mg/l	95	1.232	<1.0	1.23[4]
				Tlase ya khwalithi ya meetse	Tlase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B52B			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN [2)]	Peelo ya Khwalithi ya Meetse a Fas[3]
pH	–	267	8.175	5.0 – 9.5	8.5
Khondakthibithi ya llektrikhale	mS/m	268	94.3	<150	103
Khalsiamo bjalo ka Ca	mg/l	268	78.1675	<150	85
Maknesiamo bjalo ka Mg	mg/l	268	52.385	<100	57
Sodiamo bjalo ka Na	mg/l	268	48.44	<200	53
Phothesiamo bjalo ka K	mg/l	268	0.932	<50	1.0
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	268	336.5035	N/A	337[4]
Tloraete bjalo ka Cl	mg/l	268	58.677	<200	64
Salfeiti bjalo ka SO_4	mg/l	268	23.316	<400	25
Nitreite bjalo ka NO_x-N	mg/l	268	12.3475	<10	13.5
Floraete bjalo ka F	Mg/l	268	0.173	<1.0	0.19
				Tllase ya khwalithi ya meetse	Tllase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B52C			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1)]	Peelo ya BHN [2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	15	8.12	5.0 – 9.5	8.5
Khondakthibithi ya llektrikhale	mS/m	15	76.4	<150	84
Khalsiamo bjalo ka Ca	mg/l	15	57.541	<150	63
Maknesiamo bjalo ka Mg	mg/l	15	26.2	<100	28
Sodiamo bjalo ka Na	mg/l	15	48.3	<200	53
Phothesiamo bjalo ka K	mg/l	15	2.526	<50	2.7
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	15	259.21	N/A	285
Tloraete bjalo ka Cl	mg/l	15	42.701	<200	46
Salfeiti bjalo ka SO_4	mg/l	15	15.788	<400	17
Nitreite bjalo ka NO_x-N	mg/l	15	4.477	<10	4.9
Floraete bjalo ka F	Mg/l	15	0.282	<1.0	0.31
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B52D			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN [2]	Peelo ya Khwalithi ya Meetse a Fase [3]
pH	–	66	8.124	5.0 – 9.5	8.5
Khondakthibithi ya llektrikhale	mS/m	66	129	<150	141
Khalsiamo bjalo ka Ca	mg/l	66	80.419	<150	88
Maknesiamo bjalo ka Mg	mg/l	66	75.161	<100	82
Sodiamo bjalo ka Na	mg/l	66	73.681	<200	81
Phothesiamo bjalo ka K	mg/l	66	3.373	<50	3.7
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	66	368.735	N/A	369[4]
Tloraete bjalo ka Cl	mg/l	66	155.5865	<200	171
Salfeiti bjalo ka SO_4	mg/l	66	68.1475	<400	74
Nitreite bjalo ka NO_x-N	mg/l	66	8.625	<10	9.5
Floraete bjalo ka F	Mg/l	66	0.463	<1.0	0.50
				Tlase ya khwalithi ya meets	Tlase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B52E			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN [2]	Peelo ya Khwalithi ya Meetse a Fase [3]
pH	–	92	8.19	5.0 – 9.5	8.5
Khondakthibithi ya llektrikhale	mS/m	92	187	<150	<150[4]
Khalsiamo bjalo ka Ca	mg/l	92	93.099	<150	102
Maknesiamo bjalo ka Mg	mg/l	92	99.779	<100	109
Sodiamo bjalo ka Na	mg/l	92	130.3125	<200	143
Phothesiamo bjalo ka K	mg/l	92	0.9365	<50	1.1
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	92	353.535	N/A	354[4]
Tloraete bjalo ka Cl	mg/l	92	271.372	<200	271[4]
Salfeiti bjalo ka SO_4	mg/l	92	92.543	<400	101
Nitreite bjalo ka NO_x-N	mg/l	92	20.1515	<10	20.2
Floraete bjalo ka F	Mg/l	92	0.1425	<1.0	0.16
				Tlase ya khwalithi ya meetse	Tlase III

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

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CONTINUES ON PAGE 258 - PART 3



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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B52F			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	16	8.2865	5.0 – 9.5	8.5
Khondakthibithi ya Ilektrikhale	mS/m	16	63.55	<150	69
Khalsiamo bjalo ka Ca	mg/l	16	39.18	<150	43
Maknesiamo bjalo ka Mg	mg/l	16	19.85	<100	21
Sodiamo bjalo ka Na	mg/l	16	76.3	<200	83
Phothesiamo bjalo ka K	mg/l	16	2.86	<50	3.1
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	16	260.7275	<330	286
Tloraete bjalo ka Cl	mg/l	16	26.6075	<200	29
Salfeiti bjalo ka SO_4	mg/l	16	8.8	<400	9
Nitreite bjalo ka NO_x-N	mg/l	16	1.1595	<10	1.2
Floraete bjalo ka F	Mg/l	16	1.45	<1.0	1.5
				Tlase ya khwalithi ya meetse	Tlase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B52G			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	29	8.152	5.0 – 9.5	8.5
Khondakthibithi ya Ilektrikhale	mS/m	29	105.1	<150	115
Khalsiamo bjalo ka Ca	mg/l	29	84.691	<150	93
Maknesiamo bjalo ka Mg	mg/l	29	69.516	<100	76
Sodiamo bjalo ka Na	mg/l	29	52.144	<200	57
Phothesiamo bjalo ka K	mg/l	29	2.33	<50	2.5
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	29	356.471	<330	356[4]
Tloraete bjalo ka Cl	mg/l	29	94.103	<200	103
Salfeiti bjalo ka SO_4	mg/l	29	31	<400	34
Nitreite bjalo ka NO_x-N	mg/l	29	12.666	<10	12.7
Floraete bjalo ka F	Mg/l	29	0.253	<1.0	0.27
				Tlase ya khwalithi ya meetse	Tlase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B52H			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	64	8.094	5.0 – 9.5	8.5
Khondakthibithi ya Ilektrikhale	mS/m	64	91.65	<150	100
Khalsiamo bjalo ka Ca	mg/l	64	58.418	<150	64
Maknesiamo bjalo ka Mg	mg/l	64	32.033	<100	35
Sodiamo bjalo ka Na	mg/l	64	62.1165	<200	68
Phothesiamo bjalo ka K	mg/l	64	2.675	<50	2.9
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	64	241.4405	N/A	265
Tloraete bjalo ka Cl	mg/l	64	71.774	<200	78
Salfeiti bjalo ka SO_4	mg/l	64	26.55	<400	29
Nitreite bjalo ka NO_x-N	mg/l	64	9.7805	<10	9.8
Floraete bjalo ka F	Mg/l	64	0.538	<1.0	0.59
				Tllase ya khwalithi ya meetse	Tllase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B52J			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	78	8.144	5.0 – 9.5	8.5
Khondakthibithi ya Ilektrikhale	mS/m	78	109.35	<150	120
Khalsiamo bjalo ka Ca	mg/l	78	69.1765	<150	76
Maknesiamo bjalo ka Mg	mg/l	78	71.318	<100	78
Sodiamo bjalo ka Na	mg/l	78	62.3	<200	68
Phothesiamo bjalo ka K	mg/l	78	1.63	<50	1.7
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	78	334.125	N/A	367
Tloraete bjalo ka Cl	mg/l	78	86.681	<200	95
Salfeiti bjalo ka SO_4	mg/l	78	52.3	<400	57
Nitreite bjalo ka NO_x-N	mg/l	78	10.5165	<10	11
Floraete bjalo ka F	Mg/l	78	0.135	<1.0	0.14
				Tllase ya khwalithi ya meetse	Tllase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B60D			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	42	8.1615	5.0 – 9.5	8.5
Khonfakthibithi ya Ilektrikhale	mS/m	42	44.65	<150	49
Khalsiamo bjalo ka Ca	mg/l	42	45.0725	<150	49
Maknesiamo bjalo ka Mg	mg/l	42	26.8335	<100	29
Sodiamo bjalo ka Na	mg/l	42	5.362	<200	5
Phothesiamo bjalo ka K	mg/l	42	0.512	<50	0.5
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	42	211.7055	N/A	232
Tloraete bjalo ka Cl	mg/l	42	5	<200	5
Salfeiti bjalo ka SO_4	mg/l	42	4.35	<400	4
Nitreite bjalo ka NO_x-N	mg/l	42	2.74	<10	3.0
Floraete bjalo ka F	Mg/l	42	0.183	<1.0	0.20
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B60G			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	12	8.2325	5.0 – 9.5	8.5
Khondakthibithi ya Ilektrikhale	mS/m	12	61.6	<150	67
Khalsiamo bjalo ka Ca	mg/l	12	40.2825	<150	44
Maknesiamo bjalo ka Mg	mg/l	12	32.098	<100	35
Sodiamo bjalo ka Na	mg/l	12	45.8895	<200	50
Phothesiamo bjalo ka K	mg/l	12	0.6575	<50	0.7
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	12	233.8585	N/A	257
Tloraete bjalo ka Cl	mg/l	12	50.102	<200	55
Salfeiti bjalo ka SO_4	mg/l	12	14.519	<400	15
Nitreite bjalo ka NO_x-N	mg/l	12	1.812	<10	1.9
Floraete bjalo ka F	Mg/l	12	0.453	<1.0	0.49
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B60H			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	26	7.998	5.0 – 9.5	8.25
Khondakthibithi ya llektrikhale	mS/m	26	51.25	<150	56
Khalsiamo bjalo ka Ca	mg/l	26	41.6925	<150	45
Maknesiamo bjalo ka Mg	mg/l	26	21.389	<100	23
Sodiamo bjalo ka Na	mg/l	26	18.465	<200	20
Phothesiamo bjalo ka K	mg/l	26	0.6945	<50	0.7
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	26	204.4145	N/A	224
Tloraete bjalo ka Cl	mg/l	26	15.6565	<200	17
Salfeiti bjalo ka SO_4	mg/l	26	10.8385	<400	11
Nitreite bjalo ka NO_x-N	mg/l	26	0.916	<10	1.0
Floaraete bjalo ka F	Mg/l	26	0.1825	<1.0	0.20
				Tlase ya khwalithi ya meetse	Tlase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B60J			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse ya Fase[3]
pH	–	22	7.819	5.0 – 9.5	8.00
Khondakthibithi ya llektrikhale	mS/m	22	148	<150	150[4]
Khalsiamo bjalo ka Ca	mg/l	22	73.509	<150	80
Magnesiamo bjalo ka Mg	mg/l	22	60.6	<100	66
Sodiamo bjalo ka Na	mg/l	22	154.017	<200	169
Phothesiamo bjalo ka K	mg/l	22	3.585	<50	3.9
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	22	381.78	N/A	382[4]
Tloraete bjalo ka Cl	mg/l	22	166.4	<200	183
Salfeiti bjalo ka SO_4	mg/l	22	82.4675	<400	90
Nitreite bjalo ka NO_x-N	mg/l	22	7.887	<10	8.7
Floraete bjalo F	Mg/l	22	0.62	<1.0	0.68
				Tlase ya khwalithi ya meetse	Tlase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B71A			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN [2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	25	8.18	5.0 – 9.5	8.5
Khondakthibithi ya Ilektrikhale	mS/m	25	75.9	<150	83
Khalsiamo bjalo ka Ca	mg/l	25	41.692	<150	45
Magnesiamo bjalo ka Mg	mg/l	25	35.6	<100	39
Sodiamo bjalo ka Na	mg/l	25	27.457	<200	30
Phothesiamo bjalo ka K	mg/l	25	2.488	<50	2.7
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	25	239.8	N/A	263
Tloraete bjalo ka Cl	mg/l	25	43.299	<200	47
Salfeiti bjalo ka SO_4	mg/l	25	14.9	<400	16
Nitreite bjalo ka NO_x-N	mg/l	25	3.908	<10	4.3
Floraete bjalo ka F	Mg/l	25	0.2	<1.0	0.22
				Tlase ya khwalithi ya meetse	Tlase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B71B			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo Khwalithi ya Meetse a Fase [3]
pH	–	22	8.245	5.0 – 9.5	8.5
Khodakthibithi ya Ilektrikhale	mS/m	22	116.45	<150	128
Khalsiamo bjalo ka Ca	mg/l	22	43.1465	<150	47
Maknesiamo bjalo ka Mg	mg/l	22	86.0155	<100	94
Sodiamo bjalo ka Na	mg/l	22	58.222	<200	64
Phothesiamo bjalo ka K	mg/l	22	2.425	<50	2.7
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	22	393.132	N/A	393[4]
Tloraete bjalo ka Cl	mg/l	22	111.8245	<200	123
Salfeiti bjalo ka SO_4	mg/l	22	39.897	<400	43
Nitreite bjalo ka NO_x-N	mg/l	22	4.1535	<10	4.6
Floraete bjalo ka F	Mg/l	22	0.161	<1.0	0.17
				Tlase ya khwalithi ya meetse	Tlase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B71D			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase [3]
pH	–	9	8.123	5.0 – 9.5	8.5
Khondakthibithi ya Ilektrikhale	mS/m	9	70	<150	77
Khalsiamo bjalo ka Ca	mg/l	9	33.574	<150	36
Maknesiamo bjalo ka Mg	mg/l	9	18.525	<100	20
Sodiamo bjalo ka Na	mg/l	9	18.321	<200	20
Phothesiamo bjalo ka K	mg/l	9	3.815	<50	4.1
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	9	219.423	N/A	241
Tloraete bjalo ka Cl	mg/l	9	35.581	<200	39
Salfeiti bjalo ka SO_4	mg/l	9	9.179	<400	10
Nitreite bjalo ka NO_x-N	mg/l	9	0.515	<10	0.6
Floraete bjalo ka F	Mg/l	9	0.18	<1.0	0.19
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B71E			
		No. ya Disampolo	Ambiente ya GW ya khwaliti goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	180	8.283	5.0 – 9.5	8.5
Khodakthibithi ya Ilektrikhale	mS/m	180	93.05	<150	102
Khalsiamo bjalo ka Ca	mg/l	180	42.4955	<150	46
Maknesiamo bjalo ka Mg	mg/l	180	73.983	<100	81
Sodiamo bjalo ka Na	mg/l	180	34.421	<200	37
Phothesiamo bjalo ka K	mg/l	180	1.402	<50	1.5
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	180	363.32	N/A	363[4]
Tloraete bjalo ka Cl	mg/l	180	55.85	<200	61
Salfeiti bjalo ka SO_4	mg/l	177	25.37	<400	27
Nitreite bjalo ka NO_x-N	mg/l	180	10.442	<10	10.4
Floraete bjalo ka F	Mg/l	180	0.1155	<1.0	0.12
				Tllase ya khwalithi ya meetse	Tllase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B71F			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	46	8.2235	5.0 – 9.5	8.5
Khondakthibithi ya llektrikhale	mS/m	46	84.5	<150	92
Khalsiamo bjalo ka Ca	mg/l	46	74.201	<150	81
Maknesiamo bjalo ka Mg	mg/l	46	37.6255	<100	41
Sodiamo bjalo ka Na	mg/l	46	44.6935	<200	49
Phothesiamo bjalo ka K	mg/l	46	2.189	<50	2.4
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	46	258.762	N/A	284
Tloraete bjalo ka Cl	mg/l	46	88.4355	<200	97
Salfeiti bjalo ka SO_4	mg/l	46	51.892	<400	57
Nitreite bjalo ka NO_x-N	mg/l	46	0.925	<10	1.0
Floraete bjalo ka F	Mg/l	46	0.3	<1.0	0.33
				Tllase ya khwalithi ya meets	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B71G			
		No. ya Disampolo	Ambiente ya GW ya khwaithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	16	8.216	5.0 – 9.5	8.5
Khondakthibithi ya llektrikhale	mS/m	16	65.6	<150	72
Khalsiamo bjalo ka Ca	mg/l	16	52.8585	<150	58
Maknesiamo bjalo ka Mg	mg/l	16	47.3295	<100	52
Sodiamo bjalo ka Na	mg/l	16	13.832	<200	15
Phothesiamo bjalo ka K	mg/l	16	1.1435	<50	1.3
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	16	304.0185	N/A	304[4]
Tloraete bjalo ka Cl	mg/l	16	16.358	<200	17
Salfeiti bjalo ka SO_4	mg/l	16	11.1915	<400	12
Nitreite bjalo ka NO_x-N	mg/l	16	2.496	<10	2.7
Floraete bjalo ka F	Mg/l	16	0.2525	<1.0	0.27
				Tllase ya khwalithi ya meets	Tllase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B71H			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	56	7.945	5.0 – 9.5	8.0
Khondakthibithi ya Khemikhale	mS/m	56	93.6	<150	102
Khalsiamo bjalo ka Ca	mg/l	56	55.15	<150	60
Maknesiamo bjalo ka Mg	mg/l	56	31.1	<100	34
Sodiamo bjalo ka Na	mg/l	56	68.05	<200	74.
Phothesiamo bjalo ka K	mg/l	56	2.465	<50	2.7
Kakaretšo ya Alkhalinithi bjalo $CaCO_3$	mg/l	56	303.4585	N/A	303[4]
Tloraete bjalo ka Cl	mg/l	56	65.056	<200	71
Salfeiti bjalo ka SO_4	mg/l	56	12.6	<400	13
Nitreite bjalo ka NO_x-N	mg/l	56	0.741	<10	0.8
Floraete bjalo ka F	Mg/l	56	0.446	<1.0	0.49
				Tllase ya khwalithi ya meetse	Tllase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B72A			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	100	7.915	5.0 – 9.5	8.25
Khondakthibithi ya Elektrikhale	mS/m	100	46.45	<150	51
Khalsiamo bjalo ka Ca	mg/l	100	33.95	<150	37
Maknesiamo bjalo ka Mg	mg/l	100	16.7285	<100	18
Sodiamo bjalo ka Na	mg/l	100	30.7	<200	33
Phothesiamo bjalo ka K	mg/l	100	1.8155	<50	1.9
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	100	176.85	N/A	194
Tloraete bjalo ka Cl	mg/l	100	23.8	<200	26
Salfeiti bjalo ka SO_4	mg/l	100	7.112	<400	7
Nitreiti bjalo ka NO_x-N	mg/l	100	1.0335	<10	1.1
Floraete bjalo ka F	Mg/l	100	0.2755	<1.0	0.30
				Tllase ya khwalithi ya meetse	Tllase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B72C			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN [2]	Peelo ya khwalithi ya Meetse a Fase[3]
pH	–	26	8.17	5.0 – 9.5	8.50
Khondakthibithi ya Elektrikhale	mS/m	26	125.65	<150	138
Khalsiamo bjalo ka Ca	mg/l	26	51.7	<150	56
Maknesiamo bjalo ka Mg	mg/l	26	37.25	<100	40
Sodiamo bjalo ka Na	mg/l	26	175.8	<200	193
Phothesiamo bjalo ka K	mg/l	26	2.63	<50	2.8
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	26	442.65	N/A	443[4]
Tloraete bjalo ka Cl	mg/l	26	138.187	<200	152
Salfeiti bjalo ka SO_4	mg/l	26	20.564	<400	22
Nitreite bjalo ka NO_x-N	mg/l	26	0.66	<10	0.7
Floraete bjalo ka F	Mg/l	26	0.7885	<1.0	0.86
				Tllase ya khwalithi ya meetse	Tllase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B72E			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	101	8.035	5.0 – 9.5	8.5
Khondakthibithi ya Ilektrikhale	mS/m	101	53.3	<150	58
Khalsiamo bjalo ko Ca	mg/l	101	39.2	<150	43
Maknesiamo bjalo ka Mg	mg/l	101	26.2	<100	28
Sodiamo bjalo ka Na	mg/l	101	26.5	<200	29
Phothesiamo bjalo ka K	mg/l	101	0.898	<50	0.9
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	101	236.548	N/A	260
Tloraete bjalo ka Cl	mg/l	101	13.9	<200	15
Salfeiti bjalo ka SO_4	mg/l	101	4.3	<400	4
Nitreite bjalo ka NO_x-N	mg/l	101	1.927	<10	2.1
Floraete bjalo ka F	Mg/l	101	0.227	<1.0	0.24
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B72J			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	47	8.038	5.0 – 9.5	8.50
Khobakthibithi ya Ilektrikhale	mS/m	47	110.23	<150	121
Khalsiamo bjalo ka Ca	mg/l	47	64.86	<150	71
Maknesiamo bjalo ka Mg	mg/l	47	69.761	<100	76
Sodiamo bjalo ka Na	mg/l	47	69.6	<200	76
Phothesiamo bjalo ka K	mg/l	47	0.65	<50	0.7
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	47	381.88	N/A	382[4]
Tloraete bjalo ka Cl	mg/l	47	101.636	<200	111
Salfeiti bjalo ka SO_4	mg/l	47	41.281	<400	45
Nitreite bjalo ka NO_x-N	mg/l	47	9.989	<10	10
Floraete bjalo ka F	Mg/l	47	0.3	<1.0	0.33
				Tllase ya khwalithi ya meetse	Tllase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B72K			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	61	8.21	5.0 – 9.5	8.5
Khondakthibithi ya Iletrikhale	mS/m	61	180	<150	180[4]
Khalsiamo bjalo ka Ca	mg/l	61	61.681	<150	67
Maknesiamo bjalo ka Mg	mg/l	61	61.2	<100	67
Sodiamo bjalo ka Na	mg/l	61	223.785	<200	224[4]
Phothesiamo bjalo ka K	mg/l	61	5.38	<50	5.9
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	61	459	N/A	459[4]
Tloraete bjalo ka Cl	mg/l	61	244.7	<200	245[4]
Salfeiti bjalo ka SO_4	mg/l	61	54.8	<400	60
Nitreite bjalo ka NO_x-N	mg/l	61	9.088	<10	9.9
Floraete bjalo ka F	Mg/l	61	0.642	<1.0	0.70
				Tllase ya khwalithi ya meetse	Tllase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B73A			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN [2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	25	7.67	5.0 – 9.5	8.00
Khodakbithi ya Elektrikhale	mS/m	25	22.6	<150	24
Khalsiamo bjalo ka Ca	mg/l	25	10.3	<150	11
Maknesiamo bjalo ka Mg	mg/l	25	3.6	<100	3
Sodiamo bjalo ka Na	mg/l	25	28.4	<200	31
Phothesiamo bjalo ka K	mg/l	25	1.3	<50	1.4
Kakaretšo Alkhalinithi bjalo ka $CaCO_3$	mg/l	25	84.6	N/A	93
Tloraete bjalo ka Cl	mg/l	25	9.2	<200	10
Salfeiti bjalo ka SO_4	mg/l	25	4.9	<400	5
Nitreite bjalo ka NO_x-N	mg/l	25	0.93	<10	1.0
Floraete bjalo ka F	Mg/l	25	0.398	<1.0	0.43
				Tllase ya khwalithi ya meetse	Tllase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B73E			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	50	8.16	5.0 – 9.5	8.50
Khondakthibithi ya llektrikhale	mS/m	50	80.3	<150	88
Khalsiamo bjalo ka Ca	mg/l	50	40.7885	<150	44
Maknesiamo bjalo ka Mg	mg/l	50	21.05	<100	23
Sodiamo bjalo ka Na	mg/l	50	102.9	<200	113
Phothesiamo bjalo ka K	mg/l	50	2.203	<50	2.4
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	50	281.2	N/A	309
Tloraete bjalo ka Cl	mg/l	50	55.35	<200	60
Salfeite bjalo ka SO_4	mg/l	50	10.85	<400	11
Nitreite bjalo ka NO_x-N	mg/l	50	3.3105	<10	3.6
Floraete bjalo ka F	Mg/l	50	0.99	<1.0	1.0
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B73F			
		No. Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	19	8.346	5.0 – 9.5	8.5
Khondakthibithi Ilektriikhale	mS/m	19	50.5	<150	55
Khalsiamo bjalo ka Ca	mg/l	19	15.864	<150	17
Maknesiamo bjalo ka Mg	mg/l	19	30.272	<100	33
Sodiamo bjalo ka Na	mg/l	19	43.2	<200	47
Phothesiamo bjalo ka K	mg/l	19	1.893	<50	2.0
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	19	197.544	N/A	217
Tloraete bjalo ka Cl	mg/l	19	32.906	<200	36
Salfeiti bjalo ka SO_4	mg/l	19	10.439	<400	11
Nitreite bjalo ka NO_x-N	mg/l	19	1.443	<10	1.5
Floraete bjalo ka F	Mg/l	19	0.333	<1.0	0.36
				Tllase ya khwalithi ya meetse	Tllase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B81C			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya meets a Fase[3]
pH	–	64	7.689	5.0 – 9.5	8.00
Khondakthibithi ya Ilektrikhale	mS/m	64	22.6185	<150	25
Khalsiamo bjalo ka Ca	mg/l	64	13.7065	<150	15
Maknesiamo bjalo ka Mg	mg/l	64	4.2295	<100	5
Sodiamo bjalo ka Na	mg/l	63	16.8	<200	18
Phothesiamo bjalo ka K	mg/l	61	2.638	<50	2.9
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	64	46.5115	N/A	51
Tloraete bjalo ka Cl	mg/l	64	23.9395	<200	26
Salfeiti bjalo ka SO_4	mg/l	64	3	<400	3
Nitreite bjalo ka NO_x-N	mg/l	64	3.5385	<10	3.9
Floraete bjalo ka F	Mg/l	63	0.14	<1.0	0.15
				Tllase ya khwalithi ya meetse	Tllase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B81D			
		No. ya Disampolo	Ambiente ya GW ya khwalithi go mediene[1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	178	7.827	5.0 – 9.5	8.0
Khondakthibithi ya Ilektrikhale	mS/m	178	44.65	<150	49
Khalsiamo bjalo ka Ca	mg/l	178	36.9385	<150	41
Maknesiamo bjalo ka Mg	mg/l	178	21.843	<100	24
Sodiamo bjalo ka Na	mg/l	175	17.5	<200	19
Phothesiamo bjalo ka K	mg/l	175	0.542	<50	0.6
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	177	187.634	N/A	206
Tloraete bjalo ka Cl	mg/l	178	11.9215	<200	13
Salfeiti bjalo ka SO_4	mg/l	178	4.6	<400	5
Nitreite bjalo ka NO_x-N	mg/l	177	1.949	<10	2.1
Floraete bjalo ka F	Mg/l	177	0.192	<1.0	0.21
				Tllase ya khwalithi ya meetse	Tllase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B81E			
		No. ya Disampolo	Ambiente ya GW ya khwlithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	144	8.077	5.0 – 9.5	8.25
Khondakthibithi ya Ilektrikhale	mS/m	144	45.25	<150	50
Khalsiamo bjalo ka Ca	mg/l	144	27.84	<150	31
Maknesiamo bjalo ka Mg	mg/l	144	15.55	<100	17
Sodiamo bjalo ka Na	mg/l	144	33.4565	<200	37
Phothesiamo bjalo ka K	mg/l	144	2.6485	<50	2.9
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	144	166.2245	N/A	183
Tloraete bjalo ka Cl	mg/l	144	27.5525	<200	30
Salfeiti bjalo ka SO_4	mg/l	144	5.85	<400	6
Nitreite bjalo ka NO_x-N	mg/l	144	0.784	<10	0.9
Floraete bjalo ka F	Mg/l	144	0.34	<1.0	0.37
				Tllase ya khwalithi ya meetse	Tllase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B81G			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	298	7.99	5.0 – 9.5	8.25
Khondakthibithi ya Ilektrikhale	mS/m	298	83.35	<150	92
Khalsiamo bjalo ka Ca	mg/l	298	44.047	<150	48
Maknesiamo bjalo ka Mg	mg/l	298	33.068	<100	36
Sodiamo bjalo ka Na	mg/l	298	68.3885	<200	75
Phothesiamo bjalo ka K	mg/l	298	2.0605	<50	2.3
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	298	266.67	N/A	293
Tloraete bjalo ka Cl	mg/l	298	63.85	<200	70
Salfeiti bjalo ka SO_4	mg/l	298	10.42	<400	11
Nitreite bjalo ka NO_x-N	mg/l	298	3.7285	<10	4.1
Floraete bjalo ka F	Mg/l	298	0.471	<1.0	0.52
				Tlase ya khwalithi ya meetse	Tlase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B81H			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediane [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	169	8.208	5.0 – 9.5	8.5
Khondakthibithi ya Ilektrikhale	mS/m	169	175	<150	<175[4]
Khalsiamo bjalo ka Ca	mg/l	169	74.8	<150	82
Maknesiamo bjalo ka Mg	mg/l	169	72.6	<100	80
Sodiamo bjalo ka Na	mg/l	169	164.759	<200	181
Phothesiamo bjalo ka K	mg/l	169	5.781	<50	6.4
Kakretšo ua Alkhalinithi bjalo ka $CaCO_3$	mg/l	169	435.6	N/A	436[4]
Tloraete bjalo ka Cl	mg/l	169	232.193	<200	232[4]
Salfeiti bjalo ka SO_4	mg/l	169	27.609	<400	30
Nitreite bjalo ka NO_x-N	mg/l	168	11.143	<10	12.3
Foraete bjalo ka F	Mg/l	168	0.605	<1.0	0.67
				Tlase ya khwalithi ya meetse	Tlase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B82A			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	59	7.854	5.0 – 9.5	8.00
Khondakthibithi ya llektrikhale	mS/m	58	63	<150	69
Khalsiamo bjalo ka Ca	mg/l	59	38.951	<150	43
Maknesiamo bjalo ka Mg	mg/l	59	27.147	<100	30
Sodiamo bjalo ka Na	mg/l	59	43.935	<200	48
Phothesiamo bjalo ka K	mg/l	59	2.66	<50	2.9
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	59	232.8	N/A	256
Tloraete bjalo ka Cl	mg/l	59	40.451	<200	44
Salfeiti bjalo ka SO_4	mg/l	59	11.214	<400	12
Nitreite bjalo ka NO_x-N	mg/l	59	2.506	<10	2.8
Floraete bjalo ka F	Mg/l	58	0.317	<1.0	0.35
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B82C			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1)]	Peelo ya BHN[2)]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	31	7.76	5.0 – 9.5	8.00
Khondakthibithi ya lektrikhale	mS/m	31	33.2	<150	37
Khalsiamo bjalo ka Ca	mg/l	31	21.981	<150	24
Maknesiamo bjalo ka Mg	mg/l	31	11.7	<100	13
Sodiamo bjalo ka Na	mg/l	30	21.188	<200	23
Phothesiamo bjalo ka K	mg/l	30	1.3995	<50	1.5
Kakretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	31	109	N/A	120
Tloraete bjalo ka Cl	mg/l	31	20.489	<200	23
Salfeiti bjalo ka SO_4	mg/l	31	4.6	<400	5
Nitreite bjalo ka NO_x-N	mg/l	31	2.878	<10	3.2
Floraete bjalo ka F	Mg/l	31	0.218	<1.0	0.24
				Tllase ya khwalithi ya meetse	Tllase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B82D			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN [2]	Peelo ya Khwalitihi ya Meetse a Fase[3]
pH	–	249	8.06	5.0 – 9.5	8.50
Khondakthibithi ya llektrikhale	mS/m	249	76.5	<150	84
Khalsiamo bjalo ka Ca	mg/l	249	42.482	<150	47
Maknesiamo bjalo ka Mg	mg/l	249	44.02	<100	48
Sodiamo bjalo ka Na	mg/l	248	55.2845	<200	61
Phothesiamo bjalo ka K	mg/l	248	5.2555	<50	5.8
Kakretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	248	260.05	N/A	286
Tloraete bjalo ka Cl	mg/l	249	50.5	<200	56
Salfeiti bjalo ka SO_4	mg/l	249	14.488	<400	16
Nitreite bjalo ka NO_x-N	mg/l	248	9.7535	<10	9.8
Floraete bjalo ka F	Mg/l	248	0.302	<1.0	0.33
				Tllase ya khwalithi ya meetse	Tllase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B82E			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	113	7.958	5.0 – 9.5	8.25
Khondakthibithi ya llektrikhale	mS/m	113	65.5	<150	72
Khalsiamo bjalo ka Ca	mg/l	113	34.922	<150	38
Maknesiamo bjalo ka Mg	mg/l	113	30.514	<100	34
Sodiamo bjalo ka Na	mg/l	108	37.64	<200	41
Phothesiamo bjalo ka K	mg/l	108	5.0595	<50	5.6
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	113	183.846	N/A	200
Tloraete bjalo ka Cl	mg/l	113	49.127	<200	54
Salfeite bjalo ka SO_4	mg/l	113	16.067	<400	18
Nitreiti bjalo ka NO_x-N	mg/l	113	5.914	<10	6.5
Floraete bjalo ka F	Mg/l	113	0.197	<1.0	0.22
				Tllase ya khwalithi ya meetse	Tllase 0

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

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Pharamitha ya khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B82F			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	232	8.032	5.0 – 9.5	8.25
Khondakthibithi ya lletrikhale	mS/m	232	63.05	<150	69
Khalsiamo bjalo ka Ca	mg/l	232	33.353	<150	37
Maknesiamo bjalo ka Mg	mg/l	232	36.834	<100	41
Sodiamo bjalo ka Na	mg/l	231	29.3	<200	32
Phothesiamo bjalo ka K	mg/l	231	3.831	<50	4.2
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	228	212.5	<330	234
Tloraete bjalo ka Cl	mg/l	232	38.3085	<200	42
Salfeite bjalo ka SO_4	mg/l	232	11.063	<400	12
Nitreite bjalo ka NO_x-N	mg/l	228	6.0725	<10	6.7
Floraete bjalo ka F	Mg/l	227	0.276	<1.0	0.30
				Tllase ya khwalithi ya meetse	Tllase I

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B82G			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	220	8.19	5.0 – 9.5	8.5
Khodakthibithi ya llektrikhale	mS/m	220	112.85	<150	124
Khalsiamo bjalo ka Ca	mg/l	220	52.8	<150	58
Maknesiamo bjalo ka Mg	mg/l	220	62.807	<100	69
Sodiamo bjalo ka Na	mg/l	218	84.9	<200	93
Phothesiamo bjalo ka K	mg/l	218	3.669	<50	4.0
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	219	368.1	N/A	370[4]
Tloraete bjalo ka Cl	mg/l	220	92.0335	<200	101
Salfeite bjalo ka SO_4	mg/l	220	17.0815	<400	19
Nitreite bjalo ka NO_x-N	mg/l	218	4.6245	<10	5.1
Floraete bjalo ka F	Mg/l	217	0.469	<1.0	0.52
				Tllase ya khwalithi ya meetse	Tllase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tllase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

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Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B82J			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene [1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	26	8.0975	5.0 – 9.5	8.25
Khodakthibithi ya Ilektrikhale	mS/m	26	176.5	<150	177[4]
Khalsiamo bjalo ka Ca	mg/l	26	75.872	<150	83
Maknesiamo bjalo ka Mg	mg/l	26	184.0145	<100	184[4]
Sodiamo bjalo ka Na	mg/l	26	70.92	<200	78
Phothesiamo bjalo ka K	mg/l	26	6.5275	<50	7.2
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	26	454.1	N/A	454[4]
Tloraete bjalo ka Cl	mg/l	26	205.8395	<200	206[4]
Salfeiti bjalo ka SO_4	mg/l	26	29.3965	<400	32
Nitreite bjalo ka NO_x-N	mg/l	26	9.4955	<10	10.4
Floraete bjalo ka F	Mg/l	26	0.536	<1.0	0.59
				Tlase ya khwalithi ya meetse	Tlase II

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

Pharamitha ya Khemikhale	Yuniti	Tshwaro ya Noka ya Olifants QC B83B			
		No. ya Disampolo	Ambiente ya GW ya khwalithi goba mediene[1]	Peelo ya BHN[2]	Peelo ya Khwalithi ya Meetse a Fase[3]
pH	–	22	7.5	5.0 – 9.5	8.00
Khondakthibi ya Ilektrikhale	mS/m	18	105.991	<150	117
Khalsiamo bjalo ka Ca	mg/l	22	484	<150	484[4]
Magnesiamo bjalo ka Mg	mg/l	20	4.691	<100	5
Sodiamo bjalo ka Na	mg/l	22	105.219	<200	116
Phothesiamo bjalo ka K	mg/l	20	3.953	<50	4.3
Kakaretšo ya Alkhalinithi bjalo ka $CaCO_3$	mg/l	21	484	N/A	484[4]
Tloraete bjalo ka Cl	mg/l	22	105	<200	116
Salfeiti bjalo ka SO_4	mg/l	22	4.69	<400	5
Nitreite bjalo ka NO_x-N	mg/l	21	3.95	<10	4.3
Floraete bjalo ka F	Mg/l	20	0.70	<1.0	0.77
				Tlase ya khwalithi ya meetse	Tlase III

[1] Mohola wa mediene (e hlakantšhitšwe go tšwa go disampolo tša setšhaba go QC).
[2] Tekano ya bokagodimo bja khwalithi ya Tlase I ya meetse (DWAF et al 1998).
[3] Mediene e hlakanywa le 10% ya Peelo ya Khwalithi ya Meetse a Fase.
[4] Seemo sa Tšiolotši ya hlago e ka hlola kgolo ya disoliti tšeo di tologilego tša meetse a fase.

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Ele hloko:

Ka kheisi ya diakhwifaya tša Karoo Supergroup le Rustenburg Layered Suite, maknesiamo (Mg), sodiamo (Na) le tloraete (Cl) mehola e a phagamišwa ka ge dielemente tše di bago karolo ya motheo wa khemistri ya leswika la sediment/kristaline le go ntšhwa ka go meetse a fase go ya ka ditshepedišo ya wetering/dibodilego.

Mohola wo o phogamišitšwego wa palomoka ya alkhalinithi ka fenomenone ya kakaretšo ya meetse a fase a haetrokhemikhale ka Afrika Borwa, gape fela ka dikheisi tše itsego e kaba ditlamorago tša bolaodi bja se kgahliše bja khwalithi ya meetse.

Mohola wo o phagamišitšwego wa nitreite (NO3-N) o noutilwe ka dithuša-ditshwaro ka moka, ntle le tshwaro ya bofase ya Letaba (B83), mehola ya ~45 go ya go 50 mg/l e noutilwe go slote sa phesenthaele sa 95th.

Kraetheri ya khwalithi ya meetse a fase yeo e bonwego go ya ka theo ya dihlokwa tša batho (BHN) e amaega kudu ka mehola yeo e phagamišitšwego ya nitreiti (NO3-N)- bjalo mehola ya peelo meetse a fase ya nitreiti e beilwe go mehla ya mediene go dikheisi ka moka (ntle le Olifants ya Bogare)

8. PEEELO YA LEFELO LA MONOLA

Ditshwaro tše bohlokwa tša khwathenari tšeo di hlathilwe ka nako ya wokešopo ya sehlopha ka Julae 2015 di lebeletšwe go diketelo tša felte go lebeletšwe tshekatsheko ya lithiritšha yeo e lego gona le skene sa dathabeise ya mafelo a monola ao a lego gona. Ditshwaro tša khwathenari di hlathilwe go dira dinyakišišo tša go ya pele, moo tše ntšhi di nepišitšwego go dira dinyakišišo tša filte.

Ditshwaro di kgethilwe go lebeletšwe dikhonsitareišene:

- Mafelo a monola a bohlakwa a swanetše go etelwa (ao a kgethilwego/ ao a lego bohlokwa le go feta go ditokomane tša Peelo ya bjalo) ka mabaka a itšego, le/goba
- Dikgoba tšeo di ka bago gona moo e bego ele mafelo a monola a bohlokwa ao a okeditšwego di kaba gona le tšeo di ka kgonago go tsentšhwa goba tša ba tša bohlokwa kudu go tshepedišo ya Peelo.

Tafola 8.1 e hlatha mafelo a monola a bohlokwa go ditshwaro tša Olifants le Letaba le go fa dikakaretšo tša PES, EIS, REC le ditaetšo tša ikholotšikhale tša mafelo a monola a laeditšwego bjalo ka a bohlokwa kudu.

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Tafola 8.1: Tafola yeo e bontšago mafelo a monola a bohlokwa ka go feta.

IUA	Khwat & Lefelo la monola le ID	Leina la lefelo la monola & Mokgwa	Di khoodineiti		PES	EIS	REC	Ditaetša lkholotšikhale*
			Lathitšhute	Longitšhute				
1	B11E Oli_1.1	Blesbokspruit lefelo la monola Floodplain	-26.222	29.059	E/F	Godimo	D	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go driwa. Ditekanyetšo tsa rehabilitheišene di swanetše go diragatšwa ka gare ga sesteme go kaonafatša seemo sa bjale.
1	B11E Oli_1.2	Rietspruit lefelo la monola Bofase bja molapo wo o sa fiwago tsela; Bofase bja molapo wo o filwego tsela	-26.252	29.103	D	Godimo	C/D	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go driwa. Ditekanyetšo tsa rehabilitheišene di swanetše go diragatšwa ka gare ga sesteme go kaonafatša seemo sa bjale.
1	B11D Oli_1.3	Kriel lefelo la monola Bofase bja molapo wo o filwego tsela	-26.268	29.229	C/D	Magareng	C/D	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go driwa.

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			Lathitšhute	Longitšhute				
								Ditekanyetšo tsa rehabilitheišene di swanetše go diragatšwa ka gare ga sesteme go kaonafatša seemo sa bjale.
1	B11F Oli_1.4	Klipoortjiespruit lefelo la monola Bofase bja molapo wo o filwego tsela	-26.087	29.141	D	Godimo	C/D	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modeling ya kelelo (bokagodimo le meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC.
1	B11B Oli_1.5	Koringspruit lefelo la monola Bofase bja molapo wo o filwego tsela (karalo ya bofase bja molapo wo o sa fiwago tsela)	-26.094	29.385	D	Magareng	C	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC

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			Lathitšhute	Longitšhute				
								Ditekanyetšo tsa rehabilitheišene di swanetše go diragatšwa ka gare ga sesteme go kaonafatša seemo sa bjale.
1	B11K Oli_1.6	Klipspruit lefelo la monola Bofase bja molapo wo o sa fiwago tsela	-25.801	29.135	D	Godimo	C/D	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go driwa. Ditekanyetšo tsa rehabilitheišene di swanetše go diragatšwa ka gare ga sesteme go kaonafatša seemo sa bjale.
1	B12A Oli_1.7	Klein-Olifants tributhari Bofase bja molapo wo o filwego tsela; Hillslope sipheitše	-26.057	29.746	D	Godimo	C/D	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC. Ditekanyetšo tsa rehabilitheišene di swanetše go diragatšwa ka gare ga sesteme go kaonafatša seemo sa bjale.

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			Lathitšhute	Longitšhute				
1	B12B Oli_1.8	Matla lefelo la monola Bofase bja molapo wo o filwego tsela	-26.037	29.815	C	Magareng	C	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC Ditekanyetšo tsa rehabilitheišene di swanetše go diragatšwa ka gare ga sesteme go kaonafatša seemo sa bjale.
1	B12B Oli_1.9	Woes-alleenspruit lefelo la monola Bofase bja molapo wo o sa fiwago tsela	-25.990	29.581	C	Magaren go ya Godimo	C	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go driwa. Ditekanyetšo tsa rehabilitheišene di swanetše go diragatšwa ka gare ga sesteme go kaonafatša seemo sa bjale.
1	B12B Oli_1.10	Bosmanspruit lefelo la monola Bofase bja molapo wo o sa fiwago	-25.909	29.715	C	Magareng go ya Godimo	C	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela.

IUA	Khwat & Lefelo la monola le ID	Leina la lefelo la monola & Mokgwa	Di khoodineiti		PES	EIS	REC	Ditaetša lkholotšikhale*
			Lathitšhute	Longitšhute				
								Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC
1	B12C Oli_1.11	Kopermyn lefelo le monola Bofase bja molapo wo o sa fiwago tsela; Bofase bja molapo wo o filwego tsela; Hillslope sipheitšhe	-25.847	29.720	C	Godimo	B/C	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go driwa. Ditekanyetšo tsa rehabilitheišene di swanetše go diragatšwa ka gare ga sesteme go kaonafatša seemo sa bjale.
1	B11C Oli_1.12	Debeerspruit/ Piekespruit floutpleine	-26.391	29.322	A/B	Godimo	A/B	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go driwa.

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			Lathitšhute	Longitšhute				
								Ditekanyetšo tsa rehabilitheišene di swanetše go diragatšwa ka gare ga sesteme go kaonafatša seemo sa bjale.
1	B11A Oli_1.13	Viskuile floutpleine yeo e thatafetšego Floutpleine	-26.261	29.492	C	Godimo go ya go Godimo Kudu	B	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modeling ya kelelo (bokagodimo le meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC Ditekanyetšo tsa rehabilitheišene di swanetše go diragatšwa ka gare ga sesteme go kaonafatša seemo sa bjale.
1	B11C Oli_1.14	Steenkoolspruit floutpleine	-26.337	29.354	D	Godimo	C/D	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le

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			Lathitšhute	Longitšhute				
								meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC
2	B20C Oli_2.1	Elandsvlei diphane Phene/diprešene; Hillslope sipheitšhe	-25.996	28.463	C	Godimo	B/C	Ga gona kgolo yeo e swanetšego go dumelelwa go khalthibeišene goba phetogo ya habithate ka ga re ga ditshwaro tša pan. Dithulano tša khwalithi ya meets go ya go sesteme ya pan di swanetše go thibelwa go netefatša gore meetse le khemistri ya sedimente e dula ka gare ga seemo seo se tlaelegilego (anione le khašene ya go ya go kamano ya bolumu ya pan) ya meetse a a itšego a mokgwa wa khemistri ya pan. Kelelo ya go lebanya ya go tsentša go tšwa go tshwaro le siipheitše ya sloupo sa godimo sa mafelo a monola e swanetše go šireletšwa ka aplikheišene ya dibafeise tša haetrolitšikhale tšeo di laetšwego ka ditekanyo tša haetro-phedolotšikhale tšseo di tšewago bjalo ka seripa sa EIA le goba diaplikheišene tša WUL, peelano yeo e safapogego yeo e akaretšaso le hlokomela ya disesteme e swanetše go dirwa. Phegelela habithate ya Awolo Krase ya maleba.
2	B20B Oli_2.2	Koffiespruit tributhari Bofase bja molapo wo o sa fiwago tsela	-26.071	28.599	A/B	Magareng go ya Godimo	A/B	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC
2	B20A Oli_2.3	Delmas lefelo la monola Bofase bja molapo	-26.137	28.690	D	Magareng	D	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa

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IUA	Khwat & Lefelo la monola le ID	Leina la lefelo la monola & Mokgwa	Di khoodineiti		PES	EIS	REC	Ditaetša ikholotšikhale*
			Lathitšhute	Longitšhute				
		wo o sa fiwago tsela						bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC
2	B20A Oli_2.4	Bronkhorstspruit tributhari Bofase bja molapo wo o sa fiwago tsela; Bofase bja molapo wo o filwego tsela; Hillslope sipheitšhe	-26.252	28.767	C	Godimo	B	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC
2	B20E Oli_2.5	Wilge tributhari Floutpleine; Bofase bja molapo wo o filwego tsela	-26.126	28.935	A/B to C	Magareng go ya Godimo	B/C	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene.

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			Lathitšhute	Longitšhute				
								Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC
2	B20G Oli_2.6	Zaalklap lefelo la monola Bofase bja molapo wo o sa fiwago tsela	-25.908	29.053	D	Godimo	C/D	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC
2	B20G Oli_2.7	Saalboomspruit lefelo la monola Bofase bja molapo wo a sa fiwago tsela; Bofase bja molapo wo o filwego tsela	-25.864	29.008	D	Magareng go ya Godimo	C/D	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše

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			Lathitšhute	Longitšhute				
								go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC
2	B20E Oli_2.8	Bogodimo bja Noka ya Wilge Floudpleine	-26.131	28.874	D	Godimo	C/D	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteem tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC
3	B12E Oli_3.1	Klein-Olifants tributhari Bofase bja molapo wo o sa fiwago tsela; Bofase bja molapo wo o filwego tsela; Hillslope sepheitšhe	-25.659	29.407	A/B to C	Godimo	B	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo

ILIA	Khwat & Lefelo la monola le ID	Leina la lefelo la monola & Mokgwa	Di khoodineiti		PES	EIS	REC	Ditaetša lkholotšikhale*
			Lathitshute	Longitshute				
								ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go driwa.
4	B31A Oli_4.1	Elands tributhari ya lefelo la monola Bofase bja molapo wo o filwego tsela; Hillslope sipheitšhe	-25.627	28.650	C	Godimo	B/C	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa.
5	B51C Oli_5.1	Makotswane Bofase bja molapo wo o filwego tsela Hiilslope sipheitše	-24.852	29.701	C	Godimo Kudu	B	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go driwa. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le meets a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC Ditekanyetšo tsa rehabilitheišene di swanetše go diragatšwa ka gare ga sesteme go kaonafatša seemo sa bjale. Ditiro tša mafelo a monola tšeo di lebeletšwego le ditsenobogare tša rihabilitheišene di sawnetše go diragatvwa go šireletša le go kaonafatša sebopego sa sa mafelo a monola le tiragatšo le phiiti yeo e

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			Lathitšhute	Longitšhute				
								tswalanywago le disprengse tša atheiene.
6	B41A Oli_6.1	Lakenvlei lefelo la monola le le thathafetšego Bofase bja molapo wo o sa fiwago tsela Bofase bja molapo wo o filwego tsela Hillslope sipheitše	-25.560	30.097	A/B	Godimo Kudu	A/B	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa. Kakaretšo ya payotaebesithi le setšhaba se se baepolo sa Datha ye Hubedu ya diphidi tša dinonyane di swanetšego go phegelelwa. Go gona matamo ao a swanetšego go agwa ka gare ga sesteme ntle le go latela tshepedišo yeo e tseneletšego ya tumelelo. Go gona kgodišo yeo e swanetšego go dumelelwa go khalthibeišene goba phetogo ya habitat ka gare ga siipheitše ya sloupo sa godimo sa mafelo a meetse. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC
6	B41B Oli_6.2	Welgevonden lefelo la monola Bofase bja molapo wo o filwego tsela Hillslope sipheitše	-25.467	30.082	A/B	Godimo go ya go Godimo Kudu	A/B	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Aplikheišene yengwe le yengwe ya tšweletšopele go akaretšwa le tša meepo di kaba le thulano go sesteme, ka ntle ga go ya go ya ka tshepedišo ye e tlwailegilego ya lesentsing, a swanetše go akaretšago gape bjalo ka mathomo a Peelo ya Mafelo a Monola a Seemo sa Magareng yeo e akaretšago modelling ya kelelo (bokagodimo le

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			Lathitšhute	Longitšhute				
								meetse a ka fase go akaretša kelelo ya ka gare) ya disinario go thea dithulano tšeo di ka bago gona go lebeletšwe gore go fihlelelwe REC
6	B41F Oli_6.3	Draaikraal lefelo la monola1 Bofase bja molapo wo o filwego tsela	-25.254	30.034	C	Godimo go ya go Godimo Kudu	B	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go driwa.
6	B41F Oli_6.4	Draaikraal lefelo la monola 2 Bofase bja molapo wo o filwego tsela	-25.217	30.075	A/B to C	Godimo go ya go Godimo Kudu	A/B to B	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa.
6	B41F Oli_6.5	Draaikraal lefelo la monola 3 Hillslope sipheitše	-25.178	30.057	A/B	Godimo go ya go Godimo Kudu	A/B	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa.

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[illegible]	[illegible]	Lemala lefelo la monola le Mofase	Dikhoodineiti		PES	EIS	REC	[illegible]
			Latitshute	Longitshute				
6	B41F Oli_6.8	Verloren Valei E swere moseiki ya Hillslope sipheitše ya lefelo la monola le bofase bja mafelo a monola ao a filwego tsela le ao a sa fiwago tsela	-25.298	30.111	A/B	Godimo Kudu	A	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene Phegellela satšhureišene ya go ya go ile ya phiiti ya mafelo a monola Kelo ya dipoledišano le mekgwa ya taolo go ya ka Šhiti ya Tshedimošo ya Ramsar (RIS) (https://rsis.ramsar.org/RISapp/files/RISrep/ZA1110RIS.pdf) ya Naitšha Risebe ya Verloren Valei e swanetšego go diragatšwa le go phegelelwa go mmago le merero yeo e akeditšwego ya taolo/ ditiro tšeo di kgonnego go diragatšwa ke Boto ya Diphaka tša Mpumalanga
6	B41A Oli_6.9	Belfast lefelo la monola le le thathafetšego Bofase bja molapo wo o sa fiwago tsela Bofase bja molapo wo o filwego tsela Hillslope sipheitše	-25.695	30.036	A/B to C	Godimo go ya go Godimo Kudu	B to A/B	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Phegelela satšhureišene ya go ya go ile ya piiti ya mafelo a monola Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa
9	B60F Oli_9.1	Krankloofpsruit lefelo la monola Bofase bja molapo wo o filwego tsela	-24.932	30.506	C	Magareng	C	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela.
9	B60H Oli_9.2	Ohrigstad lefelo la monola Bofase bja molapo wo o filwego tsela	-24.531	30.708	C	Godimo go ya go Godimo Kudu	B	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela.
10	B71G Oli_10.1	Tufa boelo bja meets	-24.457	30.610	B	Godimo Kudu	A/B	Hlokomelo ya tshentšho ya go ya go ile ya meetse go kelelo ya meetse ya Turfa e bohlokwa le go feta go popo yeo e tšwelago pele ya Turfa Kgopelo yengwe le yengwe ya tšhomišo ya meets a fase e hloka go šetša thulano go sesteme, go tšwa go bobedi EIA le pono ya WUL, peelano yeo e sa fapogego ya go fa laesentse yeo e akaretšago le

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IUA	Khwat & Lefelo la monola le ID	Leina la lefelo la monola & Mokgwa	Di khoodineiti		PES	EIS	REC	Ditaetša lkholotšikhale*
			Lathitšhute	Longitšhute				
								hlokomelo ya disesteme e swanetše go dirwa. Taolo ya ditiragalo tša setšo go mafelo a monola. Mohlala: puno ya letswai. Taolo ye e lebanego ya lefelo e swanetše go tšweletšapele go ririšanwe le setšhaba sa selegaeng go netefatša tšhireletšo ya disesteme.
13	B60C Oli_13.1	Treur lefelo la monola Hillslope sipheitše	-24.776	30.880	C	Godimo Kudu	B	Phegelela kabo ya kelello yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelala sebopego sa go ba gona sa dimela le khomphosišene. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go driwa. Dikgopelo tša maleba tšeo di sa fapogego tša dibafase tša dikgwa Setšhaba seo se lego gona sa Noka ya Treur Barb sa diphedi sa swanetšego phegelelwa.
13	B60D Oli_13.2	Kadishi boelo bja meetse I Tufa boelo bja meetse	-24.566	30.795	A/B	Godimo Kudu	A/B	Hlokomelo ya tshentšho ya go ya go ile ya meetse go kelelo ya meetse ya Turfa e bohlokwa le go feta go popo yeo e tšwelago pele ya Turfa Kgopelo yengwe le yengwe ya tšhomišo ya meetse a fase e hloka go šetša thulano go sesteme, go tšwa go bobedi EIA le pono WUL, peelano yeo e sa fapogego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go dirwa
1	B81A Let_1.1	Stanford lefelo la monola Floutpleine	-23.893	29.984	D	Magareng	D	Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa. Dikgopelo tša maleba tšeo di sa fapogego tša dibafase tša dikgwa Ditiro tšeo tša taolo ya mafelo a monola ao a nepišitšwego le rehabilitheišene di swanetše go diragatsšwa go kaonafatša sebopego sa mafelo a monola le tshepedišo ya maleba. Se se swanetše go rarolla

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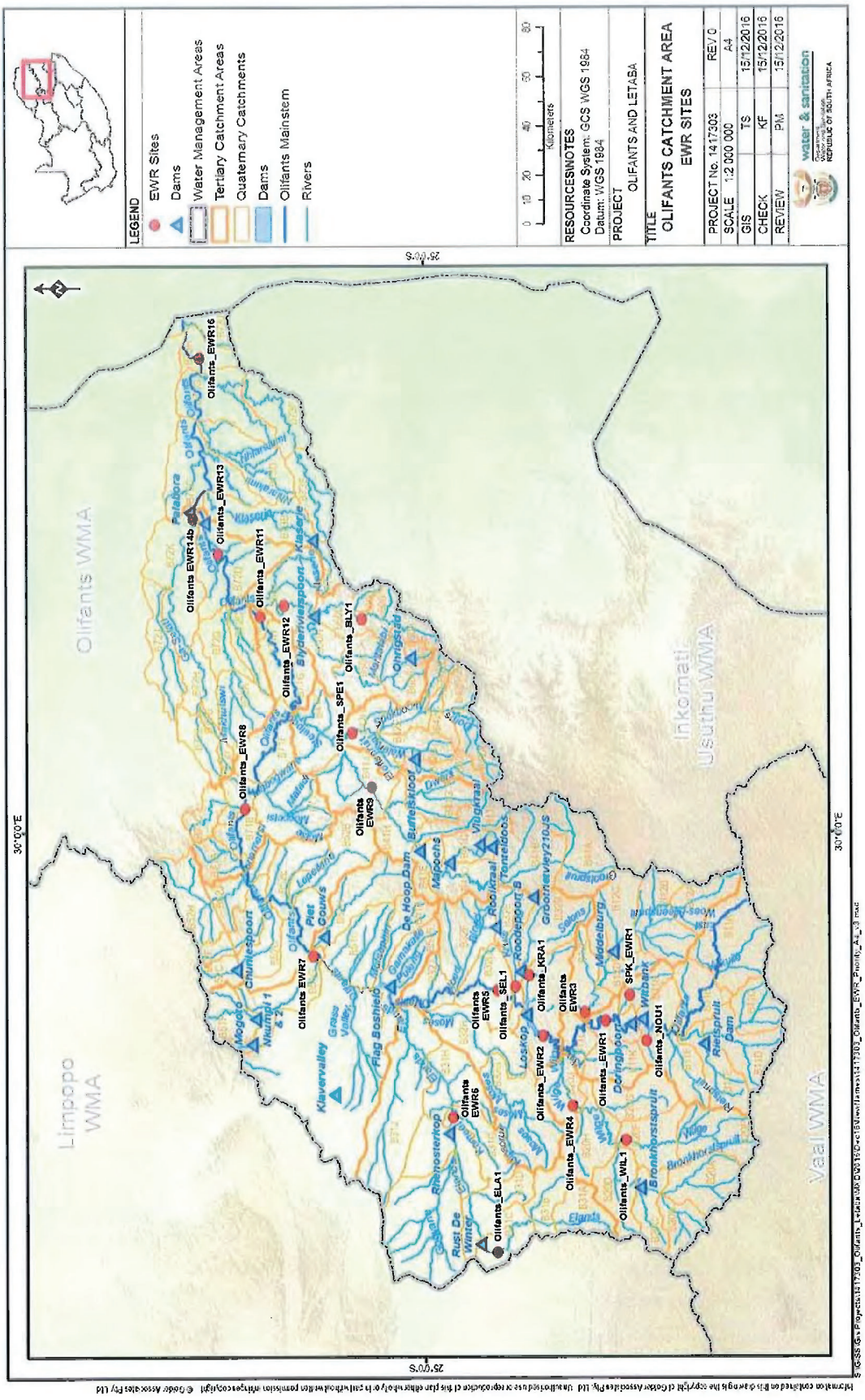
IUA	Khwat & Lefelo la monola le ID	Leina la lefelo la monola & Mokgwa	Di khoodineiti		PES	EIS	REC	Ditaetša Ikholotšikhale*
			Lathitšhute	Longitšhute				
								ka go lebanya rehabilitheišene ya go tswalana le go tloša dikgwa.
1	B81B Let_1.2	Letamo la Tzaneen lefelo la monola Bofase bja molapo wo o sa fiwago tsela Bofase bja molapo wo o sa fiwago tsela	-23.729	30.200	D/E	Magareng	D	Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšego phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Kelelo ya go lebana yeo e tsentšago go mafelo a monola e swanetše go šireletšwa ka tšhomišo ya dibafeise tša haetrolotšikhale tšeo di laetšwego ka tekanyo ya haetro-phedolotšikhale yeo e tšweerego bjalo ka seripa sa EIA le/goba diaplikhaišene, peelano yeo e sa fapegego ya go fa laesentse yeo e akaretšago le hlokomelo yay a disesteme e swanetše go driwa. Dikgopelo tša maleba tšeo di sa fapogego tša dibafase tša dikgwa
2	B81D Let_2.1	Thabina lefelo la monola Bofase bja molapo wo o filwego tsela	-23.992	30.260	C	Godimo	B	Dikarolo tša thlago tšeo di sa fiwago tsela tša lefelo la monola di swanetše go phegelelwa. Mekgwa yeo e lego gona ya dienya le sebopego di swanetše go phegelelwa goba go kaonafatšwa ka gare ga sehla sa go fapana sa tlhago. Ditiro tša taolo ya mafelo a monola ao a nepišitšwego le tsenobogare ya rehabilitheišene di swanetšego nyakišišwa le go diragatšwa ge go hlokega go kaonafatša lefelo la monola le sebopego le tshepedišo ya maleba. Ditsela tša taolo ye e itšego ya lefelo di swanetše go tšweletšwa ka go rerišana le setšhaba sa selegae go netefatša hlokomelo le taolo ya tšhomišo ya lefelo la monola.
9	B82G Let_9.1	Baleni hot spring Spring	-23.419	30.912	B	Godimo Kudu	A/B	Hlokomelo ya tsentšho ya go ya go ile go ya go lefelo la monola e bohlokwa kudu go thomo ya phiti le go thibela oksiteišene. Phegelela sebopego sa dikenywa tšeo di lego gona le khomphosišene. Kgopelo ya tšhomišo ya meetse a fase lefelong e tla lebeletšwe thulano go sesteme ye, bobedi go tšwa go EIA le pono ya WUL, peelano yeo e sa fapogego ya go fa laesentse yeo e akaretšago le hlokomelo ya disesteme e swanetše go dirwa Taolo ya ditiragalo tša setšo go mafelo a monola. Mohlala: puno ya letswai. Taolo ye e lebanego ya lefelo e swanetše go tšweletšapele go ririšanwe le setšhaba sa selegaeng go netefatša tšhireletšo ya disesteme.
12	B83C Let_12.1	Nshawu Bofase bja molapo wo o sa fiwago tsela	-23.537	31.487	C	Godimo	B	Phegelela kabo ya kelelo yeo e lego gona le diphethene tša rithenšene ka gare ga sesteme. Phegelela sebopego sa dikenywa yeo e lego gona le khomphosišene.

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ILIA	Khwat & Lefelo la monola le ID	Leina la lefelo la monola & Mokgwa	Di khoodineiti		PES	EIS	REC	Ditaetša Ikholotšikhale*
			Lathitšhute	Longitšhute				
		Bofase bja molapo wo o filwego tsela						Go go a swanela go dumelelwa ditiragalo tšeo di ka dirago kelelo ya khosentreišene ka gare ga sesteme ntle le go latela tshepedišo ye e feleletšego ya tumelelo.
12	B83D Let_12.2	Manyeleti/ Makhadzi lefelo la monola Bofase bja molapo wo o sa fiwago tsela	-23.657	31.607	A	Godimo	A	Mafelo a monola a bjalo ao a sa fiwago tsela a swanetšgo phegelelwa bjalo ka disesteme tšeo di sa fiiwago tsela. Phegelela sebopego sa dikenywa yeo e lego gona le khomphosišene. Go go a swanela go dumelelwa ditiragalo tšeo di ka dirago kelelo ya khosentreišene ka gare ga sesteme ntle le go latela tshepedišo ye e feleletšego ya tumelelo Go sebe le kgolo ya abstrakšene go meetse a fase ka gare ga bisinithi ya bjako ntle le ge tshepedišo ye e feletšego ya tumelelo e latetšwe.

***Noute:** Ditaetšo tša Ikhlotšikhale (Ecospecs) tšeo di hlaloseditšwego go baotledi le dikarabo tša tiro ka ge maikemišetšo a ikholotšikhale a swanetše go fihlelelwa. Tekolo ya ditaetšo tše le baotledi ba tla laetša ka moo sedirišwa se fetogago ka gona go sepela ga nako le ge eba Peelo e fihleletšwe. Ge esa fihlelelwa, ditsenelelo tša balaodi e ka hlokega gore go kgonwe go tshwarelela khathekori yeo e nyakegago ya ikholotšikhale. Dinyakwa tša tekolo di šupeditšwe go Rephoto ya Ditaetšo tša Ikholotšikhale No: **RDM/WMA02/00/CON/0516**.

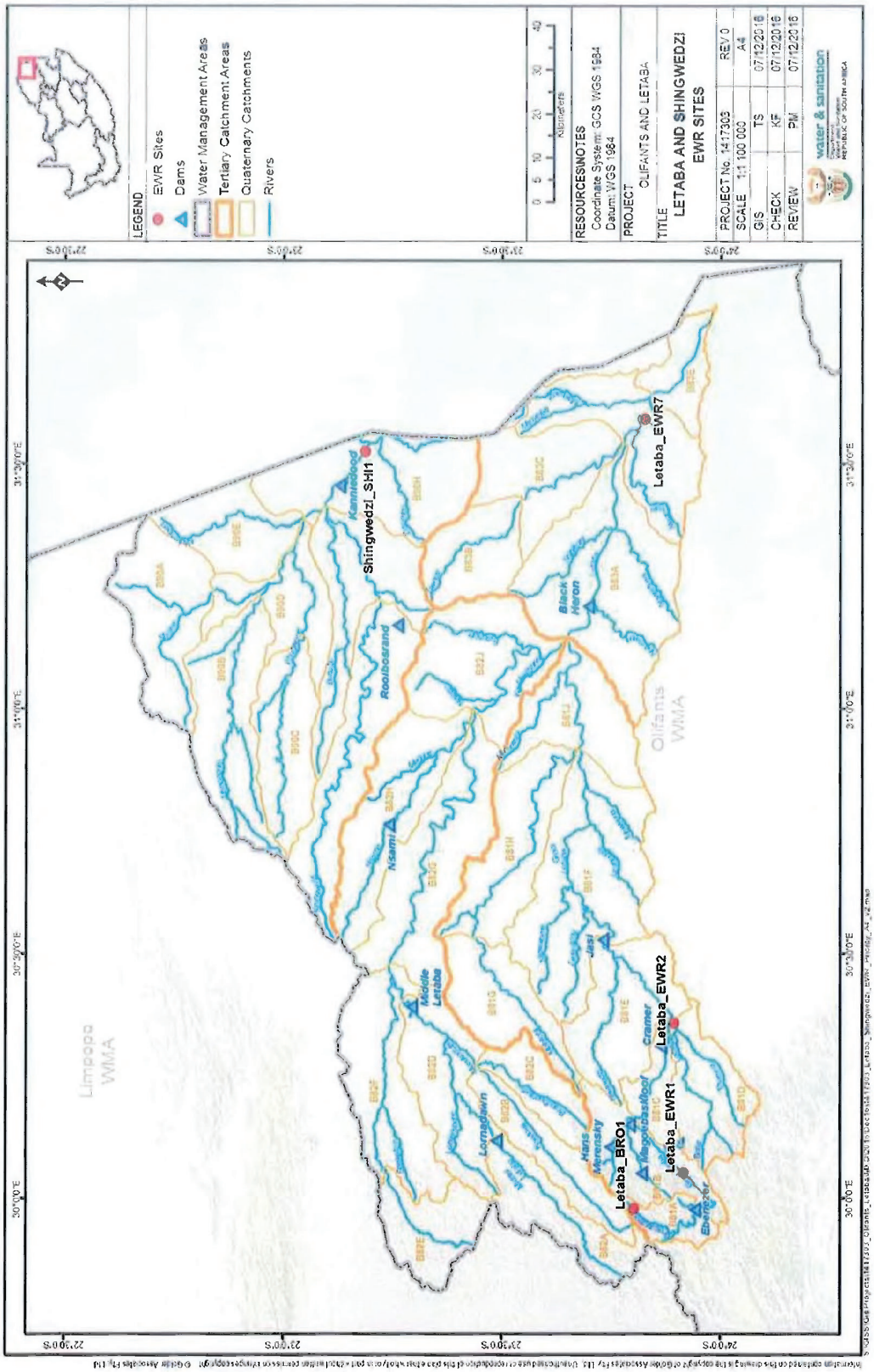
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Fikara 1: Mmapa o bontshang dibaka tse kgethilweng tsa pokello ya meetse ya EWR tsa Olifants.

84

85



Fikara 2: Mmapa o bontshang dibaka tse kgethilweng tsa pokello ya meetse ya EWR tsa Letaba le Shingwedzi.

ANNEXURE C:
OLIFANTS & LETABA NOTICE (XITSONGA)

XITIVISO XA MANI NA MANI

NDZAWULO YA MATI NA NKULULO

NAWU WA MATI YA RIXAKA, 1998

(NAWU WA NO. 36 WA 1998)

HLAYISA KU TINYIKETELA KA NDHAWU YA LAHA MATI MA KUMEKEKA KONA YA NDHAWU YA LAHA MATI MA HLENGELETIWAKA KONA YA OLIFANTS NA LETABA

Mina, Deborah Mochotlhi, eka vuswikoti bya mina tanihi Muyimela Mufambisi Nkulu wa Ndzawulo ya Mati na Nkululo, ku va ndzi landzelele na xiyenge xa 13 xa Nawu wa Mati ya Rixaka, Nawu wa No. 36 wa 1998) ("nawu") na xinawana xa vunharhu xa mafambiselo yo simekiwa ka Sisiteme ya Ntlawahato wa Ndhawu ya laha mati ma kumekeka kona (No. R.810 Phephahungu ra Mfumo ra No. 33541, 17 Ndzati 2010), no tlhela yi pfumeleriwa kahle hi tlhelo ra xiyenge xa 16 (1) xa Nawu, hi mukhuva wolowo hangalasa ku Tinyiketela ko Hlayisa tindhawu ta laha mati ma kumekaka kona ta Olifants na Letaba.

Mufambisi: Ku tinyiketela ko Hlayisa
Nyingiso: Tat Yakeen Atwaru
Ndzawulo ya Mati na Nkululo
Muako wa Ndinaye 185 xitarata xa Francis Baard
Private Bag x313
Pretoria
0001
Email:atwaruy@dws.gov.za

MS DEBORAH MOCHOTLHI
MUYIMELA MUFAMBISI NKULU
SIKU: 25/07/2018

KU TINYIKETELA KO HLAYISIWA KA TINDHAWU TA LAHA MATI MA KUMEKAKA KONA YA LAHA MATI MA HLENGELETIWAKA OLIFANTS NA LETABA HI KUYA HI XIYENGE XA 16 (1) NA (2) XA NAWU WA MATI YA RIXAKA, 1998 (NAWU WA NO. 36 WA 1998)

XEDULU

NHLAMUSELO YA NDHAWU YA LAHA MATI MA KUMEKEKA KONA

1. (1) Ku hlayisa swi tiyisiwa ka hinkwaswo kumbe xiphemu xa ndhawu ya nkoka ya laha mati ma kumekaka kona endzeni ka ndhawu ya laha mati ma hlengeletiwaka kona ka Olifants na Letaba tanihiloko swi vekiwile laha hansi:

Xifundza xa Vulawuri bya Mati: Olifants

Swifundza swa Mphomiso:	B Xifundza xa Mphomiso wa Masungulo (a ku Katsiwanga Ndhawu Laha Mati ma Shingwedzi ma Hlengeletiwaka Kona (B90))
Milambu:	Tisisiteme ta Nambu wa Olifants na Letaba

(2) Holobye u na hi kuya hi xiyenge xa 16 xa Nawu wa Mati ya Rixaka, 1998 (Nawu wa No.36 wa 1998) ("Nawu"), wu hlamuseriwa tanihi sisiteme yo ntlawahata tindhawu ta laha mati ma kumekaka hi ku humesa Xiviko xa Mfumo No.R.810, lexi hangalasiweke eka Phephahungu ra Mfumo No. 33541 hi siku ra ti 17 Ndzati 2010. Hi kuya hi xiyenge xa 16 (n'we) xa Nawu, Holobye u fanele a, hi ku hatlisa hi ku endla ko twisiseka endzhaku ka ntlawa wa hinkwavo kumbe xiphemu xa ndhawu ya laha mati ma kumekaka kona xi kumekile, hi xiviko endzeni ka Phephahungu, ku kumeka vuhlayiseki bya hinkwerhu kumbe xiphemu xa ndhawu ya laha mati ma kumekeka kona.

(3) Holobye, hi kuya hi xiyenge xa 16(n'we) na (mbirhi) xa Nawu, u hlambanya leswaku, vuhlayiseki lebyi landzelaka bya tindhawu ta laha mati ma hlengeletiwaka ta Olifants na Letaba.

KU TINYIKETELA KA VUHLAYISEKI TANIHILOKO SWI LAVEKILE HI KUYA HI XIYENGE XA 16(N'WE) NA (MBIRHI) NAWU WA MATI YA RIXAKA, 1998

2. (1) Nkatsakanyo wa ntalo wa xiphemu xa Milambu lexi katsaka EWR (**Figara yo sungula na ya vumbirhi)** na BHN hi kuya hi xiyenge xa 16(n'we) xa Nawu wa ndhawu ya laha mati ma hlengeletiwaka kona eOlifants na Letaba xi vekiwile eka nongonoko wa vumune. **Tafula ra 4.1** ri katsa mimbuyelo ya tindhawu ta xirhangana na **Tafula ra 4.2** ri katsaka mimbuyelo ya vuhlanganelo madingu ya bayofizikali na tindhawu ta EWR leti saleke.

(2) Nkatsakanyo wa nkoka wa xiphemu xa Milambu eka tindhawu ta EWR hi kuya hi xiyenge xa 16(n'we) xa Nawu xa tindhawu laha mati ma hlengeletiwaka eOlifants na Letaba xi vekiwile eka **Tafula ra 5.1- 5.29.**

(3) Nkatsakanyo wa mpfuno wa mati ya le hansi ka misava eka ku Hlayisa ka Ntalo wa Mati hi kuya hi xiyenge xa 16(n'we) xa Nawu wa Ndhawu ya laha mati ma hlengeletiwaka kona eka Olifants na Letaba xi vekiwile eka **Tafula ra 6.1**.
(4) Nkatsakanyo wa mpfuno wa mati ya le hansi ka misava eka ku Hlayisa ka Ntalo wa Mati hi kuya hi xiyenge xa 16(n'we) xa Nawu wa Ndhawu ya laha mati ma hlengeletiwaka kona eka Olifants na Letaba xi vekiwile eka **Tafula ra 7.1**, **7.2** na **7.3.**

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(5) Nkatsakanyo wa ku Hlayisiwa ka xibodlho xa Ntalo na Xiyimo xa Mati hi kuya hi xiyenge xa 16 (n'we) xa Nawu wa Ndhawu laha Mati ma Hlengeletiwa Kona eOlifants na Letaba wu vekiwile eka **Tafula ra 8.1.**

(6) ku hlayisa loku ku ta tirha ku suka ka siku leri nga sayiniwa tanihiloko swi kumiwile hi kuya hi Xiyenge xa 16(n'we) xa Nawu, handle ka loko ku ri na swin'wana swi hlamuseriweke hi Holobye.

3. MINKOMISO YA MARITO NA TINHLAMUSELO

3.1 MINKOMISO YA MARITO

BHN	Swilaveko swa Nkoka swa Vanhu
EcoSpecs	Swiringanisi swa Ikholoji
EIS	Nkoka wa swa Ikholoji na ku Hatla ku Khumbeka
EWR	Swilaveko swa Mati ya Ikholoji
GRAII	Xiyimo xa Vuhleri bya Mati ya le Hansi Ndhawu ya laha mati ma kumekeka kona
GRDM	Maendlelo yo Tinyiketela ku Hlayisa Mati ya le Hansi
GRUs	Swiphemu swa Ndhawu laha Mati ma Kumekaka Mati ya le Hansi ka misava
NMAR	Nhlayo xikarhi wa Ntumbuluko wa NKhuluko wa Lembe na Lembe
MCM	Miliyoni ya Mitara ya Vundzeni
PES	Xiyimo xa sweswi xa swa Ikholoji
REC	Ntlawa lowu Bumabumeriweke wa swa Ikholoji
TEC	Ntlawa wa Xikongomiwa xa Ikholoji
TPCs	Vunavelo bya vuswikoti byo khumbeka

3.2 Tinhlamuselo

Nkhuluko wa le ka tshaku ra misava i nkhuluko wa le hansi wa nkarhi wo leha eminambyeni hi nkarhi wa ku oma kumbe swiyimo swa maxelo ya kahle, Kambe a hi ngopfungopfu hinkwayo yi nga pfuniwa hi mati ya le hansi ka misava, ku katsa mpfuneto wo suka eka nkhuluko wa le xikarhi lowu hlweleke na ku humesiwa ka mati ya le hansi.

EWR (Swilaveko swa Mati ya Ikholojikhali) ku kongomisiwa eka tiphetheni ta nkhuluko (vukulu, ku rhiya nkarhi na nkarhi) na xiyimo xa le henhla xa mati lexi lavekaka ku hlayisa tlhelo ra nambu ra sisiteme ya swa mbangu eka xiyimo xo karhi.

Ku pfuxetiwa matimba i ku engeteriwa ka mati eka ndhawu yo hliki, hambi hi ku hangalaka ka le hansi ka ahlukanyo kumbe vuandlalo bya mati na/ kumbe ku suka ka le matlhelo ka mati ya le hansi ku suka ekusuhi na maribye lama kotaka ku tswonga no khoma mati.

Hlayisa i ntalo na nkoka wa mati lama lavekaka ku enerisa swilaveko Swa nkoka swa vanhu hi ku hlayisa mphakelo wa nkoka wa Mati no sirhelela sisiteme ya swa mbangu wa swa le matini Ku kota ku hlayisa nhluvukiso lowu nga ta heta nkarhi wo leha wa swa ikholoji no tirhisiwa ko fambelana na ndhawu ya laha mati ma kumekeka kona.

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4. VUANDLALO BYA MATI- NTALO WA XIPHEMU XA MILAMBU

Mimbuyelo yo tinyiketela ku Hlayisa na ntlawahato wa swa ikholoji eka tisisiteme ta Olifants na Letaba, laha vuhlayisi yi hlamuseriwaka tanihi phesente ya NMAR eka tindhawu to hlonipheka ta laha mati ma hlengeletiwaka kona (ku tlakuka hi xihatla) hi kuya hi xiyenge xa 16(n'we) xa Nawu.

Tafula ra 4.1: Nkatsakanyo wa **ntalo** wa xiphemu wa Milambu leyi katsaka EWR na BHN wa tindhawu ta xirhangana

Kotara ya ndhawu laha mati ma hlengeletiwakona	Ndhawu ya laha mati ma kumekeka kona	PES	EI_ES	TEC[5]	Ku hlayisa swa Ikholoji[3] (%NMAR)	Ku Hlaysiwa ka BHN[4] (%NMAR)	Ntsengo hinkwawo wo Hlayisa[2] (%NMAR)	NMAR (MCM)[1]
B31C	Elands ya le Henhla - Olifants_ELA1	C/D	Henhla swinene	C	20.87	0.003	20.873	31.08
B20J	Wilge ya le Hansi - Olifants_EWR4	C	Henhla	B	36.28	0.013	36.293	175.59
B20F	Nambu wa Wilge - Olifants_WIL1	C/D	Henhla	C	15.11	0.008	15.118	44.76
B11J	Olifants - Olifants_EWR1	D	Yo ringanela	D	17.80	0.052	17.852	184.54
B32A	Olifants - Olifants_EWR2	C	Henhla	B/C	29.83	0.008	29.838	500.63
B32A	Kranspokumbetspruit - OLI_EWR3	C	Henhla swinene	B	30.26	0.008	30.268	13.86
B32C	Selons - Olifants_SEL1	D	Henhla swinene	C	21.86	0.020	21.88	33.11
B71D	Olifants - Olifants_EWR8	C	Yo ringanela	C/D	15.19	0.020	15.21	813.17
B42H	Spekboom ya le Hansi- Olifants_SPE1	C	Henhla	C	23.16	0.091	23.251	148.19
B60B	Blyde ya le Henhla - Olifants_BLY1	C	Henhla	B	46.08	0.005	46.085	164.45
B71J	Olifants - Olifants_EWR11	C	Henhla	C/D	12.81	0.052	12.862	1321.92
B60J	Blyde ya le Hansi - Olifants_EWR12	C	Henhla	B	31.14	0.052	31.192	383.27
B72D	Olifants - Olifants_EWR13	C	Yo ringanela	C	22.37	0.301	22.671	1762.10
B73H	Olifants - Olifants_EWR16	D	Henhla	C	21.06	0.002	21.062	1918.30
B83D	Letaba - Letaba_EWR7	C/D	Henhla	C	17.34	0.000	17.34	646.28
B81D	Letsitele - Letaba_EWR2	D	Henhla	D	17.59	0.078	17.668	116.55
B81B	Great Letaba - Letaba_EWR1	C/D	Henhla	C	24.76	0.030	24.79	99.85
B81A	Broederstroom - Letaba_BRO1	B/C	Henhla	B/C	49.22	0.012	49.232	6.68
B12E	Klein Olifants - Olifants-EWR3	D	Henhla	C/D	19.8	0.009	19.809	81.54
B32D	Olifants - Olifants-EWR5	C	Henhla	C	12.51	0.060	12.57	571.13
B31G	Elands ya le Hansi - Olifants-EWR6	C/D	Moderate	D	10.48	0.033	10.513	60.32
B51G	Olifants - Olifants-EWR7	E	Yo ringanela	D	9.89	0.365	10.255	736.94
B41H	Steelpokumbet - Olifants-	D	Henhla	C/D	23.33	3.086	26.416	137.50
B72K	Ga-Selati ya le Hansi- Olifants_EWR14b	E	Yo ringanela	D	19.45	0.043	19.493	72.74

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B11H	Spookspruit - SPK_EWR1	C	Yo ringanela	C	30.12	0.001	30.121	9.32
B41H	Dwars - DWA_EWR1	B/C	Henhla	B/C	31.24	3.086	34.326	26.10
B41K	Steelpokumbet - Olifants_EWR10	D	Henhla	D	12.69	0.480	13.17	342.75
B60H	Ohrigstad - OLI_EWR8	C	Yo ringanela	C	17.41	0.512	17.922	67.79
B72H	Ga-Selati ya le Henhla - Olifants_EWR14a	C	Yo ringanela	C	27.53	0.123	27.653	52.20

1) NMAR i Nkhuluko wa Lembe na Lembe wa le Xikarhi wa Ntumbuluko.
2) Ntsengo wa Vunkwabyo byo Hlayisa wu teka vutihlamuleri eka hinkwako ku Hlayisiwa ka swa Ikholoji na ku Hlayisa Swilaveko swa Vanhu swa Nkoka (BHN).
3) Ntsengo lowu wu yimela nhlayo xikarhi wa nkarhi wo leha hikuya hi NMAR. Loko NMAR yi cinca, mpimo lowu na wona wu ta cinca.
4) Wu yimela tiphesente ta BHN.
5) Xikongomiwa xa Khategkumbei ya swa Ikholoji (TEC). Xikongomiwa xa le ku heteleni eka ku fikelela sisiteme yo heta nkarhi wo leha matlhelo hinkwawo ikholojikali na ikhonomikali ku karhi ku tekeriwa enhlokweni PES na REC.

Tafula ra 4.2: Nkatsakanyo wa **ntalo** wa xiphemu Milambu ya EWR na BHN ya vuhlanganelo Madingu na tindhawu ta EWR leti saleke.

Kotara ya ndhawu laha mati ma hlengeletiwkakona	Ndhawu ya laha mati ma kumekeka kona	PES	EI	ES	REC	Ku Hlayisiwa ka swa Ikholoji (%NMAR)	Ku Hlayisiwa ka BHN (%NMAR)	Ntsengo wa ku Hlayisiwa (%NMAR)	NMAR (MCM)
B11A, B11B	Olifants (ndhawu ya laha milambu mimbirhi yi hlanganaka na Steenkoolspruit)	C	Henhla	Henhla	C	10.25	0.001	10.251	61.30
B11D	Steenkoolspruit (phayiphi ya kotara	D	Yo ringanela	Henhla	D	4.70	0.006	4.706	44.60
B11E	Steenkoolspruit (ndhawu ya laha milambu mimbirhi yi hlanganaka na Olifants)	D	Yo ringanela	Henhla	D	4.70	0.004	4.704	65.40
B11F	Olifants (phayiphi ya kotara)	D	Yo ringanela	Henhla	D	4.70	0.007	4.707	147.90
B11G	**Noupokumbetspruit (ndhawu ya EWR – NOW-EWR1) (existing)**	**C/D**	**EIS-yo ringanela**		**C/D**	**13.90**	**0.075**	**13.975**	**4.28**
B11G	Olifants (Yi ntshunxiwa ku suka eka Damu ra Witbank)	D	Yo ringanela	Henhla	D	4.70	0.075	4.775	164.00
B11H	Spookspruit (ndhawu ya laha milambu mimbirhi yi hlanganaka na Olifants)	C	Henhla	Henhla	C	10.25	0.001	10.251	11.40
B11K, B11L	Klipspruit (ndhawu ya laha milambu mimbirhi yi hlanganaka na Olifants)	D	Henhla	Yo ringanela	D	4.67	0.052	4.722	45.70
B12A	Klein Olifants (phayiphi ya kotara)	C	Henhla	Henhla	C	18.85	0.001	18.851	12.70
B12B	Klein Olifants (phayiphi ya kotara)	D	Yo ringanela	Henhla	D	8.11	0.000	8.110	16.90
B12C	**Klein Olifants (ndhawu ya EWR – OLI-EWR1) (Ndhawu ya xihatla)**	**C**	**EIS-ya le Hansi**		**C**	**18.85**	**0.003**	**18.853**	**44.50**

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Kotara ya ndhawu laha mati ma hlengeletiwkakona	Ndhawu ya laha mati ma kumekeka kona	PES	EI	ES	REC	Ku Hlayisiwa ka swa Ikholoji (%NMAR)	Ku Hlayisiwa ka BHN (%NMAR)	Ntsengo wa ku Hlayisiwa (%NMAR)	NMAR (MCM)
B12C	Klein Olifants (ryi tshunxiwa ku suka eka Damu ro suka Middelburg)	D	Henhla	Henhla	D	5.52	0.003	5.523	53.50
B12D	Klein Olifants (phayiphi ya kotara)	D	Yo ringanela	Henhla	D	5.52	0.004	5.524	67.30
B20A	Bronkhkumbestpruit (phayiphi ya kotara)	C	Yo ringanela	Henhla	C	13.38	0.003	13.383	27.70
B20B	Koffiespruit (ndhawu ya laha milambu mimbirhi yi hlanganaka na Bronkhkumbestspruit)	C	Yo ringanela	Henhla	C	13.38	0.005	13.385	15.50
B20C	Bronkhkumbestpruit (phayiphi yo suka eka Damu ra Bronkhkumbestspruit)	C	Henhla	Henhla	C	13.44	0.003	13.443	56.40
B20D	Hondespruit (ndhawu ya laha miłambu mimbirhi yi hlanganaka na Bronkhkumbestspruit)	C	Henhla	Henhla	C	13.39	0.002	13.395	11.90
B20D	Bronkhkumbestpruit (ndhawu ya laha milambu mimbirhi yi hlanganaka na Wilge)	C	Henhla	Henhla swinene	C	13.45	0.002	13.452	79.90
B20E, B20F	Wilge (ndhawu ya laha milambu mimbirhi yi hlanganaka na Bronkhkumbestspruit	C	Henhla	Henhla	C	13.42	0.003	13.423	45.80
B20G	Saalboomspruit (ndhawu ya laha milambu mimbirhi yi hłanganaka na Wilge)	C	Yo ringanela	Henhla	C	13.40	0.025	13.425	22.10
B20H	Grootspruit (ndhawu ya laha milambu mimbirhi yi hlanganaka na Wilge)	C	Henhla	Henhla swinene	C	13.40	0.006	13.406	12.80
B20H	Wilge (phayiphi ya kotara)	B	Henhla	Henhla swinene	B	17.92	0.006	17.926	158.20
B32C	Olifants (yi tshunxiwa ku suka eka Damu ra Loskop)	D	Henhla	Henhla	D	7.22	0.020	7.240	568.60
B32C	Olifants (phayiphi ya kotara – phayiphi ya IUA3)	D	Henhla	Henhla	D	7.22	0.020	7.240	576.80
B31A, B, C	B31A (Elands) B31B (Hartbeesspruit) B31C (Elands) Vuhlanganelo madingu eka phayiphi ya B31C yi humesa ku suka eka Damu ra Rust de Winter.	C C C	Henhla Henhla Henhla	Henhla Henhla swinene Henhla swinene	C	12.34	0.003	12.343	33.50
B31F	Elands (ri humesa ku suka eka Damu ra Mkumbe)	C	Henhla	Henhla	C	12.34	0.008	12.348	59.80
B31H, B31J	Elands (phayiphi ya kotara, ndhawu ya laha milambu mimbirhi yi hlanganaka na Olifants))	D	Yo ringanela	Yo ringanela	D	6.32	0.084	6.404	84.10

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Kotara ya ndhawu laha mati ma hlengeletiwkakona	Ndhawu ya laha mati ma kumekeka kona	PES	EI	ES	REC	Ku Hlayisiwa ka swa Ikholoji (%NMAR)	Ku Hlayisiwa ka BHN (%NMAR)	Ntsengo wa ku Hlayisiwa (%NMAR)	NMAR (MCM)
B32E, B32F	B32E (Bloed) B32F (Dkumbeingpokumbetloop) Vuhlanganela madingu eka ndhawu ya laha milambu mimbirhi yi hlanganaka kona na Olifants eka B32F.	B	Yo ringanela Henhla	Henhla Yo ringanela	B	13.90	0.397	14.297	17.20
B32G, B32H	B32G (Moses) B32H (Mametse and Moses) Vuhlanganela madingu eka phayiphi ya B32H	C	Henhla Henhla	Henhla Henhla	C	9.93	0.084	10.014	35.40
B51B	Olifants (ya humesiwa ku suka Mujeko Damu ra Boshielo)	D	Yo ringanela	Henhla	D	3.91	1.009	4.919	723.40
B51D, B51E	Olifants (phayiphi ya kotara– phayiphi ya IUA5)	D	Yo ringanela	Henhla	D	3.81	0.000	3.810	726.60
B41A	Grootspruit (phayiphi ya kotara) Langspruit, ku katsa Lakenvleispruit na Kleinspruit	C D	Henhla Henhla	Henhla Henhla swinene	C	20.78	0.003	20.783	41.90
B41B	**Steelpokumbet (ndhawu ya EWR – OLI-EWR2) (Ndhawu ya xihatla)**	**C**	**EIS=yo ringanela**		**C**	**20.78**	**0.006**	**20.786**	**63.50**
B41D, B41E	Steelpokumbet (nkhuluko wa le ndzeni eka Damu ra De Hoop)	C	Henhla	Henhla swinene	C	20.78	0.394	21.174	117.00
B41F	**Klip (ndhawu ya EWR – OLI-EWR4) (Ndhawu ya xihatla)**	**C**	**EIS=yo ringanela**		**C**	**12.44**	**0.019**	**12.459**	**5.20**
B41G	Mfikelelo ya le henhla ya Dwars (ku nga si va na ku khumbeka ka mayini)	C	Henhla	Henhla swinene	C	13.33	0.015	13.345	24.50
B51F	Nkumpi (phayiphi ya kotara)	C	Henhla	Yo ringanela	C	10.73	0.023	10.753	3.80
B52A, E,G,H	Olifants (phayiphi ya kotara– phayiphi ya IUA7)	D	Yo ringanela	Henhla	D	3.88	0.541	4.421	799.7
B42B	**Dkumbepspruit (ndhawu ya EWR – OLI-EWR9) (Ndhawu ya Xihatla)**	**C/D**	**EIS=ya le Hansi**		**C/D**	**11.99**	**0.006**	**11.996**	**63.20**
B42D, B42E	Dkumbeps (ndhawu ya laha milambu mimbirhi yi hlanganaka na Spekboom) Spekboom (ndhawu ya laha milambu mimbirhi yi hlanganaka na Dkumbeps)	C C	Henhla Henhla	Henhla Henhla swinene	C	14.95	0.011	14.961	69.70
B42D	**Spekboom (ndhawu ya EWR – OLI-EWR6) (ndhawu ya xihatla)**	**C**	**EIS=Henhla**		**C**	**17.15**	**0.001**	**17.151**	**28.00**

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Kotara ya ndhawu laha mati ma hlengeletiwkakona	Ndhawu ya laha mati ma kumekeka kona	PES	EI	ES	REC	Ku Hlayisiwa ka swa Ikholoji (%NMAR)	Ku Hlayisiwa ka BHN (%NMAR)	Ntsengo wa ku Hlayisiwa (%NMAR)	NMAR (MCM)
B42F	Watervals (u humesa ku suka eka Damu ra Buffelskloof)	C	Henhla	Henhla swinene	C	17.36	0.011	17.371	28.60
B42G	**Watervals (ndhawu ya EWR – OLI-EWR5) (Ndhawu ya xihatla)**	**C**	**EIS=yo ringanela**		**C**	**15.47**	**0.283**	**31.220**	**36.40**
B42H	Spekboom (phayiphi ya kotara – phayiphi ya IUA 8)	B	Henhla	Yo ringanela	B	28.84	0.091	28.931	149.00
B60E, B60F	Kranskloofspruit (ndhawu ya laha milambu mimbirhi yi hlanganaka na Ohrigstad) Mantshibi (ndhawu ya laha milambu mimbirhi yi hlanganaka na Ohrigstad) Ohrigstad (phayiphi ya kotara) Vuhlanganela madingu eka phayiphi ya B60F.	C C D	Henhla Henhla Yo ringanela	Henhla swinene Henhla swinene Henhla swinene	D	6.31	0.012	6.322	35.60
B60H	Ohrigstad (phayiphi ya kotara – phayiphi ya IUA9B)	D	Henhla	Henhla swinene	D	8.05	0.512	8.562	69.70
B60J	Blyde (ndhawu ya laha milambu mimbirhi yi hlanganaka na Olifants)	C	Henhla swinene	Henhla swinene	C	16.13	0.052	16.182	385.70
B71C	Mohlapitse (mimfikelelo ya le henhla)	B	Henhla swinene	Henhla swinene	B	26.50	0.103	26.603	42.10
B71D, B71F	Olifants (ndhawu ya laha milambu mimbirhi yi hlanganaka na Steelpokumbet)	D	Henhla	Henhla swinene	D	4.30	0.253	4.553	937.9
B72A	Makhutswi, ku katsa Moungwane and Malomanye	C	Henhla	Henhla	C	12.89	23.721	36.611	38.00
B72C	Olifants (phayiphi – phayiphi ya IUA10)	C	Henhla	Henhla	C	18.07	0.616	18.686	1755.5
B72E	Ngwabatse (ndhawu ya laha milambu mimbirhi yi hlanganaka na Ga-Selati)	D	Henhla	Henhla swinene	D	9.05	0.341	9.391	25.70
B72F, G	Ga-Selati (phayiphi ya kotara)	C	Henhla	Henhla swinene	C	19.59	0.023	19.613	13.50
B72J	Molatle (ndhawu ya laha milambu mimbirhi yi hlanganaka na Ga-Selati)	B	Yo ringanela	Yo ringanela	B	12.67	0.038	12.705	11.40
B72K	Ga-Selati (phayiphi ya kotara – phayiphi ya UIA11)	E	Henhla	Henhla	D	11.95	0.043	11.993	72.70
B73A	**Klaserie (ndhawu ya EWR – OLI-EWR7) (Ndhawu ya xihatla)**	**B/C**	**EIS=Henhla**		**B/C**	**22.31**	**0.033**	**22.343**	**25.50**

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Kotara ya ndhawu laha mati ma hlengeletiwkakona	Ndhawu ya laha mati ma kumekeka kona	PES	EI	ES	REC	Ku Hlayisiwa ka swa likholoji (%NMAR)	Ku Hlayisiwa ka BHN (%NMAR)	Ntsengo wa ku Hlayisiwa (%NMAR)	NMAR (MCM)
B73B	Klaserie (ndhawu ya laha milambu mimbirhi yi hlanaganaka na Olifants)	C	Henhla	Henhla	C	15.41	0.008	15.418	37.10
B73D	Nhlaralumi, ku katsa Machaton, Nyameni na Thlaralumi	B	Henhla	Hansi	B	13.65	0.006	13.656	6.80
B73E	Sesete (ndhawu ya laha milambu mimbirhi yi hlanganaka na Timbavati)	B	Henhla	Hansi	B	12.24	0.152	12.392	11.10
B73F	Timbavati (phayiphi ya kotara)	B	Henhla	Yo ringanela	B	12.12	0.003	12.123	18.70
B73J	Olifants (phayiphi ya kotara – phayiphi ya IUA12)	C	Henhla	Hansi	C	21.07	0.007	21.077	1931.7
B60A	Blyde (ndhawu ya laha milambu mimbirhi yi hlanganaka na Lisbon)	C	Henhla	Henhla swinene	C	18.73	0.015	18.745	87.10
B60B	Blyde (phayiphi ya kotara)	B	Henhla	Henhla swinene	B	32.86	0.005	32.865	183.80
B60C	**Treur (ndhawu ya EWR – TRE-EWR1) (leyi nga kona)**	**B**	**EIS=Henhla swinene**		**B**	**34.60**	**0.001**	**34.601**	**46.80**
B60D	Blyde (nkhuluko wa le ndzeni eka Damu ra Blyderivierpokumbet – phayiphi ya IUA13)	B	Henhla	Henhla swinene	B	31.57	0.008	31.578	283.90
B81A	00242 - Broederstroom	C	Yo ringanela	Henhla	C	21.90	0.012	21.912	23.83
B81A	00256 - Unnamed tributary	D	hansi	Henhla	D	21.90	0.012	21.912	16.34
B81A	00263 - Unnamed tributary	D	Yo ringanela	Yo ringanela	D	21.90	0.012	21.912	5.75
B81A	00270 - Broederstroom	C	Yo ringanela	Henhla swinene	C	27.10	0.012	27.112	44..47
B81B	00227 - Mahitse	D	Yo ringanela	Henhla	D	22.10	0.030	22.130	13.60
B81B	00233 - Mahitse	C	Yo ringanela	Henhla	C	27.40	0.030	27.430	2.69
B81B	00234 - Mahitse	C	Yo ringanela	Henhla	C	29.80	0.030	29.130	10.13
B81B	00240 - Politsi	C	Yo ringanela	Henhla	C	19.10	0.030	19.130	38.98
B81B	00246 - Politsi	C	Yo ringanela	Henhla swinene	C	17.70	0.030	17.730	36.26
B81B	00251 – xinambyana lexi nga riki na vito	D	Hansi	Yo ringanela	D	15.40	0.030	15.430	1.34
B81B	00269 - Mkumbeudi	B	Yo ringanela	Henhla swinene	B	34.60	0.030	34.630	1.95
B81D	00272 - Letsitele	C	Henhla	Henhla swinene	C	22.00	0.078	22.078	91.27
B81D	00277 - Thabina	D	Henhla	Henhla	D	13.00	0.078	13.078	25.28
B81D	00280 - Bobs	B	Henhla	Henhla swinene	B	29.30	0.078	29.378	18.51

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Kotara ya ndhawu laha mati ma hlengeletiwkakona	Ndhawu ya laha mati ma kumekeka kona	PES	EI	ES	REC	Ku Hlayisiwa ka swa ikholoji (%NMAR)	Ku Hlayisiwa ka BHN (%NMAR)	Ntsengo wa ku Hlayisiwa (%NMAR)	NMAR (MCM)
B81D	00296 - Mothlaka-Semeetse	B	Henhla	Henhla swinene	B	34.60	0.078	34.678	10.53
B81E	00213 - Nwanedzi	D	Yo ringanela	Henhla	C	8.10	0.249	8.349	17.28
B81F	00189 - Merekome	C	Yo ringanela	Yo ringanela	C	7.10	0.244	7.344	4.74
B81F	00203 - Lerwatlou	C	Yo ringanela	Henhla	C	8.80	0.244	9.044	3.74
B81F	00228 - Reshwele	B	Yo ringanela	Hansi	B	9.10	0.244	9.344	3.53
B81F	00232 - Makwena	B	Yo ringanela	Hansi	B	12.80	0.244	13.044	2.75
B81G	00164 - Molototsi	D	Yo ringanela	Yo ringanela	D	6.60	0.288	6.888	16.72
B81H	00162 - Metsemola	C	Yo ringanela	hansi	C	9.80	0.545	10.345	0.64
B81H	00171 - Molototsi	D	Yo ringanela	Yo ringanela	D	6.50	0.545	7.045	25.84
B81J	00187 - Mbhawula	C	Yo ringanela	Hansi	C	9.80	0.024	9.824	2.53
B82A	00168 - Middle Letaba	C	Yo ringanela	Yo ringanela	C	24.30	0.014	24.314	31.12
B82B	00173 - Koedoes	D	Yo ringanela	Yo ringanela	D	12.30	0.013	12.313	23.13
B82D	00154 - Middle Letaba	D	Yo ringanela	Yo ringanela	D	17.30	0.116	17.416	40.53
B82D	00163 - Lebjelebkumbee	C	Yo ringanela	Henhla	C	25.80	0.116	25.916	4.90
B82D	00166 - Mosukodutsi	D	Yo ringanela	Yo ringanela	D	10.20	0.116	10.316	42.25
B82E	00149 - Khwali	B	Henhla	Hansi	B	13.90	0.158	14.058	4.51
B82E	00150 - Klein Letaba	C	Yo ringanela	Yo ringanela	C	16.00	0.158	16.158	3.48
B82F	00128 - Klein Letaba	C	Yo ringanela	Yo ringanela	C	15.40	0.071	15.471	32.13
B82F	00137 - Klein Letaba	D	Yo ringanela	Yo ringanela	D	9.70	0.071	9.771	13.64
B82F	00141 - Soeketse	C	Yo ringanela	Hansi	C	12.80	0.071	12.871	7.32
B82H	00127 - Nsama	C	Yo ringanela	Henhla	C	10.60	0.064	10.664	6.91
B82H	00139 - Magobe	B	Yo ringanela	Hansi	B	14.90	0.064	14.964	3.10
B82H	00157 - Nsama	B	Yo ringanela	Yo ringanela	B	14.40	0.064	14.964	11.72
B82J	00197 - Ka-Malilibone	B	Yo ringanela	Hansi swinene	B	13.80	0.013	13.813	0.66

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5. VUANDLALO BYA MATI- XIPHEMU XA NKOKA EKA MILAMBU

Nkatsakanyo wa xiphemu xa nkoka etindhawini ta EWR

Tafula ra 5.1: Olifants_ELA1: **Elands ya le Henhla**-Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Elands ta le Henhla		**EWR : Olifants_ELA1**	Ndhawu ya le kusuhi ya WQ (ndlela leyi Damu ra Rust De Winter ri khulukelaka kona) B3H013.No ya ndhawu ya WQ ya ndhawu eka ndhawu yo karhi ya ndhawu ya EWR. Eka ku hlaya ndhawu yo karhileyi nga le ku kumeni nchumu hi nkarhi wa nkambisiso
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA REC**	
Tiayoni ta nkoka	Mg	95th Phesenthavili ya switiviwa vi fanele ku va ≤ 30 mg/L	
	SO_4	95th Phesenthavili ya switiviwa vi fanele ku va ≤ 80 mg/L	
	Na	95th Phesenthavili ya switiviwa vi fanele ku va ≤ 70 mg/L	
	Cl	95th Phesenthavili ya switiviwa vi fanele ku va ≤.40 mg/L	
	Ca	95th Phesenthavili ya switiviwa vi fanele ku va ≤ 32 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th Phesenthavili ya switiviwa vi fanele ku va ≤ 30 mS/m	
	pH	5th na 95th wa tiphesenthavili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th Phesenthayili ya switiviwa yi fanele ku va ≥ 6.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka.	
Swakudya	TIN	50th Phesenthayili ya switiviwa yi fanele ku va ≤ 2.0 mg/L	
	PO_4-P	50th Phesenthayili ya switiviwa yi fanele ku va ≤ 0.058 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a Fayitoplakthoni	50th Phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L.	
	Chl-a perifayithoni	50th Phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m^2.	
	Amoniya	95th Phesenthayili ya switiviwa yi fanele ku va ≤ 72.5 µg/L.	
	Atrazine	95th Phesenthayili ya switiviwa yi fanele ku va ≤ 78.5 µg/L	
	Flkumbeayidl	95th Phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 mg/L	

Tafula ra 5.2: Olifants_EWR: **Wilge ya le Hansi**- Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Wilge ya le Hansi		**EWR : Olifants_EWR4**	Ndlela ya B2H015Q01 ya nambu wa Wilge eZusterstrom
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES AND REC**	
Tiayoni ta nkoka	Mg	95th Phesenthavili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 150 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 92.5 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤.120 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	Phesenthayili ya vuntlhanu ya switiviwa yi fanele ku va be ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.75 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.025 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankithoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaython	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m^2	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.75 µg/L	
	Aluminiyamu	95th phesenthayili ya switiviwa yi fanele ku va ≤ 62.5 µg/L	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 2.50 mg/L	
	Manganisi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 99.0 µg/L	

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Tafula ra 5.3: Olifants_WIL1: **Wilge ya le henhla** Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Wilge ya le Hansi		**EWR : Olifants_WIL1**	Ndlela ya nkhuluko wa nambu B2H014Q01
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES AND REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 70mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 40 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 32 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 6.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 2.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.058 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaython	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m^2	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.75 µg/L	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 mg/L	

Tafula ra 5.4: Olifants_EWR1: **Olifants** Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Olifants		**EWR : Olifants_EWR1**	Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR
Mimpimo ya Mati ya Nkoka		**ECOSPEC: REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 70 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 250 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 115 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 175 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 85 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.6 –	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 6.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	Nayitireti na Nayitireti	50th phesenthayili ya switiviwa yi fanele ku va ≤ 3.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.091 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaython	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m^2	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.75 µg/L	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 mg/L	

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Tafula ra 5.5: Olifants_EWR2: **Olifants**- Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Olifants		**EWR : Olifants_EWR2**	Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR
Mimpimo ya Mati ya Nkoka		**ECOSPEC: REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 150 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 92.5 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 120 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 1.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.025 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaython	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.75 µg/L	
	Aluminiyamu	95th phesenthayili ya switiviwa yi fanele ku va ≤ 62.5 µg/L	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 2.5 mg/L	
	manganisi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 180 mg/L	

Tafula ra 5.6: OLI_EWR3: **Kranspokumbetspruit** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Kranspokumbetsprult		**EWR : OLI_EWR3**	Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR
Mimpimo ya Mati ya Nkoka		**ECOSPEC: REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 70mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 40 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 32 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.75 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.02 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 15 µg/L	
	Chl-a Pherifaython	50th phesenthayili ya switiviwa yi fanele ku va ≤ 14.56 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.75 µg/L	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 mg/L	

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Tafula ra 5.7: Olifants_SEL1: **Selons** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Selons		**EWR : Olifants_SEL1**	**Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR**
Mimpimo ya Mati ya Nkoka		**ECOSPEC: REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 150 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 92.5 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 120 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.6 – 9.2.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 6.5 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 2.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.058 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaython	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.75 µg/L	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 µg/L	
	Aluminiyamu	95th phesenthayili ya switiviwa yi fanele ku va ≤ 0.15 mg/L	
	Manganisi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 1.30 mg/L	
	Zinki	95th phesenthayili ya switiviwa yi fanele ku va ≤ 36 µg /L	

Tafula ra 5.8: Olifants_EWR8: **Olifants** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Olifants		**EWR : Olifants_EWR8**	**Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR**
Mimpimo ya Mati ya Nkoka		**ECOSPEC: REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 150 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 92.5 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 120 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 2.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.058 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaython	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.75 µg/L	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 mg/L	

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Tafula ra 5.9: Olifants_SPE1: **Spekboom** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Olifants		**EWR : Olifants_SPE1**	Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR
Mimpimo ya Mati ya Nkoka		**ECOSPEC: REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 150 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 92.5 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 120 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 1.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.025 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaython	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.75 µg/L	
	Aluminiyamu	95th phesenthayili ya switiviwa yi fanele ku va ≤ 150 µg/L	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3 mg/L	
	manganisi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 1.3 mg/L	

Tafula ra 5.10: Olifants_BLY1: **Bylde ya le Henhla**- Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Blyde ya le Henhla		**EWR : Olifants_BLY1**	Nndlela ya ndhawu ya nkhuluko wa nambu B6H001Q01
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 70 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 40 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 32 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 8.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.5 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.025 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 15 µg/L	
	Chl-a Pherifaython	50th phesenthayili ya switiviwa yi fanele ku va ≤ 14.56 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 15 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 9 µg/L	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 1.5 mg/L	

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Tafula ra 5.11: Olifants_EWR11: **Olifants** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Olifants		**EWR : Olifants_EWR11**	Ndlela ya ndhawu ya nkhuluko wa nambu B7H009Q01
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 150 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 92.5 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 120 mg/L	
	Ca	95th phesenthaylli ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 2.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.058 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaython	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.75 µg/L	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 mg/L	

Tafula ra 12: Olifants_EWR12: **Bylde ya le Hansi** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Blyde ya le Hansi		**EWR : Olifants_EWR12**	Ndlela ya ndhawu ya nkhuluko wa nambu wa le henhla B6H004Q01
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 70 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 40 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 32 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 8.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.5 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.020 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 15 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 14.56 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 15 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 19 µg/L	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 1.0 mg/L	

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Tafula ra 5.13: Olifants_EWR13: **Olifants** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Olifants		**EWR : Olifants_EWR13**	Ndlela ya ndhawu ya nkhuluko wa nambu wa le henhla B7H007Q01
Mimpimo ya Mati ya Nkoka		**ECOSPEC: REC**	
Tlayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 150 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 92.5 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 120 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 1.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.025 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaython	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.75 µg/L	
	Aluminiyamu	95th phesenthayili ya switiviwa yi fanele ku va ≤ 62.5 µg/L	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 2.5 mg/L	

Tafula ra 5.14: Olifants_EWR16: **Olifants** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Olifants		**EWR : Olifants_EWR16**	Ndlela ya ndhawu ya nkhuluko wa nambu B7H017Q01
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA REC**	
Tlayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 70 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 40 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 32 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 8.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.75 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.02 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.75 µg/L	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 2.5 mg/L	

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Tafula ra 5.15: Olifants_EWR3: **Klein Olifants** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Olifants		**EWR : Olifants_EWR3**	Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR
Mimpimo ya Mati ya Nkoka		**ECOSPEC: REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 150 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 92.5 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 120 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 6.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 2.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.058 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 mg/L	

Tafula ra 5.16: Olifants_EWR5: **Olifants** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Olifants		**EWR : Olifants_EWR5**	Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 150 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 92.5 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 120 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10 wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 2.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.058 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 72.5 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 78.5 µg/L.	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 mg/L	

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Tafula ra 5.17: Olifants_EWR6: **Elands ya le Hansi** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Olifants		**EWR : Olifants_EWR6**	Ndlela ya ndhawu ya nkhuluko wa nambu B3R005Q01
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 150 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 92.5 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 120 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.6 – 9.2.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 6.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 3.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.091 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 30 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 42 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 72.5 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 78.5 µg/L.	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 mg/L	

Tafula ra 5.18: Olifants_EWR7: **Olifants** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Olifants		**EWR : Olifants_EWR7**	Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 70 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 250 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 115 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 175 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 85 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.0 – 10.0.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 6.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 4.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.125 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 30 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 42 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 72.5 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 78.5 µg/L.	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 mg/L	

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Tafula ra 5.19: Olifants_EWR9: **Steelpokumbet** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Olifants		**EWR : Olifants_EWR7**	Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 70 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 250 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 115 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 175 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 85 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.0 – 10.0.	
	Mahiselo	Ku hambana ka 2°C kumbe 10% wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 5.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 4.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.125 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 30 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 42 mg/m^2	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 72.5 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 78.5 µg/L.	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 mg/L	

Tafula ra 5.20: Olifants_EWR10: Steelpokumbet - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Olifants		**EWR : Olifants_EWR10**	Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR tirhisa ndawu ya xinambyana xa le henhla B4H011Q01 (B4H11)
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES, RQO NA TEC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 40 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 40 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 70 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.0 – 9.0.	
	Mahiselo	Ku hambana ka 2°C kumbe 10 wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 4.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.091 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 30 µg/L	
	Chl-a Pherifaython	50th phesenthayili ya switiviwa yi fanele ku va ≤ 42 mg/m^2	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 72.5 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.8 µg/L	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 0.7 µg/L	
	Aluminiyamu	95th phesenthayili ya switiviwa yi fanele ku va ≤ 62.5 µg/L	
	Zinki	95th phesenthayili ya switiviwa yi fanele ku va ≤ 14.4 mg/L	
	manganisi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 0.68 mg/L	

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Tafula ra 5.21: Olifants_EWR14a: Upper Ga-Selati - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Ga-Selati ya le Henhla		**EWR : Olifants_EWR14a**	**Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR. Ndhawu ya le kusuhi i B7H140Q01**
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA TEC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 20 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 10 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 15 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 15 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 35 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 6.4 – 8.6.	
	Mahiselo	Ku hambana ka 2°C kumbe 10 wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 1.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.01 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.5 µg/L.	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 0.7 mg/L	

Tafula ra 5.22: Olifants_EWR14b: **Ga-Selati ya le Hansi** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Ga-Selati ya le Hansi		**EWR : Olifants_EWR14a**	**Ndhawu ya mati ya nkoka ya xinambyana xa le henhla B7H19**
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA TEC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 70 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 250 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 115 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 175 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 85 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.0 – 10.0.	
	Mahiselo	Ku hambana ka 2°C kumbe 10 wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 5.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 4.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.125 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 30 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 42 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 72.5 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 78.5 µg/L.	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 1.0 mg/L	

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Tafula ra 5.23: SPK_EWR1: **Spookspruit** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Ga-Selati ya le Hansi		**EWR : SPK_EWR1**	Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR, kambe ya nga tirhisa ndhawu ya laha nambu wu khulukelaka kona B1H200Q01
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA TEC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 250 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 92.5 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 120 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10 wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 1.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.025 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.5 µg/L.	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 2.5 mg/L	

Tafula ra 5.24: DWA_EWR1: **Dwars** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: DWARS		**EWR : DWA_EWR1**	Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR, tirhisani ndhawu ya mati ya nkoka B4H9
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA TEC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 25 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 20 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 45 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 7.0 – 8.7.	
	Mahiselo	Ku hambana ka 2°C kumbe 10 wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 1.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.025 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.5 µg/L.	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 0.7 mg/L	

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Tafula ra 5.25: OLI_EWR8: **Kumbeigstad** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Ohrigstad		**EWR : OLI_EWR8**	Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR, tirhisani ndhawu ya mati ya nkoka ya xinambyana xa le henhla B60_1000009803
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA TEC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 20 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 20 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 15 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 15 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 25 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 6.4 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10 wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 1.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.025 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.5 µg/L.	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 0.5 mg/L	

Tafula ra 5.26: Letaba_EWR7: **Letaba** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Letaba		**EWR : Letaba_EWR7**	Ndhawu ya laha nambu wu khulukelaka
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 150 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 92.5 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 120 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10 wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 2.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.058 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.75 µg/L.	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 mg/L	

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Tafula ra 5.27: Letaba_EWR2: **Letsitele** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Letsitele		**EWR : Letaba_EWR2**	Ndhawu ya laha xinambyana xa le henhla xi khulukelaka B8H010Q01
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 50 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 150 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 92.5 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 120 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 55 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.0 – 10.0.	
	Mahiselo	Ku hambana ka 2°C kumbe 10 wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 4.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.125 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 30 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 42 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 72.5 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 78.5 µg/L.	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 mg/L	

Tafula ra 5.28: Letaba_EWR1: **Great Letaba** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Great Letaba		**EWR : Letaba_EWR1**	Ndhawu ya laha nambu wu khulukelaka B8H014Q01
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA REC**	
Tiayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 70 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 40 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 32 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10 wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 2.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.058 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.75 µg/L.	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 3.52 mg/L	

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Tafula ra 5.29: Letaba_BRO1: **Broederstroom** - Ecospecs leyi yelanaka na switiviwa swa khemikhali ya fizikho

Nambu: Broederstroom		**EWR : Letaba_BRO1**	**Ku hava ndhawu ya mati ya nkoka eka ndhawu leyi nga le kusuhi na ndhawu yo karhi ya ndhawu ya EWR**
Mimpimo ya Mati ya Nkoka		**ECOSPEC: PES NA REC**	
Tlayoni ta nkoka	Mg	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mg/L	
	SO_4	95th phesenthayili ya switiviwa yi fanele ku va ≤ 80 mg/L	
	Na	95th phesenthayili ya switiviwa yi fanele ku va ≤ 70 mg/L	
	Cl	95th phesenthayili ya switiviwa yi fanele ku va ≤ 40 mg/L	
	Ca	95th phesenthayili ya switiviwa yi fanele ku va ≤ 32 mg/L	
Nchumu lowu nga na vuswikoti byo cinca wa fizikali	EC	95th phesenthayili ya switiviwa yi fanele ku va ≤ 30 mS/m	
	pH	5th na 95th wa tiphesenthayili ta switiviwa swi fanele ku fika ku suka eka 5.9 – 8.8.	
	Mahiselo	Ku hambana ka 2°C kumbe 10 wa tiphesente ku suka eka mahiselo ya nhlayo xikarhi wa vuyimelo	
	Okisijini leyi n'okisiweke	5th phesenthayili ya switiviwa yi fanele ku va ≥ 7.0 mg/L	
	Xihalaki lexi nga na ndzhope	Ku hambana (ntsengo lowutsongo) ku suka eka vuandlalo bya xihalaki xo va na ndzhope hi ntumbuluko, sava leritsongo ra makaya ya nambu wa le ndzeni leri amukeriwaka	
Swakudya	TIN	50th phesenthayili ya switiviwa yi fanele ku va ≤ 1.0 mg/L	
	PO_4-P	50th phesenthayili ya switiviwa yi fanele ku va ≤ 0.025 mg/L	
Nhlamulo ya swilo leswi nga na vuswikoti byo cinca	Chl-a fayitoplankthoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 20 µg/L	
	Chl-a Pherifaythoni	50th phesenthayili ya switiviwa yi fanele ku va ≤ 21 mg/m²	
	Amoniya	95th phesenthayili ya switiviwa yi fanele ku va ≤ 43.75 µg/L.	
	Atirazini	95th phesenthayili ya switiviwa yi fanele ku va ≤ 48.75 µg/L.	
	Aluminiyamu	95th phesenthayili ya switiviwa yi fanele ku va ≤ 62.5 µg/L.	
	Flkumbeayidi	95th phesenthayili ya switiviwa yi fanele ku va ≤ 2.5 mg/L	

6. MATI YA LE HANSI KA MISAVA- XIPHEMU XA NKOKA

Tafula ra 6.1 laha hansi ri na tisete ta switiviwa ku suka eka mimbuyelo ya dyondzo ya Mimpimo yo Kongomisiwa eka Switirhisiwa swinharhu swo hambana swa mati ya le hansi ka misava (RDM) ku suka hi 2005 ya ndhawu yo dyondzela.

Swihlovo swa tisete ta switiviwa a ku ri: (i) Xiyenge xa Mahlelelo ya Switirhisiwa swa Mati ya le Hansi ka Misava II (DWAF, 2005), (ii) Vulawuri bya Tisisiteme ta Mati ya Leshika (2013 na 2014), ((iii) Exigo (2009) na SRK (2009).

Ku hambana ko karhi eka ku nyikiwa matimba ka mati ya le hansi ka misava na nkhuluko wa le tshakwini ra misava ku xiyaxiyiwile naswona laha a ku koteka, nkoka wa nhlayo xikarhi wu amukeriwile. Mihakelo ya BHN yi hlayeriwile hi ku tirhisa nongonoko wa milawu leyi faneleke ku landzeleriwa loko ku lulamisiwa xiphiqo xo karhi xa GIS kusuhi na tisiteme ta nambu wa perennial ku hambanyisa exikarhi ka mati ya vuandlalo na vatirhisi va mati ya le hansi ka misava – matirhiselo lama a ya hetisekanga tanihi ku hambanyisiwa ka tisisiteme ta nambu wa perennial na wo ka wu nga ri wa perennial a ku twisiseki hi ntiyiso.

Nongonoko wa milawu leyi faneleke ku landzeleriwa loko ku lulamisiwa xiphiqo xa GRDM lexi hlamuseriweke yi tirhisiwile naswona mpimo wa mati ya le hansi ka misava wo nyikeka (MCM/a) wu hlayeriwile.

Mimpimo ya Ntshikelelo mimbirhi yo hambana (SRK, 2009, Exigo, 2009 na WSM, 2014)) yi amukeriwile – hambileswi ku hambana lokukukulu exikarhi ka swihlovo swimbirhi ku xiyaxiyiweke eka tikheyisi to hlaya.

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Maendlelo ya xiyimo xa ntsengo wa mati ya le hansi ka misava ya tirhisiwile, ehenhla ka maendlelo ya xiyimo lama ya landzeleriweke hi SRK 2009, ku suka eka Sisiteme yo ka yi nga Lulamisiwanga (F). Xiyimo lexi xa maendlelo xi tirhisiwile hi ku tekela enhlokweni ku hambana exikarhi ka swihlovo swa switiviwa swo hambana, kambe swi tirhisa ngopfungopfu ntikelo wukulukumba eka mati ya le hansi ka misava ya ntiyiso yo nyikeka (SRK-WSM) na mahlelelo ya xiviri ku suka eka sete ya switiviwa ya Exigo.

Nkoka wa mati ya le hansi ka misava yo nyikeka (MCM/a), xikan'we no tshembela (tiphesente) ta Nhlayiso hikuya hi ku nyikiwa matimba ka mati ya le hansi ka misava swi vumba masungulo ya xiyimo xa maendlelo. Tikheyisi to hlaya laha hakelo wa mati ya le hansi ka misava ku nga ziro, xiyimo xa ntalo a xi hungutiwile hi mfanelo (kusuhi na D,E kumbe F) hi kuya hi ku tshembela ka nhlayiso eka ku nyikiwa matimba.

Ku khumbeka ko koteka ka ku tsavuriwa ka mati ya le hansi ka misava eka xiphemu xa vuandlalo bya mati eka kotara ya tindhawu ta laha mati ma hlengeletiwaka kona ti longoloxiwile na kona no tirhisiwa tanihi xivangelo laha ku nyiketiwa ka mati ya le hansi ka misava a ku ri ZIRO.

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Tafula ra 6.1: Mimpimo yo Kongomisiwa eka Xitirhisiwa xa Mati ya le Hansi ka Misava (GRDM) xo Tsema (xikombisi xo khumbeka ka vuswikoti bya vuandlalo bya tindhawu laha mati ma kumekaka hikokwalaho ka ku tsavuriwa ka le henhla ka mati ya le hansi ka misava ku engeteriwile (ku khumbeka ka mati)

Kotare ya ndhawu ya laha mati ma hlengeletiwaka kona	Ntlhawu (km²)	Ku nyika matimba (Mm³/a)		Rech to Aqf	Nkhuluko wa le tahakwini (Mm3/a)				EWR_MLF (Mm3/a)	Ku hlayisiwa ka BHN (Mm3/a)	ntsengo wa ku hlayisiwa ka Gw (Mm3/a)	Ntsengo wa ku tirhisiwa ka mati ya G (Mm3/a)	Si = Ku tirhiswa ka Gw / Aqf Rech	(Mm3/a)	Ku hlayisiwa (% ka ku nyikiwa matimba)	Ntalo (GRDM)	Ku khumbeka ka Mati ya S	Mati ya G yo nyikeka (Mm3/a)
	GRA II	WSM2009	Exigo2009	Mpimo xikarhi	WSM2013	Exigo2009	SRK2009	Mpimo xikarhi			=AW+BB	Calc'd	WSM2013	Exigo2009		Ya pimeka	Ya hlamuseleka	Cal'd
B11A	945.4	15.45	8.52	11.99	12.2	6.72	8.37	10.29		0.10	12.30	0.57	0.04	0.21	79.6	A- a yi lulamisiwanga	Hansi	2.98
B11B	435.3	6.84	4.47	5.66	5.37	2.73	3.71	4.54	0.068	0.12	5.49	0.20	0.03	0.39	80.3	A-a yi lulamisiwanga	Hansi	1.32
B11C	385.4	5.71	5.59	5.65	4.85	4.43	3.14	4.00		0.04	4.89	4 37	0.77	0.21	85.6	C-yi lulamisiwile ku ringanela	Hansi	0.00
B11D	550.9	7.66	10.79	9.23	6.5	8.45	4.3	5.40		0.18	6.68	2.34	0.31	0.33	87.2	B-yi kulukumba hi ntumbuluko	Hansi	0.00
B11E	466.7	6.80	6.27	6.53	5.36	3.28	3.75	4.56	0.048	0.11	5.47	3.53	0.52	0.48	80.4	C-yi lulamisiwile ku ringanela	Hansi	0.00
B11F	428.3	6.44	4.43	5.44	5.07	0.48	3.57	4.32		0.08	5.15	0.37	0.06	0.89	80.0	B-yi kulukumba hi ntumbuluko	Hansi	1.08
B11G	367.8	5.61	3.56	4.58	4.42	14.11	3.03	3.73	0.103	0.07	4 49	0.10	0.02	0.41	80.0	A-a yi lulamisiwanga	Hansi	1.17
B11H	246.0	3.78	3.01	3.40	2.97	2.33	2.03	2.50	0.024	0.04	3.01	0.46	0.12	0.23	79.6	B-yi kulukumba hi ntumbuluko	Hansi	0.41
B11J	269.4	7.08	1.90	4.49	5.6	4.03	5.17	5.39		0.45	6.05	1.88	0.06	0.15	85.5	B-yi kulukumba hi ntumbuluko	Ringanela	0.00
B11K	378.3	9.84	3.16	6.50	7.59	0.00	7.06	7.33		0.03	7.62	0.22	0.02	0.92	77.4	B-yi kulukumba hi ntumbuluko	Ringanela	2.25
B11L	241.8	6.05	3.48	4.77	4.95	3.28	4.6	4.78	0.996	0.01	4.96	0.06	0.01	0.06	82.0	A-a yi lulamisiwanga	Ringanela	1.21
B12A	406.9	4.72	5.44	5.08	4.31	4.29	3.09	3.70		0.18	4.49	0.16	0.03	0.21	95.1	A-a yi lulamisiwanga	Hansi	0.26
B12B	658.5	8.62	8.79	8.70	7.81	6.09	5.15	6.48		0.08	7.89	3.84	0.45	0.31	91.5	B-yi kulukumba hi ntumbuluko	Hansi	0.00
B12C	529.0	7.20	4.58	5.89	6.54	9.52	4.24	5.39	0.109	0.04	6.58	0.21	0.03	0.23	91.4	A-a yi lulamisiwanga	Hansi	0.70
B12D	362.3	5.16	4.10	4.63	4.72	0.32	3.09	3.91	0.179	0.98	5.70	0.24	0.05	0.92	110.5	E – yi lulamisiwile hi ntiyiso	Hansi	0.00
B12E	435.8	11.49	8.63	10.06	9.15	8.16	8.73	8.94	0.187	0.04	9.19	0.45	0.04	0.05	80.0	A-a yi lulamisiwanga	Ringanela	2.21
B20A	574.3	10.26	14.45	12.35	6.6	9.21	7.39	7.00		0.48	9.84	20.57	2.00	1.00	95.9	F-ku nonoha loku lulamisiweke	Hansi	0.00
B20B	321.0	5.72	5.69	5.71	3.62	0.00	4.07	3.85		0.38	4.72	58.03	10.02	1.00	82.5	F-ku nonoha loku lulamisiweke	Hansi	0.00
B20C	363.7	6.53	4.50	5.52	4.13	12.36	4.71	4.42		0.03	4.16	0.91	0.14	0.12	63.7	B-yi kulukumba hi ntumbuluko	Henhla	1.59
B20D	480.4	8.52	10.03	9.27	5.3	13.77	6.1	5.70	0.293	0.26	5.56	1.43	0.17	0.11	65.3	B-yi kulukumba hi ntumbuluko	Ringanela	1.70

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Ka-vhey'dinanwey vhela	Ndi wo (Mm)	(Kuvhey'dela Mumbo) WBM$_{kg20}$	B$_{kg20}$	Mumbo xikoxi	Nkoniko wa le Mumbo xikoxi (Mm3/a)	WBM$_{kg20}$	Eq$_{kg20}$	SRK$_{kg20}$	Mumbo xikoxi	EWR_MAR (Mm3/a)	Ku hlayisiwa ka BHN (Mm3/a)	Ntsengo wa ku hlayisiwa ka Gw (Mm3/a)	Ntsengo wa ku hlayisiwa ka Mumbo (Mm3/a)	Ni ku hlayisiwa ka Gw / Ark Aqfr	WBM$_{kg20}$	Ex$_{kg20}$	Ku hlayisiwa (% ka ku nyikiwa matimba)	Ndhawu (Catchment)	Ya phasika	Ya khamuseleka	Mali ya G yo nyikeka (Mm3/a)
B20E	619.9	9.81	8.69	9.25	7.27	3.93	7.75	7.51		0.37	7.64	3.58	0.36	0.55	77.9	C-yi lulamisiwile ku ringanela		Ringanela	0.00
B20F	504.2	9.05	9.44	9.25	5.71	8.74	6.28	6.00	0.081	0.05	5.76	0.80	0.09	0.07	63.6	B-yi kulukumba hi ntumbuluko		Ringanela	2.62
B20G	522.4	13.15	9.31	11.23	10.28	8.26	9.31	9.80	0.067	0.30	10.58	1.87	0.14	0.12	80.5	B-yi kulukumba hi ntumbuluko		Ringanela	1.04
B20H	562.5	13.70	5.55	9.63	11.03	3.57	9.79	10.41		0.36	11.39	1.77	0.13	0.36	83.1	B-yi kulukumba hi ntumbuluko		Ringanela	0.87
B20J	407.4	10.03	7.12	8.58	8.03	6.20	7.34	7.69	0.958	0.05	8.08	1.09	0.11	0.13	80.6	B-yi kulukumba hi ntumbuluko		Ringanela	1.14
B31A	386.6	6.09	4.43	5.26	3.77	1.99	3.15	3.46		0.04	3.81	4.81	0.79	0.55	62.6	C-yi lulamisiwile ku ringanela		Ringanela	0.00
B31B	385.1	5.56	9.40	7.48	3.45	6.64	2.64	3.05		0.19	3.64	1.22	0.22	0.29	65.5	B-yi kulukumba hi ntumbuluko		Ringanela	0.71
B31C	373.4	5.14	9.23	7.19	2.75	8.71	2.27	2.51	0.076	0.00	2.75	0.82	0.16	0.07	53.5	B-yi kulukumba hi ntumbuluko		Ringanela	1.59
B31D	557.0	7.58	10.19	8.89	4.06	6.92	3.3	3.68		0.42	4.48	1.96	0.26	0.32	59.1	B-yi kulukumba hi ntumbuluko		Hansi	1.16
B31E	1382.4	8.34	47.74	28.04	0	43.36	0	0.00		0.14	0.14	9.24	1.11	0.09	1.7	C-yi lulamisiwile ku ringanela		Hansi	0.00
B31F	637.5	3.69	8.09	5.89	0	3.85	0	0.00		0.43	0.43	2.31	0.63	0.52	11.7	C-yi lulamisiwile ku ringanela		Hansi	0.95
B31G	433.2	4.67	7.29	5.98	1.4	4.26	2.54	1.97	0.096	0.31	1.71	1.42	0.30	0.42	36.6	B-yi kulukumba hi ntumbuluko		Hansi	1.59
B31H	611.8	6.85	6.31	6.58	1.96	4.67	3.26	2.61		1.64	3.60	4.36	0.64	0.26	52.6	C-yi lulamisiwile ku ringanela		A xi na nkoka	0.00
B31J	1379.9	7.84	27.75	17.80	0	25.02	0	0.00	0.085	0.10	0.10	30.84	3.93	0.10	1.3	E – yi lulamisiwile hi ntlyiso		A xi na nkoka	0.00
B32A	801.4	21.18	15.31	18.24	16.26	25.10	15.2	15.73	1.717	0.05	16.31	0.54	0.03	0.07	77.0	A-a yi lulamisiwanga		Hansi	4.36
B32B	613.8	13.40	8.72	11.06	9.7	7.68	10.83	10.27		0.04	9.74	0.25	0.02	0.12	72.7	A-a yi lulamisiwanga		Hansi	3.59
B32C	302.8	3.19	4.04	3.62	1.09	2.92	4.5	2.80	0.094	0.01	1.10	3.47	1.09	0.28	34.5	C-yi lulamisiwile ku ringanela		Hansi	0.00
B32D	521.1	4.95	9.03	6.99	3.15	8.39	1.79	2.47	0.875	0.07	3.22	3.14	0.63	0.07	65.1	C-yi lulamisiwile ku ringanela		A xi na nkoka	0.00
B32E	203.2	2.43	3.05	2.74	1.59	2.81	0.89	1.24		0.01	1.60	0.19	0.08	0.08	65.8	A-a yi lulamisiwanga		Hansi	0.67
B32F	667.2	3.71	4.83	4.27	0.71	2.74	2.7	1.71	0.005	0.34	1.05	4.30	1.16	0.43	28.3	D – yi lulamisiwile hi ku kulukumba		Hansi	0.00

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B32G	967.6	8.89	15.09	11.99	1.35	6.51	6.86	4.11		1.83	3.18	5.85	0.66	0.57	35.8	C-yi lulamisiwile ku ringanela	Hansi	0.07
B32H	693.9	10.21	13.42	11.81	5.77	11.22	4.42	5.10	0.046	0.06	5.83	2.90	0.28	0.16	57.1	B-yi kulukumba hi ntumbululko	Hansi	1.49
B32J	322.8	1.17	2.76	1.97	0	0.58	0.05	0.03		0.44	0.44	1.01	0.86	0.79	37.6	C-yi lulamisiwile ku ringanela	A xi na nkoka	0.00
B41A	764.5	18.28	8.43	13.36	14.79	5.87	12.35	13.57	0.122	0.14	14.93	0.06	0.00	0.32	81.7	A- a yi lulamisiwanga	A xi na nkoka	3.47
B41B	778.0	18.51	11.67	15.09	14.96	10.07	12.16	13.56		0.04	15.00	1.23	0.07	0.14	81.0	A-a yi lulamisiwanga	A xi na nkoka	2.45
B41C	302.4	7.19	1.96	4.57	5.79	0.00	4.6	5.20		0.02	5.81	0.54	0.08	1.00	80.8	C-yi lulamisiwile ku ringanela	A xi na nkoka	0.90
B41D	402.9	4.97	6.22	5.60	2.61	5.50	5.03	3.82	0.506	0.09	2.70	1.72	0.35	0.12	54.3	B-yi kulukumba hi ntumbululko	A xi na nkoka	0.59
B41E	237.1	1.17	6.79	3.98	0	5.66	0.04	0.02		0.23	0.23	0.11	0.09	0.17	19.7	A-a yi lulamisiwanga	Ringanela	0.83
B41F	379.8	10.88	7.21	9.04	9.99	6.84	7.92	8.96		0.01	10.00	0.00	0.00	0.05	91.9	A-a yi lulamisiwanga	Ringanela	1.03
B41G	442.1	11.41	6.71	9.06	10.34	3.98	8.48	9.41		0.01	10.35	0.38	0.03	0.41	90.7	A-a yi lulamisiwanga	Ringanela	0.88
B41H	410.3	2.57	7.57	5.07	0	5.03	0.1	0.05	0.537	0.35	0.35	0.16	0.06	0.34	13.6	A-a yi lulamisiwanga	Ringanela	2.06
B41J	690.8	4.31	10.88	7.59	0	6.02	0.2	0.10		0.41	0.41	0.64	0.15	0.45	9.5	A-a yi lulamisiwanga	A xi na nkoka	3.26
B41K	635.2	3.53	7.00	5.27	0	4.64	0.23	0.12	0.495	0.47	0.47	1.99	0.56	0.34	13.3	B-yi kulukumba hi ntumbululko	Henhla	1.07
B42A	318.9	10.64	1.86	6.25	9.81	1.41	15.41	12.61		0.02	9.83	3.46	0.33	0.24	92.4	B-yi kulukumba hi ntumbululko	Henhla	0.00
B42B	213.7	7.65	7.45	7.55	6.28	6.33	12.8	9.54		0.17	6.45	0.06	0.01	0.15	84.3	Aa yi lulamisiwanga	A xi a nkoka	1.29
B42C	164.1	2.66	3.45	3.05	2.57	3.08	1.39	1.88	0.143	0.00	2.57	0.00	0.00	0.11	96.6	B-yi kulukumba hii ntumbululko	A xi na nkoka	0.28
B42D	154.6	6.33	3.64	4.98	5.72	3.39	11.44	8.58		0.00	5.72	0.00	0.00	0.07	90.4	A-a yi lulamisiwanga	A xi na nkoka	0.99
B42E	221.4	2.04	2.49	2.26	1.99	1.91	1.25	1.62		0.01	2.00	0.22	0.11	0.23	98.0	A-a yi lulamisiwanga	A xi na nkoka	0.00
B42F	279.1	9.39	2.52	5.96	8.55	2.09	12.42	10.49		0.01	8.56	0.22	0.02	0.17	91.2	Aa yi lulamisiwanga	A xi na nkoka	0.67
B42G	327.2	3.86	3.28	3.57	3.59	2.59	2.13	2.86	0.265	0.01	3.60	3.26	0.84	0.21	93.3	B-yi kulukumba hi ntumbululko	A xi na nkoka	0.00

29

[illegible]	[illegible]	[illegible]		Reali to Agr	[illegible] (Mm3/a)				EWR_MLF (Mm3/a)	Ku hlayisiwa ka BHN (Mm3/a)	ntsengo wa ku hlayisiwa ka Gw (Mm3/a)	Ntsengo wa ku [illegible] (Mm3/a)	SI = ku tirhisiwa ka Gw / Agr Reqt	(Mm3/a)	Ku hlayisiwa (% ka ku nyikiwa matimba)	Ntalo (GRDM)	Ku khumbeka ka Mati ya S	Mati ya G yo nyikeka (Mm3/a)
	GRDM	WSM[illegible]	Exigo2009	Mpimo xikarhi	WSM2013	Exigo2009	SRK2009	Mpimo xikarhi			=AW+BB	Calc'd	WSM2013	Exigo2009		Ya pimeka	Ya hlamuseleka	Cal'd
B42H	412.3	2.31	13.36	7.83	0	12.43	0.1	0.05	0.594	0.07	0.07	0.99	0.43	0.07	3.0	B-yi kulukumba hi ntumbuluko	A xi na nkoka	1.25
B51A	311.5	2.24	2.75	2.49	0	0.84	0.07	0.04		0.40	0.40	0.08	0.04	0.69	17.9	B-yi kulukumba hi ntumbuluko	a xi na nkoka	1.76
B51B	591.1	4.82	7.51	6.16	0	5.24	0.1	0.05		0.46	0.46	0.33	0.07	0.30	9.5	A-a yi lulamisiwanga	A xi na nkoka	4.03
B51C	638.1	4.52	6.65	5.58	0	4.67	0.07	0.04	1.785	0.45	0.45	0.22	0.05	0.30	10.0	A-a yi lulamisiwanga	A xi na nkoka	3.85
B51E	2926.8	6.31	38.17	22.24	0	22.43	0	0.00		0.34	0.34	8.56	1.36	0.41	5.4	D – yi lulamisiwile hi vukulukumba	A xi na nkoka	0.00
B51F	394.6	2.71	4.87	3.79	0	4.27	0.07	0.04		0.01	0.01	3.02	1.11	0.12	0.4	D – yi lulamisiwie hi vukulukumba	A xi na nkoka	0.00
B51G	590.7	3.79	6.25	5.02	0	1.85	0.07	0.04		0.97	0.97	12.43	3.28	0.70	25.6	F-ku nonoha loku lulamisiweke	A xi na nkoka	0.00
B51H	717.3	4.90	16.81	10.86	0	11.64	0.13	0.07		0.98	0.98	0.57	0.12	0.31	20.0	A-a yi lulamisiwanga	A xi na nkoka	3.35
B52A	566.1	2.58	9.96	6.27	0	6.37	0.02	0.01		0.48	0.48	0.28	0.11	0.36	18.6	A-a yi lulamisiwanga	A xi na nkoka	1.82
B52B	632.9	7.09	7.65	7.37	0	2.75	0.11	0.06		1.07	1.07	2.08	0.29	0.64	15.1	B-yi kulukumba hi ntumbuluko	Henhla	3.94
B52C	200.4	0.96	2.25	1.60	0	1.27	0	0.00		0.16	0.16	0.22	0.23	0.43	16.7	B-yi kulukumba hi ntumbuluko	Henhla	0.58
B52D	341.0	2.09	6.50	4.30	0	3.69	0.01	0.01		0.73	0.73	1.19	0.57	0.43	34.9	C-yi lulamisiwile ko ringanela	Hansi	0.17
B52E	450.8	4.66	8.37	6.52	0	6.03	0.05	0.03		0.34	0.34	0.51	0.11	0.28	7.3	B-yi kulukumba hi ntumbuluko	Henhla	3.81
B52F	118.4	0.58	1.93	1.26	0	1.41	0	0.00		0.09	0.09	0.47	0.81	0.27	15.5	C-yi lulamisiwile ku ringanela	Hansi	0.02
B52G	290.9	1.35	6.10	3.73	0	4.36	0	0.00		0.22	0.22	0.84	0.62	0.29	16.3	C-yi lulamisiwiel ku ringanela	Henhla	0.29
B52H	563.3	3.38	5.19	4.28	0	1.80	0.27	0.14		0.66	0.66	0.77	0.23	0.65	19.5	B-yi kulukumba hi ntumbuluko	Hansi	1.95
B52J	394.7	2.09	11.73	6.91	0	9.16	0.05	0.03		0.22	0.22	0.14	0.07	0.22	10.5	A-a yi lulamisiwanga	A xi na nkoka	1.73
B60A	209.4	12.93	10.44	11.69	11.46	9.77	48.12	29.79		0.02	11.48	0.13	0.01	0.06	88.8	A-a yi lulamisiwanga	Henhla	2.23
B60B	302.2	20.22	15.36	17.79	17.18	15.09	56.91	37.05	1.501	0.01	17.19	0.00	0.00	0.02	85.0	A-a yi lulamisiwanga	Ringanela	3.83
B60C	94.1	5.33	0.84	3.08	4.93	0.76	22.43	13.68	0.376	0.00	4.93	0.00	0.00	0.09	92.5	A-a yi lulamisiwanga	Ringanela	0.97

30

Ku hleyisiwa ka Byhi (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)	EWR_MLF (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)	ntsengo wa ku hlayiwa ka Gw (Mm3/a)	Ntsengo wa ku hlayiwa ka Gw (Mm3/a)	Si ku tirhisiwa ka Gw / Act Tech	(Mm3/a)	Ku hlayisiwa (% ka ku hlayisa maximba)	Ntalo (Gabisi)	Ku khumbeka ka Mati ya S	Mati ya G yo nyikela (Mm3/a)
Ku hleyisiwa ka Byhi (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)	Ku hleyisiwa ka Byhi (Mm3/a)			=AW+BB	Ca[c]d	W&M201 3	Balgaxny	Ya pimeka	Ya hlamuseleka	Ca[c]d
B60D	243.5	15.98	9.27	12.62	14	7.61	20.57	17.29	1.694	0.15	14.15	0.00	0.00	0.18	88.5	A-a yi lulamisiwanga	Hansi	2.52
B60E	83.4	1.73	1.30	1.52	0.76	1.36	6.45	3.61		0.00	0.76	0.00	0.00	0.05	43.9	A-a yi lulamisiwanga	Ringanela	1.00
B60F	399.3	7.68	5.55	6.61	5.43	4.40	4.45	4.94	0.097	0.01	5.44	2.71	0.35	0.21	70.8	B-yi kulukumba hi ntumbuluko	A xi na nkoka	0.00
B60G	448.0	4.52	7.49	6.00	1.32	6.64	3.69	2.51		0.03	1.35	3.71	0.82	0.11	29.9	C-yi lulamisiwile ku ringanela	A xi na nkoka	0.00
B60H	384.6	7.58	11.30	9.44	6.15	9.84	4.37	5.26	0.181	0.14	6.29	5.34	0.70	0.18	83.0	D – yi lulamisiwile hi vukulukumba	Henhla	0.00
B60J	675.9	13.05	9.63	11.34	6.46	8.48	32.86	19.66	2.269	0.05	6.51	1.37	0.10	0.12	49.9	Aa yi lulamisiwanga	Hemnla	5.21
B71A	297.6	3.37	13.61	8.49	0	12.76	0.16	0.08		0.03	0.03	0.23	0.07	0.06	0.9	A-a yi lulamisiwanga	A xi na nkoka	3.11
B71B	274.3	2.11	7.39	4.75	0	6.58	0.04	0.02		0.07	0.07	0.19	0.09	0.11	3.3	A-a yi lulamisiwanga	Henhla	1.85
B71C	262.5	5.87	6.85	6.36	2.17	6.45	16.52	9.35		0.03	2.20	0.00	0.00	0.06	37.5	A-a yi lulamisiwanga	Henhla	3.78
B71D	227.1	4.03	1.97	3.00	1.98	1.11	6.92	4.45	1.865	0.10	2.08	0.22	0.05	0.44	51.6	A-a yi lulamisiwanga	A xi na nkoka	1.77
B71E	781.9	6.25	4.15	5.20	0	0.00	0.3	0.15		0.80	0.80	1.55	0.25	0.90	12.8	B-yi kulukumba hi ntumbuluko	A xi na nkoka	3.90
B71F	540.8	12.66	21.55	17.12	9.11	20.54	22.14	15.63	2.456	0.07	9.18	0.03	0.00	0.05	72.4	A-a yi lulamisiwanga	A xi na nkoka	3.84
B71G	244.9	6.94	5.25	6.10	3.97	4.32	11.3	7.64		0.13	4.10	0.22	0.03	0.18	59.1	A-a yi lulamisiwanga	A xi na nkoka	2.87
B71H	329.7	1.56	2.47	2.02	0	1.40	0	0.00		0.20	0.20	2.52	1.62	0.43	12.8	C-yi lulamisiwile ku ringanela	A xi na nkoka	0.00
B71J	78.5	0.18	0.48	0.33	0	0.36	0	0.00	3.011	0.01	0.01	0.00	0.00	0.26	5.6	A-a yi lulamisiwanga	A xi na nkoka	0.17
B72A	534.0	12.53	8.29	10.41	8.64	5.57	19.8	14.22		0.54	9.18	3.01	0.24	0.33	73.3	B-yi kulukumba hi ntumbuluko	Ringanela	0.56
B72B	331.7	1.37	3.02	2.20	0	2.81	0	0.00	0.285	0.00	0.00	0.06	0.04	0.07	0.0	Aa yi lulamisiwanga	Henhla	1.31
B72C	334.7	1.88	3.87	2.88	0	3.46	0	0.00		0.05	0.05	0.07	0.04	0.11	2.7	A-a yi lulamisiwanga	A xi na nkoka	1.76
B72D	922.2	6.54	8.72	7.63	0	7.55	0	0.00	7.339	0.01	0.01	4.49	0.69	0.13	0.2	B-yi kulukumba hi ntumbuluko	A xi na nkoka	2.04
B72E	320.1	8.54	2.76	5.65	4.9	0.36	12.71	8.81	0.024	0.45	5.35	0.90	0.11	0.87	62.6	B-yi kulukumba hi ntumbuluko	A xi na nkoka	2.48

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Kolaro ya ndhawu ya laha mfu ma tlangelaiwaka Kona	Ndhawu (KM²)	GRA II	Ku nyika mpfumba (Mm^3/a)	WSM_{2005}		$Exlgo_{2005}$	Mpimo xikarhi	Nkhuluko wa le tahakwini (Mm3/a)	Rech to Aqf	Mpimo xikarhi	WSM_{2013}	SRK_{2005}	$Exlgo_{2005}$		EWR_MLF (Mm3/a)	Ku hlaylsiwa ka BHN (Mm3/a)	ntsengo wa ku hlaylsiwa ka GW (Mm3/a)	=AW+BB	Ntsengo wa ku tirhisiwa ka mati ya G (Mm3/a)	Calc'd	SI = Ku tirhisiwa ka GW / Aqf Rech	WSM2013 3	$Exlgo_{2005}$ (Mm3/a)	Ku hlaylsiwa (% ka ku nyikiwa matimba)	Ntalo (GRDM)	Ya pimeka	Ku khumbeka ka Meti ya S	Ya hlamuseleka	Mati ya G yo nyikeka (Mm^3/a)	Ca'd
B72F	81.2	2.27	0.12	1.94	10.34	20.32	16.27	12.84	18.20	18.47	1.3	0	7.57	1.12	10.54	1.59	0.04	0.06	2.71	0.00	1.30	0.00	0.00	0.00	0.02	57.3	A-a yi lulamisiwanga	A xi na nkoka	A xi na nkoka	1.07
B72G	47.9	0.12	0.56	3.25	2.91	2.64	2.77	2.60	0.34	1.95	0	0	0.00	2.32	0.00	0.00	0.00	0.00	0.48	2.26	4.11	0	0.00	0.00	0.00	0.00	0.01	0.01	0.43	0.00	0.13	8.3	E –yi iulamisiwile hi ntiyiso	Henhla	Henhla	0.00
B72H	385.7	1.94	3.25	2.60	2.77	2.64	2.69	2.60	0.34	1.95	0	0	0.00	2.32	0.00	0.00	0.00	0.00	0.48	2.69	0	0	0.00	0.00	0.00	0.00	0.01	0.01	0.92	0.00	0.17	0.5	Byi kulukumba hi ntumbululuko	A xi na nkoka	A xi na nkoka	1.01
B72J	537.4	2.91	2.64	2.77	2.77	2.64	2.22	2.77	0.34	1.95	0	0	0.00	2.32	0.00	0.00	0.00	0.00	0.48	2.22	0	0	0.00	0.00	0.00	0.00	0.03	0.03	0.16	0.00	0.16	1.0	Aa yi lulamisiwanga	A xi na nkoka	A xi na nkoka	2.72
B72K	965.9	3.45	10.73	7.09	7.09	7.09	7.27	7.09	0.34	1.95	0	0	0.00	7.27	0	0.00	0.00	0.00	0.48	7.27	0	0	0.00	0.00	0.00	0.00	0.52	0.52	0.61	0.00	0.18	15.1	A-a yi lulamisiwanga	A xi na nkoka	A xi na nkoka	2.32
B73A	184.5	2.20	2.76	2.48	1.29	2.48	1.07	11.37	6.33	7.18	1.29	0	11.37	1.07	11.37	6.33	0.00	0.00	0.48	1.07	11.37	0	6.33	0.00	0.00	0.00	0.00	0.00	1.29	0.00	0.00	58.6	Aa yi lulamisiwanga	A xi na nkoka	A xi na nkoka	1.04
B73B	687.7	2.19	4.53	3.36	3.36	3.36	3.34	3.36	0.34	1.95	0	0	0.00	3.34	0	0.00	0.00	0.00	0.48	3.34	0	0	0.00	0.00	0.00	0.00	0.122	0.01	0.01	0.00	1.26	0.5	C-yi lulamisiwile ku ringanela	A xi na nkoka	A xi na nkoka	0.00
B73C	880.0	3.19	11.16	7.18	7.18	7.18	10.12	7.18	0.34	1.95	0	0	0.00	10.12	0	0.00	0.00	0.00	0.48	10.12	0	0	0.00	0.00	0.00	0.00	0.65	0.65	1.01	0.00	0.32	20.4	Aa yi lulamisiwanga	A xi na nkoka	A xi na nkoka	1.53
B73D	687.0	2.34	7.40	4.87	4.87	4.87	6.58	4.87	0.34	1.95	0	0	0.00	6.58	0	0.00	0.00	0.00	0.48	6.58	0	0	0.00	0.00	0.00	0.00	0.00	0.00	1.20	0.00	0.51	0.0	B-yi kulukumba hi ntumbululuko	A xi na nkoka	A xi na nkoka	1.14
B73E	430.5	2.51	3.55	3.03	3.03	3.03	0.00	3.03	0.34	1.95	0	0	0.00	0.00	0	0.00	0.00	0.00	0.48	0.00	0	0	0.00	0.00	0.00	0.00	0.00	0.00	0.35	0.00	0.14	0.0	B-yi kulukumba hi ntumbululuko	A xi na nkoka	A xi na nkoka	2.16
B73F	506.8	3.37	9.96	6.86	6.86	6.86	9.79	6.86	0.34	1.95	0	0	0.00	9.79	0	0.00	0.00	0.00	0.48	9.79	0	0	0.00	0.00	0.00	7.713	0.00	0.00	0.00	0.00	0.00	0.0	A-a yi lulamisiwanga	Henhla	Henhla	3.37
B73G	733.2	4.31	15.44	9.88	9.88	9.88	12.84	9.88	0.34	1.95	0	0	0.00	12.84	0	0.00	0.00	0.00	0.48	12.84	0	0	0.00	0.00	0.00	0.058	0.00	0.00	0.00	0.00	0.00	0.0	A-a yi lulamisiwanga	Henhla	Henhla	4.31
B73H	301.8	1.50	2.40	1.95	1.95	1.95	2.32	1.95	0.34	1.95	0	0	0.00	2.32	0	0.00	0.00	0.00	0.48	2.32	0	0	0.00	0.00	0.00	0.398	0.00	0.00	0.00	0.00	0.00	0.0	A-a yi lulamisiwanga	Henhla	Henhla	1.50
B73J	254.5	1.55	2.07	1.81	1.81	1.81	0.00	1.81	0.34	1.95	0	0	0.00	0.00	0	0.00	0.00	0.00	0.48	0.00	0	0	0.00	0.00	0.00	7.713	0.00	0.00	0.00	0.00	0.00	0.0	A-a yi lulamisiwanga	Henhla	Henhla	1.55
B81A	169.1	10.34		10.34	10.34	10.34		10.34	0.34	1.95	7.57	7.57			7.57	1.59	0.04	0.06	2.71		4.11	7.57	10.54	10.54	1.59	0.04	0.06	0.32	0.59	0.63	0.06	0.00	0.06	7.94	0.43	0.3	A-a yi lulamisiwanga	Henhla	Henhla	10.19
B81B	481.2	20.32		20.32	20.32	20.32		20.32	0.34	1.95	1.12	1.12			1.12	1.59	0.04	0.06	2.71		4.11	1.12	10.54	10.54	1.59	0.04	0.06	0.32	0.59	0.63	0.06	0.00	0.06	7.94	0.43	0.3	B-yi kulukumba hi ntumbululuko	Henhla	Henhla	17.68
B81C	208.4	16.27		16.27	16.27	16.27		16.27	0.34	1.95	10.54	10.54			10.54	1.59	0.04	0.06	2.71		4.11	10.54	10.54	10.54	1.59	0.04	0.06	0.32	0.59	0.63	0.06	0.00	0.06	7.94	0.43	0.3	C – yi lulamisiwile ku ringanela	Ringanela	Ringanela	10.80
B81D	478.8	12.84		12.84	12.84	12.84		12.84	0.34	1.95	1.59	1.59			1.59	1.59	0.04	0.06	2.71		4.11	1.59	10.54	10.54	1.59	0.04	0.06	0.32	0.59	0.63	0.06	0.00	0.06	7.94	0.43	0.3	C-yi lulamisiwile ku ringanela	A xi na nkoka	A xi na nkoka	8.71
B81E	664.9	18.20		18.20	18.20	18.20		18.20	0.34	1.95	0.04	0.04			0.04	1.59	0.04	0.06	2.71		4.11	0.04	10.54	10.54	1.59	0.04	0.06	0.32	0.59	0.63	0.06	0.00	0.06	7.94	0.43	0.3	D – yi lulamisiwile hi vukulukumba	A xi na nkoka	A xi na nkoka	2.45
B81F	1199.7	18.47		18.47	18.47	18.47		18.47	0.34	1.95	0.06	0.06			0.06	1.59	0.04	0.06	2.71		4.11	0.06	10.54	10.54	1.59	0.04	0.06	0.32	0.59	0.63	0.06	0.00	0.06	7.94	0.43	0.3	D – yi lulamisiwile hi vukulukumba	A xi na nkoka	A xi na nkoka	10.53

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[illegible]	Ndhawu (Km²)	Ku nyika [illegible] (Mm3/a)		Rephito Ari	Nkhungo wa [illegible] (Mm3/a)				EWR MLF (Mm3/a)	Ku hlayisiwa ka BHN (Mm3/a)	ntsengo wa ku hlayisiwa ka Gw (Mm3/a)	Ntsengo wa ku [illegible] (Mm3/a)	[illegible] Gw [illegible]	(Mm3/a)	Ku hlayisiwa (% ka ku nyikiwa matimba)	Ntalo (GRDM)	Ku khumbeka ka Mati ya S	Mati ya G yo nyikeka (Mm3/a)
	[illegible]	WSM2003	ExigG2008	Mpimo xikafili	WSM2003	Exig2008	SRK2008	Mpimo xikafili			=AW+BB	Calcd	WSM2013	ExigD2008		Ya pimeka	Ya hlamuseleka	Cal'd
B81G	512.5	12.58		12.58	0.13			0.13		0.00	0.13	5.06	0.40	0.40	1.0	D – yi lulamisiwile hi vukulukumba	A xi na nkoka	7.52
B81H	667.7	8.80		8.80	0.01			0.01		0.00	0.01	2.62	0.30	0.30	0.1	C – yi lulamisiwile ku ringanela	A xi na nkoka	6.18
B81J	567.0	6.34		6.34	0			0		0.00	0.00	0.00	0.00	0.00	0.0	A – a yi lulamisiwanga	A xi na nkoka	6.34
B82A	466.6	11.36		11.36	6.45			6.45		1.45	7.90	2.93	0.26	0.26	69.5	B-yi kulukumba hi ntumbuluko	Hansi	8.43
B82B	406.3	9.50		9.50	5.47			5.47		0.00	5.47	14.50	1.53	1.53	57.6	F-ku nonoha loku lulamisiweke	Hansi	0.00
B82C	299.7	7.14		7.14	3.27			3.27		0.00	3.27	13.00	1.82	1.82	45.8	E – ku lulamisiwa ka ntiyiso	Hansi	5.63
B82D	631.7	10.35		10.35	4.76			4.76		4.00	8.76	4.52	0.44	0.44	84.6	D-ku lulamisiwa ku kulukumba	Hansi	0.00
B82E	423.4	8.05		8.05	0.21			0.21		0.00	0.21	1.45	0.18	0.18	2.6	C – ku lulamisiwa ko ringanela	Hansi	6.60
B82F	759.8	14.30		14.30	1			1		0.00	1.00	1.43	0.10	0.10	7.0	B – yi kulukumba hi ntumbuluko	Hansi	12.87
B82G	920.2	10.75		10.75	0.01			0.01		0.00	0.01	0.06	0.01	0.06	0.1	B – yi kulukumba hi ntumbuluko	A xi na nkoka	10.15
B82J	748.7	9.27		9.27	0.01			0.01		0.00	0.01	0.00	0.00	0.00	0.1	A – a yi lulamisiwanga	A xi na nkoka	9.27
B82H	793.7	8.36		8.36	0.01			0.01		0.00	0.01	0.16	0.02	0.02	0.1	A – a yi lulamisiwanga	A xi na nkoka	8.36
B83A	1250.0	11.77		11.77	0.01			0.01		0.00	0.01	0.00	0.00	0.00	0.1	A – a yi lulamisiwanga	A xi na nkoka	11.77
B83B	438.8	5.71		5.71	0			0		0.00	0.00	0.00	0.00	0.00	0.0	A –a yi lulamisiwanga	A xi na nkoka	5.71
B83C	596.0	7.70		7.70	0.01			0.01		0.00	0.01	0.00	0.00	0.00	0.1	A – a yi lulamisiwanga	A xi na nkoka	7.70
B83D	783.7	7.88		7.88	0			0	2.015	0.00	0.00	0.00	0.00	0.00	0.0	A – a yi lulamisiwanga	A xi na nkoka	7.88
B83E	311.8	3.11		3.11	0			0		0.00	0.00	0.00	0.00	0.00	0.0	A –a yi lulamisiwanga	A xi na nkoka	3.11

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7. MATI YA LE HANSI KA MISAVA- XIPHEMU XA NKOKA

Ku hlayisiwa ka swilaveko swa nkoka swa vanhu swi nyika swilaveko swa nkoka swa munhu un'we leswi tirhiwaka hi ndhawu ya laha mati ma kumekeka kona eka xivutiso naswona swi katsa mati yo nwa, ku lulamisiwa ka swakudya na nsivela mavabyi hi xiviri. Ntila wa vutomi wa 25 wa tilitara hi munhu hi siku ti tirhisiwile.

Eka ku tinyiketa ku hlayisa ka xiphemu xa nkoka hi nkarhi wa mahlelelo ya le xikarhi/yo hetiseka ndhawu ya mati ya le hansi ka misava ya nkoka yi xaxametiwile na ntlawa wo sungula wa nkoka lowu nga bumabumeriweke (SANS 241: 2006). Hakelo wa le hansi kumbe ku hlayisiwa ko tala ka nhlayiso leyimbirhi wu hlawuriwile. Eka mikarhi laha ndhawu ya nkoka yi nga hlawuriwa, yi tlakuka hi tiphesente to ringana 10. Eka mikarhi laha ndhawu ya nkoka, ya masungulo ya swa ntivo misava xi hundzisa hakelo lowu tiyisiweke, ndhawu ya mati ya nkoka ya tirhisiwa. Tindhawu to pfumala mati ya nkoka ti ta va tindhawu leti nga katsiwangiki eka ku kuma Xilaveko xo Hlayisa Swilaveko swa Vanhu swa Nkoka. Mati ya le hansi ka misava ya nkoka ya fanele ku landzelela swileriso na vuandlalo bya xikongomiwa xa mati ya nkoka tanihiloko byi kombisiwile eka **Tafula ra 7.1. na Tafula ra 7.2** ri kombisa nkatsakanyo wa mimbuyelo wa swiphemu swa nkoka eka levhele ya kotara hi kuya hi BHN.

Tafula ra 7.1: Mati ya nkoka ya khemikhali

Pharamitara ya khemikhali	**Xikongomiwa xa Vuandlalo bya Mati ya Nkoka**[1]				
	Tiyuniti	**Ntlawa wa 0**	**Ntlawa wa I**	**Ntlawa wa II**	**Ntlawa wa III**
Khalisiyamu tanihi Ca	mg/l	0 - 80	80 - 150	150 - 300	> 300
Magineziyamu tanihi Mg	mg/l	0 - 30	30 - 70	70 - 100	> 100
Sodiyamu tanihi Na	mg/l	0 - 100	100 - 200	200 - 400	> 400
Tlilkumbeayidi tanihi Cl	mg/l	0 - 100	100 - 200	200 - 600	> 600
Salifayiti tanihi SO_4	mg/l	0 - 200	200 - 400	400 - 600	> 600
Nayitireyiti tanihi NO_x N	mg/l	0 - 6	6 - 10	10 - 20	> 20
Flkumbeayidi tanihi F	mg/l	0 - 1	1 - 1.5	1.5 - 3.5	> 3.5
Mahuma ya bakitheriya ya le marhumbini	counts/100ml	0	0 - 1	1 - 10	> 10

1) Ref: Swiletelo swa Mati ya nkoka ya Afrika-Dzonga, Mpimo wo sungula: Ntirhiso wa Mati ya le Ndyangwini, Edixini ya vumbirhi.1996. Ndzawulo ya Timhaka ta Mati na Swihlahla. Pretkumbeia, Afrika-Dzonga
2) Ref: Swiletelo swa Mati ya nkoka ya Afrika-Dzonga, Vholumu yo sungula: Ntirhiso wa Mati ya le Ndyangwini, Edixini ya vumbirhi.1996. Ndzawulo ya Timhaka ta Mati na Swihlahla. Pretkumbeia, Afrika-Dzonga

Tafula ra 7.2: Mati ya nkoka ya xiviri

Pharamitara ya fizikali	**Xikongomiwa xa Vuandlalo bya Mati ya Nkoka**[2]				
	Tiyuniti	**Ntlawa wa 0**	**Ntlawa wa I**	**Ntlawa wa II**	**Ntlawa wa III**
pH (tiyuniti ta pH)		6 - 9	5 - 6 & 9 - 9.5	4 - 5&> 9.5 - 10	< 4 kumbe > 10
Ntsengo was wo Tiya leswi N'okisiweke	mg/l	0 - 450	450 - 1000	1000 - 2450	> 2450
Mfambiso wa swa gezi	mS/m	0 - 70	70 - 150	150 - 300	> 370

XIYAXIYA:

Ntlawa wa 0 lexi i xikongomelo xa mati ya nkoka, ya nga fanela ku tirhisiwa nkarhi wo leha, yo pfumala mbuyelo wo ka wu nga ri kahle eka rihanyo ra mutirhisi. Ntlawa lowu i xilaveko xa nkoka lexi fanaka na vuandlalo bya xikongomiwa xa mati ya nkoka eka edixini ya vumbirhi ya *Swiletelo swa Nkoka swa Mati ya Afrika-Dzonga ya ntirhiso eka swa muti* (DWAF, 1996)

Ntlawa wa I Mati eka ntlawa lowu ya hlayisekile ku tirhisiwa nkarhi wo leha, kambe ya kayivela xikongomelo xa mati ya nkoka ka leswaku ku nga va na mikarhi yo ka yi nga ri kahle ya mimbuyelo ya rihanyo, kambe leswi hi ntolovelo swi le xikarhi, na mimbuyelo ya rihanyo yo endliwa erivaleni yi le xikarhi ka swa xibedlhelentsongo no tlhela swi tika ku kombisa maendlelo. Mati eka ntlawa wa I a ya vangi mimbuyelo yo ka yi nga ri kahle eka rihanyo ehansi ka swiyimo swa ntolovelo. Mimbuyelo ya swa vumburhi yi nga, loko swi ri tano, yi nga va erivaleni.

Ntlawa wa II Mati eka ntlawa lowu ya hlamuseriwa tanihi laha mimbuyelo yo ka yi nga ri kahle eka rihanyo yi nga tolovelekangiki eka ntirhiso wa xinkarhana wo pimiwa. Mimbuyelo ya rihanyo yo ka yi nga ri kahle yi nga va leyi fanaka swinene ngopfungopfu na ntirhiso lowu nga lehisiwa ku hundza malembe yo tala, kumbe na ntirhiso wa nkarhi wo leha. Ntlawa lowu wu yimela mati lama nga fanela eka xinkarhana kumbe eka ntirhiso wa xihatla ntsena, kambe ya nga vi ngopfungopfu lama nga fanela ku tirhisiwa ku ya emahlweni nkarhi wo leha.

Ntlawa wa III Mati lama ma na swiphemu endzeni ka vuandlalo bya mpfanganyiso laha mimbuyelo ya ntiyiso ya rihanyo yi nga ta languteriwa, ngopfungopfu eka ticece kumbe vanhu lavakulu na ntirhiso wa xinkarhana, na ku tlula kwalaho na ntirhiso wa nkarhi wo leha. Mati eka ntlawa lowu a ya fanelanga ku tirhisiwa tanihi mati yo nwa handle ko va ya tengisiwa ku ringanela ku tshineta mati ku ya eka ntlawa wa le hansi wu tlhela wu hlayiseka.

XIYAXIYA: XIYIMO XA MATI YA KOTARA YA TINDHAWU YA LAHA MATI MA HLENGELETIWAKA KONA A TI HLERIWANGA HIKOKWALAHO KA MAHUNGU YO KA YA NGA ENELANGA (MPFUMALEKO WA SWITIVIWA XIYIMO XA MATI YA LE HANSI KA MISAVA YO YIMELEKA)

B11A, B11B, B11C, B11D, B11E, B11F, B11G, B11H, B11K, B11L, B11K, B11L, B12A, B12B, B12C, B12D, B12E, B20B, B20D, B20E, B20F, B20G, B20H, B20J, B21A, B31A, B31B, B31C, B31D, B31E, B31F, B31G, B32A,B32B, B32C, B32D, B32E, B41A, B41B, B41F, B42A, B42C, B42D, B42E, B42G, B42H, B51D, B51E, B51F, B60A, B60B, B60C, B60E, B60F, B60H, B60J, B71A, B71B, B71C, B71D, B71E, B71F, B71G, B71H, B771J, B72A, B72B, B72C, B72D, B72E, B72F, B72G, B72H, B72J, B73B, B72C, B72D, B72G, B72H, B72J, B81A, B81B, B81F, B81J, B82B, B82H, B83A, B83C, B83D, B83E

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Tafula ra 7.3: Mimbuyelo ya Xiphemu xa Mati ya le Hansi ka Misava Swiphemu swa Nkoka

Pharamitara ya Khalisiyamu	Yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B20A			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le Hansi ka Misava [3]
pH	–	95	8.23	5.0 – 9.5	8.5
Mfambiso wa Gezi	mS/m	95	43.7	<150	48
Khalisiyamu tanihi Ca	mg/l	95	32.1	<150	35
Magineziyamu tanihi Mg	mg/l	95	22.2	<100	24
Sodiyamu tanihi Na	mg/l	95	10.0	<200	11
Photaxi tanihi K	mg/l	95	2.14	<50	2.3
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	95	150.8	N/A	165
Tlilkumbeayidi tanihi Cl	mg/l	95	15.5	<200	17
Salifeyiti tanihi SO_4	mg/l	95	15.2	<400	16
Nayitireyiti tanihi NO_x-N	mg/l	95	0.36	<10	0.40
Flkumbeayidi tanihi F	Mg/l	95	0.17	<1.0	0.19
				Ntlawa wa Mati ya Nkoka	**Ntlawa 0**

1 Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhuc eka QC).
2 Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998).
3 Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka.

Pharamitara ya Khemikhali	Yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B31H			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava[3]
pH	–	28	8.201	5.0 – 9.5	8.50
Mfambiso wa Gezi	mS/m	28	123.85	<150	136
Khalisiyamu tanihi Ca	mg/l	28	74.3495	<150	81
Magineziyamu tanihi Mg	mg/l	28	74.3055	<100	81
Sodiyamu tanihi Na	mg/l	28	93.461	<200	102
Photaxi tanihi K	mg/l	28	3.2095	<50	3.5
Vunkwabyo bya kalaka tanihi $CaCO_3$	mg/l	28	402.9	N/A	403[4]
Tlilkumbeayidi tanihi Cl	mg/l	28	71.0795	<200	78
Salifeyiti tanihi SO_4	mg/l	28	44.199	<400	48
Nayitireyiti tanihi NO_x-N	mg/l	28	25.0555	<10	25.0
Flkumbeayidi tanihi F	Mg/l	28	0.6355	<1.0	0.7
				Ntlawa wa Mati ya Nkoka	**Ntlawa III**

[1] .Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC)
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998)
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka.
[4] Swiyimo swa jiyolojikhali swa Ntumbuluko swi nga vanga swo tiya leswi n'okeke leswi tlakusiweke endzeni ka mati ya le hansi ka misava

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Pharamitara ya Khemikhali	Yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B31J			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	83	7.927	5.0 – 9.5	8.25
Mfambiso wa Gezi	mS/m	83	89.3	<150	98
Khalisiyamu tanihi Ca	mg/l	83	64.445	<150	70
Magineziyamu tanihi Mg	mg/l	83	34.851	<100	38
Sodiyamu tanihi Na	mg/l	83	41.59	<200	45
Photaxi tanihi K	mg/l	83	6.61	<50	7.2
Vunkwabyo bya kalaka tanihi $CaCO_3$	mg/l	83	156.554	N/A	172
Tlilkumbeayidi tanihi Cl	mg/l	83	113.12	<200	124
Salifeyiti tanihi SO_4	mg/l	83	71.082	<400	78
Nayitireyiti tanihi NO_x-N	mg/l	83	9.768	<10	9.8
Flkumbeayidi tanihi F	Mg/l	83	0.387	<1.0	0.5
				Ntlawa wa Mati ya Nkoka	Ntlawa I

[1]. Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC)
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998)
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka.

Pharamitara ya Khemikhali	Yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B32F			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	71	7.53	5.0 – 9.5	7.75
Mfambiso wa Gezi	mS/m	71	10.9	<150	11
Khalisiyamu tanihi Ca	mg/l	71	5.129	<150	5
Magineziyamu tanihi Mg	mg/l	71	1.8	<100	1
Sodiyamu tanihi Na	mg/l	71	9.383	<200	10
Photaxi tanihi K	mg/l	71	2.98	<50	3.2
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	71	30	N/A	33
Tlilkumbeayidi tanihi Cl	mg/l	71	5	<200	5
Salifeyiti tanihi SO_4	mg/l	71	4.1	<400	4
Nayitireyiti tanihi NO_x-N	mg/l	71	0.462	<10	0.5
Flkumbeayidi tanihi F	Mg/l	71	0.26	<1.0	0.3
				Ntlawa wa Mati ya Nkoka	Ntlawa 0

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC)
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998)
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka

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Pharamitara ya Khemikhali	Yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B32H			
		No. of Samples	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	10	8.07	5.0 – 9.5	8.5
Mfambiso wa Gezi	mS/m	10	32.75	<150	36
Khalisiyamu tanihi Ca	mg/l	10	15.4205	<150	16
Magineziyamu tanihi Mg	mg/l	10	3.919	<100	4
Sodiyamu tanihi Na	mg/l	10	27.375	<200	30
Photaxi tanihi K	mg/l	10	1.7715	<50	1.9
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	10	76.44	N/A	84
Tlilkumbeayidi tanihi Cl	mg/l	10	19.831	<200	21
Salifeyiti tanihi SO_4	mg/l	10	3.1255	<400	3
Nayitireyiti tanihi NO_x-N	mg/l	10	2.7245	<10	2.9
Flkumbeayidi tanihi F	Mg/l	10	0.684	<1.0	0.75
				Ntlawa wa Mati ya Nkoka	Ntlawa wa 0

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC)
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998)
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka

Pharamitara ya Khemikhali	Yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B32J			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	20	8.1255	5.0 – 9.5	8.5
Mfambiso wa Gezi	mS/m	20	34.75	<150	38
Khalisiyamu tanihi Ca	mg/l	20	25.0525	<150	27
Magineziyamu tanihi Mg	mg/l	20	3.9455	<100	4
Sodiyamu tanihi Na	mg/l	20	36.878	<200	40
Photaxi tanihi K	mg/l	20	3.288	<50	3.6
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	20	119.036	N/A	130
Tlilkumbeayidi tanihi Cl	mg/l	20	22.976	<200	25
Salifeyiti tanihi SO_4	mg/l	20	6.497	<400	7
Nayitireyiti tanihi NO_x-N	mg/l	20	0.6245	<10	0.6
Flkumbeayidi tanihi F	Mg/l	20	2.7755	<1.0	2.8
				Ntlawa wa Mati ya Nkoka	Ntlawa III

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC)
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998)
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka

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Pharamitara ya Khemikhali	Yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B41C			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	35	8.13	5.0 – 9.5	8.5
Mfambiso wa Gezi	mS/m	35	55.2	<150	60
Khalisiyamu tanihi Ca	mg/l	35	66.099	<150	72
Magineziyamu tanihi Mg	mg/l	35	26.2	<100	28
Sodiyamu tanihi Na	mg/l	35	13.01	<200	14
Photaxi tanihi K	mg/l	35	0.5	<50	0.5
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	35	274.083	N/A	275
Tlilkumbeayidi tanihi Cl	mg/l	35	10.8	<200	11
Salifeyiti tanihi SO_4	mg/l	35	11.118	<400	12
Nayitireyiti tanihi NO_x-N	mg/l	35	0.703	<10	0.7
Flkumbeayidi tanihi F	Mg/l	35	0.11	<1.0	0.12
				Ntlawa wa Mati ya Nkoka	Ntlawa I

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998).
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka.

Pharamitara ya Khemikhali	Yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B41D			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	20	7.345	5.0 – 9.5	7.75
Mfambiso wa Gezi	mS/m	20	10.78	<150	11
Khalisiyamu tani Ca	mg/l	20	6.4	<150	7
Magineziyamu tanihi Mg	mg/l	20	2.059	<100	2
Sodiyamu tanihi Na	mg/l	20	7.424	<200	8
Photaxi tanihi K	mg/l	20	2.5015	<50	2.7
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	20	32.708	N/A	35
Tlilkumbeayidi tanihi Cl	mg/l	20	5	<200	5
Salifeyiti tanihi SO_4	mg/l	20	4.956	<400	5
Nayitireyiti tanihi NO_x-N	mg/l	20	0.294	<10	0.3
Flkumbeayidi tanihi F	Mg/l	20	0.4065	<1.0	0.44
				Ntlawa wa Mati ya Nkoka	Ntlawa 0

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998).
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka.

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Pharamitara ya Khemikhali	Yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B41E			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	37	8.028	5.0 – 9.5	8.5
Mfambiso wa Gezi	mS/m	37	29	<150	31
Khalisiyamu tanihi Ca	mg/l	37	18.1	<150	19
Magineziyamu tanihi Mg	mg/l	37	4.039	<100	4
Sodiyamu tanihi Na	mg/l	37	21.117	<200	23
Photaxi tanihi K	mg/l	37	4.456	<50	4.9
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	37	109.16	N/A	120
Tlilkumbeayidi tanihi Cl	mg/l	37	7.398	<200	8
Salifeyiti tanihi SO_4	mg/l	37	6.603	<400	7
Nayitireyiti tanihi NO_x-N	mg/l	37	1.531	<10	1.6
Flkumbeayidi tanihi F	Mg/l	37	0.379	<1.0	0.41
				Ntlawa wa Mati ya Nkoka	Ntlawa 0

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998).
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka.

Pharamitara ya Khemikhali	yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B41G			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	13	8.055	5.0 – 9.5	8.5
Mfambiso wa Gezi	mS/m	13	59.2	<150	65
Khalisiyamu tanihi Ca	mg/l	13	51.605	<150	56
Magineziyamu tanihi Mg	mg/l	13	29.374	<100	32
Sodiyamu tanihi Na	mg/l	13	23.522	<200	25
Photaxi tanihi K	mg/l	13	0.796	<50	0.8
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	13	244	N/A	268
Tlilkumbeayidi tanihi Cl	mg/l	13	17.18	<200	18
Salifeyiti tanihi SO_4	mg/l	13	10.187	<400	11
Nayitireyiti tanihi NO_x-N	mg/l	13	0.055	<10	0.1
Flkumbeayidi tanihi F	Mg/l	13	0.1	<1.0	0.11
				Ntlawa wa Mati ya Nkoka	Ntlawa I

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998).
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka.

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Pharamitara ya Khemikhali	yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B41H			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1]	Nhlayiso wa BHN[2]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	109	8.187	5.0 – 9.5	8.5
Mfambiso wa Gezi	mS/m	109	91	<150	100
Khalisiyamu tanihi Ca	mg/l	109	70.6	<150	77
Magineziyamu tanihi Mg	mg/l	109	47.88	<100	52
Sodiyamu tanihi Na	mg/l	109	45.1	<200	49
Photaxi tanihi K	mg/l	109	0.995	<50	1.1
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	109	259.5	N/A	285
Tlilkumbeayidi tanihi Cl	mg/l	109	58.3	<200	64
Salifeyiti tanihi SO_4	mg/l	109	44.9715	<400	49
Nayitireyiti tanihi NO_x-N	mg/l	109	5.692	<10	6.2
Flkumbeayidi tanihi F	Mg/l	109	0.24	<1.0	0.26
				Ntlawa wa Mati ya Nkoka	Ntlawa I

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998).
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka.

Pharamitara ya Khemikhali	yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B41J			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1]	Nhlayiso wa BHN[2]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	134	8.292	5.0 – 9.5	8.5
Mfambiso wa Gezi	mS/m	134	89.45	<150	98
Khalisiyamu tanihi Ca	mg/l	134	37.69	<150	41
Magineziyamu tanihi Mg	mg/l	134	71.6125	<100	78
Sodiyamu tanihi Na	mg/l	134	29.1	<200	32
Photaxi tanihi K	mg/l	134	1.2445	<50	1.3
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	134	345.7	N/A	346[4]
Tlilkumbeayidi tanihi Cl	mg/l	134	43.5825	<200	47
Salifeyiti tanihi SO_4	mg/l	134	30.315	<400	33
Nayitireyiti tanihi NO_x-N	mg/l	134	6.5185	<10	7.1
Flkumbeayidi tanihi F	Mg/l	134	0.1275	<1.0	0.14
				Ntlawa wa Mati ya Nkoka	Ntlawa I

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998).
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava

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Pharamitara ya Khemikhali	yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B41K			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	60	8.1035	5.0 – 9.5	8.5
Mfambiso wa Gezi	mS/m	60	110.75	<150	121
Khalisiyamu tanihi Ca	mg/l	60	54.651	<150	60
Magineziyamu tanihi Mg	mg/l	60	61.1175	<100	67
Sodiyamu tanihi Na	mg/l	60	81.835	<200	90
Photaxi tanihi K	mg/l	60	2.789	<50	3.1
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	60	362.1	N/A	362[4]
Tlilkumbeayidi tanihi Cl	mg/l	60	80.582	<200	88
Salifeyiti tanihi SO_4	mg/l	60	40.9105	<400	45
Nayitireyiti tanihi NO_x-N	mg/l	60	3.9235	<10	4.3
Flkumbeayidi tanihi F	Mg/l	60	0.484	<1.0	0.53
				Ntlawa wa Mati ya Nkoka	**Ntlawa I**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998).
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava

Pharamitara ya Khemikhali	yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B42B			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	39	7.523	5.0 – 9.5	7.75
Mfambiso wa Gezi	mS/m	40	5.79	<150	6
Khalisiyamu tanihi Ca	mg/l	40	4.299	<150	4
Magineziyamu tanihi Mg	mg/l	40	2.176	<100	2
Sodiyamu tanihi Na	mg/l	40	2.19	<200	2
Photaxi tanihi K	mg/l	40	0.3275	<50	0.3
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	40	17.932	N/A	19
Tlilkumbeayidi tanihi Cl	mg/l	40	3.25	<200	3
Salifeyiti tanihi SO_4	mg/l	40	3	<400	3
Nayitireyiti tanihi NO_x-N	mg/l	40	0.6955	<10	0.8
Flkumbeayidi tanihi F	Mg/l	40	0.104	<1.0	0.11
				Ntlawa wa Mati ya Nkoka	**Ntlawa 0**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998).
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava

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Pharamitara ya Khemikhali	yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B42F			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	37	7.93	5.0 – 9.5	8.25
Mfambiso wa Gezi	mS/m	37	59	<150	64
Khalisiyamu tanihi Ca	mg/l	37	17.146	<150	18
Magineziyamu tanihi Mg	mg/l	37	52.835	<100	58
Sodiyamu tanihi Na	mg/l	37	14.4	<200	15
Photaxi tanihi K	mg/l	37	0.853	<50	0.9
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	37	154.3	N/A	169
Tlilkumbeayidi tanihi Cl	mg/l	37	53.976	<200	59
Salifeyiti tanihi SO_4	mg/l	37	17.706	<400	19
Nayitireyiti tanihi NO_x-N	mg/l	37	8.679	<10	9.5
Flkumbeayidi tanihi F	Mg/l	37	0.206	<1.0	0.22
				Ntlawa wa Mati ya Nkoka	Ntlawa I

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998).
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka.

Pharamitara ya Khemikhali	yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B51A			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	50	7.568	5.0 – 9.5	7.75
Mfambiso wa Gezi	mS/m	50	14.4	<150	15
Khalisiyamu tanihi Ca	mg/l	50	6.838	<150	7
Magineziyamu tanihi Mg	mg/l	50	2.27	<100	2
Sodiyamu tanihi Na	mg/l	50	11.348	<200	12
Photaxi tanihi K	mg/l	50	3.835	<50	4.3
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	50	35.5425	N/A	39
Tlilkumbeayidi tanihi Cl	mg/l	50	6.6835	<200	7
Salifeyiti tanihi SO_4	mg/l	50	2	<400	2
Nayitireyiti tanihi NO_x-N	mg/l	50	3.5095	<10	3.8
Flkumbeayidi tanihi F	Mg/l	50	0.418	<1.0	0.45
				Ntlawa wa Mati ya Nkoka	Ntlawa 0

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998).
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka.

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Pharamitara ya Khemikhali	yuniti	Ndhawu ya laha mati ma hlengeletiwaka kona ya Nambu wa Olifants QC B51B			
		No. ya tisampulu	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Nhlayiso wa BHN[2)]	Nhlayiso wa Mati ya Nkoka ya le hansi ka Misava [3]
pH	–	62	7.908	5.0 – 9.5	8.25
Mfambiso wa Gezi	mS/m	62	20.95	<150	23
Khalisiyamu tanihi Ca	mg/l	62	9.1095	<150	10
Magineziyamu tanihi Mg	mg/l	62	2.1195	<100	2
Sodiyamu tanihi Na	mg/l	62	18.919	<200	20
Photaxi tanihi K	mg/l	62	2.91	<50	3.2
Vunkwabyo bya Kalaka tanihi $CaCO_3$	mg/l	62	62.909	N/A	69
Tlilkumbeayidi tanihi Cl	mg/l	62	8.565	<200	9
Salifeyiti tanihi SO_4	mg/l	62	3.091	<400	3
Nayitireyiti tanihi NO_x-N	mg/l	62	1.0575	<10	1.2
Flkumbeayidi tanihi F	Mg/l	62	0.9945	<1.0	1.0
				Ntlawa wa Mati ya Nkoka	Ntlawa II

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka eka tisampulu ta nhlayo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa I wa mati ya nkoka (DWAF et al 1998).
[3] Xikarhi na 10 wa tiphesente ta ku Hlayisiwa ka Mati ya le Hansi ka Misava ya Nkoka.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B51C			
		Nhlayo ya swikombiso	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	55	7.954	5.0 – 9.5	8.25
Maendlelo yo Fambisa Gezi	mS/m	55	51.4	<150	56
Khalisiyamu tanihi Ca	mg/l	55	40.544	<150	44
Manganisi tanihi Mg	mg/l	55	8.812	<100	9
Sodiyamu tanihi Na	mg/l	55	47.532	<200	52
Photheziyamu tanihi K	mg/l	55	3.095	<50	3.4
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	55	122.026	Ku hava	134
Tlilkumbeayidi tanihi Cl	mg/l	55	41.026	<200	45
Salipheyiti tanihi SO_4	mg/l	55	18.15	<400	19
Nitireyiti tanihi NO_x-N	mg/l	55	3.955	<10	4.3
Fulkumbeayidi tanihi F	Mg/l	55	2.171	<1.0	2.2
				Ntlawa wa mati ya nkoka	Ntlawa wa nharhu

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B51E			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	117	8.04	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	117	112.2	<150	123
Khalisiyamu tanihi Ca	mg/l	117	86.1	<150	94
Manganisi tanihi Mg	mg/l	117	54.055	<100	59
Sodiyamu tanihi Na	mg/l	117	61.675	<200	67
Photheziyamu tanihi K	mg/l	117	4.345	<50	4.8
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	117	260.7	N/A	286
Tlilkumbeayidi tanihi Cl	mg/l	117	74.8	<200	82
Salipheyiti tanihi SO_4	mg/l	117	58.789	<400	64
Nitireyiti tanihi NO_x-N	mg/l	117	23.174	<10	23
Fulkumbeayidi tanihi F	Mg/l	117	0.345	<1.0	0.4
				Ntlawa wa mati ya nkoka	Ntlawa wa nharhu

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B51G			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi [1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	168	8.2285	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	168	90.6	<150	99
Khalisiyamu tanihi Ca	mg/l	168	54.406	<150	59
Manganisi tanihi Mg	mg/l	168	35.9285	<100	39
Sodiyamu tanihi Na	mg/l	168	61.381	<200	67
Photheziyamu tanihi K	mg/l	168	3.785	<50	4.1
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	168	250.4975	N/A	275
Tlilkumbeayidi tanihi Cl	mg/l	168	82.078	<200	90
Salipheyiti tanihi SO_4	mg/l	168	17.7	<400	19
Nitireyiti tanihi NO_x-N	mg/l	168	5.333	<10	5.8
Fulkumbeayidi tanihi F	Mg/l	168	0.2945	<1.0	0.32
				Ntlawa wa mati ya nkoka	Ntlawa wa n'we

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B51H			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	219	7.978	5.0 – 9.5	8.25
Maendlelo yo Fambisa Gezi	mS/m	219	39.3	<150	43
Khalisiyamu tanihi Ca	mg/l	219	25.6	<150	28
Manganisi tanihi Mg	mg/l	219	5.1	<100	5
Sodiyamu tanihi Na	mg/l	219	33.852	<200	37
Photheziyamu tanihi K	mg/l	219	2.979	<50	3.3
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	219	103.8	N/A	114
Tlilkumbeayidi tanihi Cl	mg/l	219	27.699	<200	30
Salipheyiti tanihi SO_4	mg/l	219	6.5	<400	7
Nitireyiti tanihi NO_x-N	mg/l	219	2.75	<10	3.1
Fulkumbeayidi tanihi F	Mg/l	219	0.818	<1.0	1.00[4]
				Ntlawa wa mati ya nkoka	Ntlawa wa mbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B52A			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	95	8.251	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	95	116.3	<150	127
Khalisiyamu tanihi Ca	mg/l	95	69.871	<150	76
Manganisi tanihi Mg	mg/l	95	47.17	<100	51
Sodiyamu tanihi Na	mg/l	95	113.292	<200	124
Photheziyamu tanihi K	mg/l	95	6.052	<50	6.6
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	95	320.786	Ku hava	321[4]
Tlilkumbeayidi tanihi Cl	mg/l	95	142.676	<200	156
Salipheyiti tanihi SO_4	mg/l	95	48.865	<400	53
Nitireyiti tanihi NO_x-N	mg/l	95	14.852	<10	14.9
Fulkumbeayidi tanihi F	Mg/l	95	1.232	<1.0	1.23[4]
				Ntlawa wa mati ya nkoka	Ntlawa wa vumbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B52B			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	267	8.175	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	268	94.3	<150	103
Khalisiyamu tanihi Ca	mg/l	268	78.1675	<150	85
Manganisi tanihi Mg	mg/l	268	52.385	<100	57
Sodiyamu tanihi Na	mg/l	268	48.44	<200	53
Photheziyamu tanihi K	mg/l	268	0.932	<50	1.0
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	268	336.5035	Ku hava	337[4]
Tlilkumbeayidi tanihi Cl	mg/l	268	58.677	<200	64
Salipheyiti tanihi SO_4	mg/l	268	23.316	<400	25
Nitireyiti tanihi NO_x-N	mg/l	268	12.3475	<10	13.5
Fulkumbeayidi tanihi F	Mg/l	268	0.173	<1.0	0.19
				Ntlawa wa mati ya nkoka	**Ntlawa wa vumbirhi**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B52C			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	15	8.12	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	15	76.4	<150	84
Khalisiyamu tanihi Ca	mg/l	15	57.541	<150	63
Manganisi tanihi Mg	mg/l	15	26.2	<100	28
Sodiyamu tanihi Na	mg/l	15	48.3	<200	53
Photheziyamu tanihi K	mg/l	15	2.526	<50	2.7
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	15	259.21	N/A	285
Tlilkumbeayidi tanihi Cl	mg/l	15	42.701	<200	46
Salipheyiti tanihi SO_4	mg/l	15	15.788	<400	17
Nitireyiti tanihi NO_x-N	mg/l	15	4.477	<10	4.9
Fulkumbeayidi tanihi F	Mg/l	15	0.282	<1.0	0.31
				Ntlawa wa mati ya nkoka	**Ntlawa wa mbirhi**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B52D			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	66	8.124	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	66	129	<150	141
Khalisiyamu tanihi Ca	mg/l	66	80.419	<150	88
Manganisi tanihi Mg	mg/l	66	75.161	<100	82
Sodiyamu tanihi Na	mg/l	66	73.681	<200	81
Photheziyamu tanihi K	mg/l	66	3.373	<50	3.7
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	66	368.735	N/A	369[4]
Tlilkumbeayidi tanihi Cl	mg/l	66	155.5865	<200	171
Salipheyiti tanihi SO_4	mg/l	66	68.1475	<400	74
Nitireyiti tanihi NO_x-N	mg/l	66	8.625	<10	9.5
Fulkumbeayidi tanihi F	Mg/l	66	0.463	<1.0	0.50
				Ntlawa wa mati ya nkoka	Ntlawa wa mbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B52E			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	92	8.19	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	92	187	<150	<150[4]
Khalisiyamu tanihi Ca	mg/l	92	93.099	<150	102
Manganisi tanihi Mg	mg/l	92	99.779	<100	109
Sodiyamu tanihi Na	mg/l	92	130.3125	<200	143
Photheziyamu tanihi K	mg/l	92	0.9365	<50	1.1
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	92	353.535	N/A	354[4]
Tlilkumbeayidi tanihi Cl	mg/l	92	271.372	<200	271[4]
Salipheyiti tanihi SO_4	mg/l	92	92.543	<400	101
Nitireyiti tanihi NO_x-N	mg/l	92	20.1515	<10	20.2
Fulkumbeayidi tanihi F	Mg/l	92	0.1425	<1.0	0.16
				Ntlawa wa mati ya nkoka	Ntlawa wa nharhu

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B52F			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	16	8.2865	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	16	63.55	<150	69
Khalisiyamu tanihi Ca	mg/l	16	39.18	<150	43
Manganisi tanihi Mg	mg/l	16	19.85	<100	21
Sodiyamu tanihi Na	mg/l	16	76.3	<200	83
Photheziyamu tanihi K	mg/l	16	2.86	<50	3.1
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	16	260.7275	<330	286
Tlilkumbeayidi tanihi Cl	mg/l	16	26.6075	<200	29
Salipheyiti tanihi SO_4	mg/l	16	8.8	<400	9
Nitireyiti tanihi NO_x-N	mg/l	16	1.1595	<10	1.2
Fulkumbeayidi tanihi F	Mg/l	16	1.45	<1.0	1.5
				Ntlawa wa mati ya nkoka	Ntlawa wa mbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B52G			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	29	8.152	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	29	105.1	<150	115
Khalisiyamu tanihi Ca	mg/l	29	84.691	<150	93
Manganisi tanihi Mg	mg/l	29	69.516	<100	76
Sodiyamu tanihi Na	mg/l	29	52.144	<200	57
Photheziyamu tanihi K	mg/l	29	2.33	<50	2.5
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	29	356.471	<330	356[4]
Tlilkumbeayidi tanihi Cl	mg/l	29	94.103	<200	103
Salipheyiti tanihi SO_4	mg/l	29	31	<400	34
Nitireyiti tanihi NO_x-N	mg/l	29	12.666	<10	12.7
Fulkumbeayidi tanihi F	Mg/l	29	0.253	<1.0	0.27
				Ntlawa wa mati ya nkoka	Ntlawa wa mbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B52H			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	64	8.094	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	64	91.65	<150	100
Khalisiyamu tanihi Ca	mg/l	64	58.418	<150	64
Manganisi tanihi Mg	mg/l	64	32.033	<100	35
Sodiyamu tanihi Na	mg/l	64	62.1165	<200	68
Photheziyamu tanihi K	mg/l	64	2.675	<50	2.9
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	64	241.4405	N/A	265
Tlilkumbeayidi tanihi Cl	mg/l	64	71.774	<200	78
Salipheyiti tanihi SO_4	mg/l	64	26.55	<400	29
Nitireyiti tanihi NO_x-N	mg/l	64	9.7805	<10	9.8
Fulkumbeayidi tanihi F	Mg/l	64	0.538	<1.0	0.59
				Ntlawa wa mati ya nkoka	Ntlawa wa mbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B52J			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	78	8.144	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	78	109.35	<150	120
Khalisiyamu tanihi Ca	mg/l	78	69.1765	<150	76
Manganisi tanihi Mg	mg/l	78	71.318	<100	78
Sodiyamu tanihi Na	mg/l	78	62.3	<200	68
Photheziyamu tanihi K	mg/l	78	1.63	<50	1.7
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	78	334.125	Ku hava	367
Tlilkumbeayidi tanihi Cl	mg/l	78	86.681	<200	95
Salipheyiti tanihi SO_4	mg/l	78	52.3	<400	57
Nitireyiti tanihi NO_x-N	mg/l	78	10.5165	<10	11
Fulkumbeayidi tanihi F	Mg/l	78	0.135	<1.0	0.14
				Ntlawa wa mati ya nkoka	Ntlawa wa mbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B60D			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	42		5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	42	44.65	<150	49
Khalisiyamu tanihi Ca	mg/l	42	45.0725	<150	49
Manganisi tanihi Mg	mg/l	42	26.8335	<100	29
Sodiyamu tanihi Na	mg/l	42	5.362	<200	5
Photheziyamu tanihi K	mg/l	42	0.512	<50	0.5
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	42	211.7055	N/A	232
Tlilkumbeayidi tanihi Cl	mg/l	42	5	<200	5
Salipheyiti tanihi SO_4	mg/l	42	4.35	<400	4
Nitireyiti tanihi NO_x-N	mg/l	42	2.74	<10	3.0
Fulkumbeayidi tanihi F	Mg/l	42	0.183	<1.0	0.20
				Ntlawa wa mati ya nkoka	Ntlawa wa n'we

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B60G			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	12	8.2325	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	12	61.6	<150	67
Khalisiyamu tanihi Ca	mg/l	12	40.2825	<150	44
Manganisi tanihi Mg	mg/l	12	32.098	<100	35
Sodiyamu tanihi Na	mg/l	12	45.8895	<200	50
Photheziyamu tanihi K	mg/l	12	0.6575	<50	0.7
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	12	233.8585	N/A	257
Tlilkumbeayidi tanihi Cl	mg/l	12	50.102	<200	55
Salipheyiti tanihi SO_4	mg/l	12	14.519	<400	15
Nitireyiti tanihi NO_x-N	mg/l	12	1.812	<10	1.9
Fulkumbeayidi tanihi F	Mg/l	12	0.453	<1.0	0.49
				Ntlawa wa mati ya nkoka	Ntlawa wa n'we

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B60H			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	26	7.998	5.0 – 9.5	8.25
Maendlelo yo Fambisa Gezi	mS/m	26	51.25	<150	56
Khalisiyamu tanihi Ca	mg/l	26	41.6925	<150	45
Manganisi tanihi Mg	mg/l	26	21.389	<100	23
Sodiyamu tanihi Na	mg/l	26	18.465	<200	20
Photheziyamu tanihi K	mg/l	26	0.6945	<50	0.7
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	26	204.4145	N/A	224
Tlilkumbeayidi tanihi Cl	mg/l	26	15.6565	<200	17
Salipheyiti tanihi SO_4	mg/l	26	10.8385	<400	11
Nitireyiti tanihi NO_x-N	mg/l	26	0.916	<10	1.0
Fulkumbeayidi tanihi F	Mg/l	26	0.1825	<1.0	0.20
				Ntlawa wa mati ya nkoka	Ntlawa wa n'we

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B60J			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	22	7.819	5.0 – 9.5	8.00
Maendlelo yo Fambisa Gezi	mS/m	22	148	<150	150[4]
Khalisiyamu tanihi Ca	mg/l	22	73.509	<150	80
Manganisi tanihi Mg	mg/l	22	60.6	<100	66
Sodiyamu tanihi Na	mg/l	22	154.017	<200	169
Photheziyamu tanihi K	mg/l	22	3.585	<50	3.9
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	22	381.78	N/A	382[4]
Tlilkumbeayidi tanihi Cl	mg/l	22	166.4	<200	183
Salipheyiti tanihi SO_4	mg/l	22	82.4675	<400	90
Nitireyiti tanihi NO_x-N	mg/l	22	7.887	<10	8.7
Fulkumbeayidi tanihi F	Mg/l	22	0.62	<1.0	0.68
				Ntlawa wa mati ya nkoka	Ntlawa wa n'we

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B71A			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	25	8.18	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	25	75.9	<150	83
Khalisiyamu tanihi Ca	mg/l	25	41.692	<150	45
Manganisi tanihi Mg	mg/l	25	35.6	<100	39
Sodiyamu tanihi Na	mg/l	25	27.457	<200	30
Photheziyamu tanihi K	mg/l	25	2.488	<50	2.7
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	25	239.8	N/A	263
Tlilkumbeayidi tanihi Cl	mg/l	25	43.299	<200	47
Salipheyiti tanihi SO_4	mg/l	25	14.9	<400	16
Nitireyiti tanihi NO_x-N	mg/l	25	3.908	<10	4.3
Fulkumbeayidi tanihi F	Mg/l	25	0.2	<1.0	0.22
				Ntlawa wa mati ya nkoka	**Ntlawa wa n'we**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B71B			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	22	8.245	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	22	116.45	<150	128
Khalisiyamu tanihi Ca	mg/l	22	43.1465	<150	47
Manganisi tanihi Mg	mg/l	22	86.0155	<100	94
Sodiyamu tanihi Na	mg/l	22	58.222	<200	64
Photheziyamu tanihi K	mg/l	22	2.425	<50	2.7
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	22	393.132	N/A	393[4]
Tlilkumbeayidi tanihi Cl	mg/l	22	111.8245	<200	123
Salipheyiti tanihi SO_4	mg/l	22	39.897	<400	43
Nitireyiti tanihi NO_x-N	mg/l	22	4.1535	<10	4.6
Fulkumbeayidi tanihi F	Mg/l	22	0.161	<1.0	0.17
				Ntlawa wa mati ya nkoka	**Ntlawa wa mbirhi**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B71D			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	9	8.123	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	9	70	<150	77
Khalisiyamu tanihi Ca	mg/l	9	33.574	<150	36
Manganisi tanihi Mg	mg/l	9	18.525	<100	20
Sodiyamu tanihi Na	mg/l	9	18.321	<200	20
Photheziyamu tanihi K	mg/l	9	3.815	<50	4.1
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	9	219.423	N/A	241
Tlilkumbeayidi tanihi Cl	mg/l	9	35.581	<200	39
Salipheyiti tanihi SO_4	mg/l	9	9.179	<400	10
Nitireyiti tanihi NO_x-N	mg/l	9	0.515	<10	0.6
Fulkumbeayidi tanihi F	Mg/l	9	0.18	<1.0	0.19
				Ntlawa wa mati ya nkoka	Ntlawa wa n'we

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B71E			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	180	8.283	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	180	93.05	<150	102
Khalisiyamu tanihi Ca	mg/l	180	42.4955	<150	46
Manganisi tanihi Mg	mg/l	180	73.983	<100	81
Sodiyamu tanihi Na	mg/l	180	34.421	<200	37
Photheziyamu tanihi K	mg/l	180	1.402	<50	1.5
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	180	363.32	N/A	363[4]
Tlilkumbeayidi tanihi Cl	mg/l	180	55.85	<200	61
Salipheyiti tanihi SO_4	mg/l	177	25.37	<400	27
Nitireyiti tanihi NO_x-N	mg/l	180	10.442	<10	10.4
Fulkumbeayidi tanihi F	Mg/l	180	0.1155	<1.0	0.12
				Ntlawa wa mati ya nkoka	Ntlawa wa mbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B71F			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	46	8.2235	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	46	84.5	<150	92
Khalisiyamu tanihi Ca	mg/l	46	74.201	<150	81
Manganisi tanihi Mg	mg/l	46	37.6255	<100	41
Sodiyamu tanihi Na	mg/l	46	44.6935	<200	49
Photheziyamu tanihi K	mg/l	46	2.189	<50	2.4
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	46	258.762	N/A	284
Tlilkumbeayidi tanihi Cl	mg/l	46	88.4355	<200	97
Salipheyiti tanihi SO_4	mg/l	46	51.892	<400	57
Nitireyiti tanihi NO_x-N	mg/l	46	0.925	<10	1.0
Fulkumbeayidi tanihi F	Mg/l	46	0.3	<1.0	0.33
				Ntlawa wa mati ya nkoka	Ntlawa wa n'we

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B71G			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	16	8.216	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	16	65.6	<150	72
Khalisiyamu tanihi Ca	mg/l	16	52.8585	<150	58
Manganisi tanihi Mg	mg/l	16	47.3295	<100	52
Sodiyamu tanihi Na	mg/l	16	13.832	<200	15
Photheziyamu tanihi K	mg/l	16	1.1435	<50	1.3
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	16	304.0185	N/A	304[4]
Tlilkumbeayidi tanihi Cl	mg/l	16	16.358	<200	17
Salipheyiti tanihi SO_4	mg/l	16	11.1915	<400	12
Nitireyiti tanihi NO_x-N	mg/l	16	2.496	<10	2.7
Fulkumbeayidi tanihi F	Mg/l	16	0.2525	<1.0	0.27
				Ntlawa wa mati ya nkoka	Ntlawa wa mbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B71H			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	56	7.945	5.0 – 9.5	8.0
Maendlelo yo Fambisa Gezi	mS/m	56	93.6	<150	102
Khalisiyamu tanihi Ca	mg/l	56	55.15	<150	60
Manganisi tanihi Mg	mg/l	56	31.1	<100	34
Sodiyamu tanihi Na	mg/l	56	68.05	<200	74.
Photheziyamu tanihi K	mg/l	56	2.465	<50	2.7
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	56	303.4585	N/A	303[4]
Tlilkumbeayidi tanihi Cl	mg/l	56	65.056	<200	71
Salipheyiti tanihi SO_4	mg/l	56	12.6	<400	13
Nitireyiti tanihi NO_x-N	mg/l	56	0.741	<10	0.8
Fulkumbeayidi tanihi F	Mg/l	56	0.446	<1.0	0.49
				Ntlawa wa mati ya nkoka	Ntlawa wa mbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B72A			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	100	7.915	5.0 – 9.5	8.25
Maendlelo yo Fambisa Gezi	mS/m	100	46.45	<150	51
Khalisiyamu tanihi Ca	mg/l	100	33.95	<150	37
Manganisi tanihi Mg	mg/l	100	16.7285	<100	18
Sodiyamu tanihi Na	mg/l	100	30.7	<200	33
Photheziyamu tanihi K	mg/l	100	1.8155	<50	1.9
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	100	176.85	N/A	194
Tlilkumbeayidi tanihi Cl	mg/l	100	23.8	<200	26
Salipheyiti tanihi SO_4	mg/l	100	7.112	<400	7
Nitireyiti tanihi NO_x-N	mg/l	100	1.0335	<10	1.1
Fulkumbeayidi tanihi F	Mg/l	100	0.2755	<1.0	0.30
				Ntlawa wa mati ya nkoka	Ntlawa wa ziro

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B72C			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	26	8.17	5.0 – 9.5	8.50
Maendlelo yo Fambisa Gezi	mS/m	26	125.65	<150	138
Khalisiyamu tanihi Ca	mg/l	26	51.7	<150	56
Manganisi tanihi Mg	mg/l	26	37.25	<100	40
Sodiyamu tanihi Na	mg/l	26	175.8	<200	193
Photheziyamu tanihi K	mg/l	26	2.63	<50	2.8
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	26	442.65	N/A	443[4]
Tlilkumbeayidi tanihi Cl	mg/l	26	138.187	<200	152
Salipheyiti tanihi SO_4	mg/l	26	20.564	<400	22
Nitireyiti tanihi NO_x-N	mg/l	26	0.66	<10	0.7
Fulkumbeayidi tanihi F	Mg/l	26	0.7885	<1.0	0.86
				Ntlawa wa mati ya nkoka	**Ntlawa wa mbirhi**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B72E			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	101	8.035	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	101	53.3	<150	58
Khalisiyamu tanihi Ca	mg/l	101	39.2	<150	43
Manganisi tanihi Mg	mg/l	101	26.2	<100	28
Sodiyamu tanihi Na	mg/l	101	26.5	<200	29
Photheziyamu tanihi K	mg/l	101	0.898	<50	0.9
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	101	236.548	N/A	260
Tlilkumbeayidi tanihi Cl	mg/l	101	13.9	<200	15
Salipheyiti tanihi SO_4	mg/l	101	4.3	<400	4
Nitireyiti tanihi NO_x-N	mg/l	101	1.927	<10	2.1
Fulkumbeayidi tanihi F	Mg/l	101	0.227	<1.0	0.24
				Ntlawa wa mati ya nkoka	**Ntlawa wa n'we**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B72J			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	47	8.038	5.0 – 9.5	8.50
Maendlelo yo Fambisa Gezi	mS/m	47	110.23	<150	121
Khalisiyamu tanihi Ca	mg/l	47	64.86	<150	71
Manganisi tanihi Mg	mg/l	47	69.761	<100	76
Sodiyamu tanihi Na	mg/l	47	69.6	<200	76
Photheziyamu tanihi K	mg/l	47	0.65	<50	0.7
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	47	381.88	N/A	382[4]
Tlilkumbeayidi tanihi Cl	mg/l	47	101.636	<200	111
Salipheyiti tanihi SO_4	mg/l	47	41.281	<400	45
Nitireyiti tanihi NO_x-N	mg/l	47	9.989	<10	10
Fulkumbeayidi tanihi F	Mg/l	47	0.3	<1.0	0.33
				Ntlawa wa mati ya nkoka	Ntlawa wa mbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B72K			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	61	8.21	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	61	180	<150	180[4]
Khalisiyamu tanihi Ca	mg/l	61	61.681	<150	67
Manganisi tanihi Mg	mg/l	61	61.2	<100	67
Sodiyamu tanihi Na	mg/l	61	223.785	<200	224[4]
Photheziyamu tanihi K	mg/l	61	5.38	<50	5.9
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	61	459	N/A	459[4]
Tlilkumbeayidi tanihi Cl	mg/l	61	244.7	<200	245[4]
Salipheyiti tanihi SO_4	mg/l	61	54.8	<400	60
Nitireyiti tanihi NO_x-N	mg/l	61	9.088	<10	9.9
Fulkumbeayidi tanihi F	Mg/l	61	0.642	<1.0	0.70
				Ntlawa wa mati ya nkoka	Ntlawa wa mbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B73A			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	25	7.67	5.0 – 9.5	8.00
Maendlelo yo Fambisa Gezi	mS/m	25	22.6	<150	24
Khalislyamu tanihi Ca	mg/l	25	10.3	<150	11
Manganisi tanihi Mg	mg/l	25	3.6	<100	3
Sodiyamu tanihi Na	mg/l	25	28.4	<200	31
Photheziyamu tanihi K	mg/l	25	1.3	<50	1.4
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	25	84.6	N/A	93
Tlilkumbeayidi tanihi Cl	mg/l	25	9.2	<200	10
Salipheyiti tanihi SO_4	mg/l	25	4.9	<400	5
Nitireyiti tanihi NO_x-N	mg/l	25	0.93	<10	1.0
Fulkumbeayidi tanihi F	Mg/l	25	0.398	<1.0	0.43
				Ntlawa wa mati ya nkoka	**Ntlawa wa ziro**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B73E			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	50	8.16	5.0 – 9.5	8.50
Maendlelo yo Fambisa Gezi	mS/m	50	80.3	<150	88
Khalisiyamu tanihi Ca	mg/l	50	40.7885	<150	44
Manganisi tanihi Mg	mg/l	50	21.05	<100	23
Sodiyamu tanihi Na	mg/l	50	102.9	<200	113
Photheziyamu tanihi K	mg/l	50	2.203	<50	2.4
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	50	281.2	N/A	309
Tlilkumbeayidi tanihi Cl	mg/l	50	55.35	<200	60
Salipheyiti tanihi SO_4	mg/l	50	10.85	<400	11
Nitireyiti tanihi NO_x-N	mg/l	50	3.3105	<10	3.6
Fulkumbeayidi tanihi F	Mg/l	50	0.99	<1.0	1.0
				Ntlawa wa mati ya nkoka	**Ntlawa wa n'we**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B73F			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	19	8.346	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	19	50.5	<150	55
Khalisiyamu tanihi Ca	mg/l	19	15.864	<150	17
Manganisi tanihi Mg	mg/l	19	30.272	<100	33
Sodiyamu tanihi Na	mg/l	19	43.2	<200	47
Photheziyamu tanihi K	mg/l	19	1.893	<50	2.0
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	19	197.544	N/A	217
Tlilkumbeayidi tanihi Cl	mg/l	19	32.906	<200	36
Salipheyiti tanihi SO_4	mg/l	19	10.439	<400	11
Nitireyiti tanihi NO_x-N	mg/l	19	1.443	<10	1.5
Fulkumbeayidi tanihi F	Mg/l	19	0.333	<1.0	0.36
				Ntlawa wa mati ya nkoka	Ntlawa wa ziro

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B81C			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	64	7.689	5.0 – 9.5	8.00
Maendlelo yo Fambisa Gezi	mS/m	64	22.6185	<150	25
Khalisiyamu tanihi Ca	mg/l	64	13.7065	<150	15
Manganisi tanihi Mg	mg/l	64	4.2295	<100	5
Sodiyamu tanihi Na	mg/l	63	16.8	<200	18
Photheziyamu tanihi K	mg/l	61	2.638	<50	2.9
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	64	46.5115	N/A	51
Tlilkumbeayidi tanihi Cl	mg/l	64	23.9395	<200	26
Salipheyiti tanihi SO_4	mg/l	64	3	<400	3
Nitireyiti tanihi NO_x-N	mg/l	64	3.5385	<10	3.9
Fulkumbeayidi tanihi F	Mg/l	63	0.14	<1.0	0.15
				Ntlawa wa mati ya nkoka	Ntlawa wa zlro

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B81D			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	178	7.827	5.0 – 9.5	8.0
Maendlelo yo Fambisa Gezi	mS/m	178	44.65	<150	49
Khalisiyamu tanihi Ca	mg/l	178	36.9385	<150	41
Manganisi tanihi Mg	mg/l	178	21.843	<100	24
Sodiyamu tanihi Na	mg/l	175	17.5	<200	19
Photheziyamu tanihi K	mg/l	175	0.542	<50	0.6
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	177	187.634	N/A	206
Tlilkumbeayidi tanihi Cl	mg/l	178	11.9215	<200	13
Salipheyiti tanihi SO_4	mg/l	178	4.6	<400	5
Nitireyiti tanihi NO_x-N	mg/l	177	1.949	<10	2.1
Fulkumbeayidi tanihi F	Mg/l	177	0.192	<1.0	0.21
				Ntlawa wa mati ya nkoka	Ntlawa wa ziro

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B81E			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	144	8.077	5.0 – 9.5	8.25
Maendlelo yo Fambisa Gezi	mS/m	144	45.25	<150	50
Khalisiyamu tanihi Ca	mg/l	144	27.84	<150	31
Manganisi tanihi Mg	mg/l	144	15.55	<100	17
Sodiyamu tanihi Na	mg/l	144	33.4565	<200	37
Photheziyamu tanihi K	mg/l	144	2.6485	<50	2.9
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	144	166.2245	N/A	183
Tlilkumbeayidi tanihi Cl	mg/l	144	27.5525	<200	30
Salipheyiti tanihi SO_4	mg/l	144	5.85	<400	6
Nitireyiti tanihi NO_x-N	mg/l	144	0.784	<10	0.9
Fulkumbeayidi tanihi F	Mg/l	144	0.34	<1.0	0.37
				Ntlawa wa mati ya nkoka	Ntlawa wa ziro

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B81G			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	298	7.99	5.0 – 9.5	8.25
Maendlelo yo Fambisa Gezi	mS/m	298	83.35	<150	92
Khalisiyamu tanihi Ca	mg/l	298	44.047	<150	48
Manganisi tanihi Mg	mg/l	298	33.068	<100	36
Sodiyamu tanihi Na	mg/l	298	68.3885	<200	75
Photheziyamu tanihi K	mg/l	298	2.0605	<50	2.3
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	298	266.67	N/A	293
Tlilkumbeayidi tanihi Cl	mg/l	298	63.85	<200	70
Salipheyiti tanihi SO_4	mg/l	298	10.42	<400	11
Nitireyiti tanihi NO_x-N	mg/l	298	3.7285	<10	4.1
Fulkumbeayidi tanihi F	Mg/l	298	0.471	<1.0	0.52
				Ntlawa wa mati ya nkoka	Ntlawa wa ziro

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B81H			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	169	8.208	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	169	175	<150	<175[4]
Khalisiyamu tanihi Ca	mg/l	169	74.8	<150	82
Manganisi tanihi Mg	mg/l	169	72.6	<100	80
Sodiyamu tanihi Na	mg/l	169	164.759	<200	181
Photheziyamu tanihi K	mg/l	169	5.781	<50	6.4
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	169	435.6	N/A	436[4]
Tlilkumbeayidi tanihi Cl	mg/l	169	232.193	<200	232[4]
Salipheyiti tanihi SO_4	mg/l	169	27.609	<400	30
Nitireyiti tanihi NO_x-N	mg/l	168	11.143	<10	12.3
Fulkumbeayidi tanihi F	Mg/l	168	0.605	<1.0	0.67
				Ntlawa wa mati ya nkoka	Ntlawa wa mbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B82A			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	59	7.854	5.0 – 9.5	8.00
Maendlelo yo Fambisa Gezi	mS/m	58	63	<150	69
Khalisiyamu tanihi Ca	mg/l	59	38.951	<150	43
Manganisi tanihi Mg	mg/l	59	27.147	<100	30
Sodiyamu tanihi Na	mg/l	59	43.935	<200	48
Photheziyamu tanihi K	mg/l	59	2.66	<50	2.9
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	59	232.8	N/A	256
Tlilkumbeayidi tanihi Cl	mg/l	59	40.451	<200	44
Salipheyiti tanihi SO_4	mg/l	59	11.214	<400	12
Nitireyiti tanihi NO_x-N	mg/l	59	2.506	<10	2.8
Fulkumbeayidi tanihi F	Mg/l	58	0.317	<1.0	0.35
				Ntlawa wa mati ya nkoka	**Ntlawa wa n'we**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B82C			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	31	7.76	5.0 – 9.5	8.00
Maendlelo yo Fambisa Gezi	mS/m	31	33.2	<150	37
Khalisiyamu tanihi Ca	mg/l	31	21.981	<150	24
Manganisi tanihi Mg	mg/l	31	11.7	<100	13
Sodiyamu tanihi Na	mg/l	30	21.188	<200	23
Photheziyamu tanihi K	mg/l	30	1.3995	<50	1.5
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	31	109	N/A	120
Tlilkumbeayidi tanihi Cl	mg/l	31	20.489	<200	23
Salipheyiti tanihi SO_4	mg/l	31	4.6	<400	5
Nitireyiti tanihi NO_x-N	mg/l	31	2.878	<10	3.2
Fulkumbeayidi tanihi F	Mg/l	31	0.218	<1.0	0.24
				Ntlawa wa mati ya nkoka	**Ntlawa wa ziro**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B82D			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	249	8.06	5.0 – 9.5	8.50
Maendlelo yo Fambisa Gezi	mS/m	249	76.5	<150	84
Khalisiyamu tanihi Ca	mg/l	249	42.482	<150	47
Manganisi tanihi Mg	mg/l	249	44.02	<100	48
Sodiyamu tanihi Na	mg/l	248	55.2845	<200	61
Photheziyamu tanihi K	mg/l	248	5.2555	<50	5.8
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	248	260.05	N/A	286
Tlilkumbeayidi tanihi Cl	mg/l	249	50.5	<200	56
Salipheyiti tanihi SO_4	mg/l	249	14.488	<400	16
Nitireyiti tanihi NO_x-N	mg/l	248	9.7535	<10	9.8
Fulkumbeayidi tanihi F	Mg/l	248	0.302	<1.0	0.33
				Ntlawa wa mati ya nkoka	**Ntlawa wa mbirhi**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B82E			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	113	7.958	5.0 – 9.5	8.25
Maendlelo yo Fambisa Gezi	mS/m	113	65.5	<150	72
Khalisiyamu tanihi Ca	mg/l	113	34.922	<150	38
Manganisi tanihi Mg	mg/l	113	30.514	<100	34
Sodiyamu tanihi Na	mg/l	108	37.64	<200	41
Photheziyamu tanihi K	mg/l	108	5.0595	<50	5.6
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	113	183.846	N/A	200
Tlilkumbeayidi tanihi Cl	mg/l	113	49.127	<200	54
Salipheyiti tanihi SO_4	mg/l	113	16.067	<400	18
Nitireyiti tanihi NO_x-N	mg/l	113	5.914	<10	6.5
Fulkumbeayidi tanihi F	Mg/l	113	0.197	<1.0	0.22
				Ntlawa wa mati ya nkoka	**Ntlawa wa ziro**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B82F			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	232	8.032	5.0 – 9.5	8.25
Maendlelo yo Fambisa Gezi	mS/m	232	63.05	<150	69
Khalisiyamu tanihi Ca	mg/l	232	33.353	<150	37
Manganisi tanihi Mg	mg/l	232	36.834	<100	41
Sodiyamu tanihi Na	mg/l	231	29.3	<200	32
Photheziyamu tanihi K	mg/l	231	3.831	<50	4.2
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	228	212.5	<330	234
Tlilkumbeayidi tanihi Cl	mg/l	232	38.3085	<200	42
Salipheyiti tanihi SO_4	mg/l	232	11.063	<400	12
Nitireyiti tanihi NO_x-N	mg/l	228	6.0725	<10	6.7
Fulkumbeayidi tanihi F	Mg/l	227	0.276	<1.0	0.30
				Ntlawa wa mati ya nkoka	Ntlawa wa mbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B82G			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	220	8.19	5.0 – 9.5	8.5
Maendlelo yo Fambisa Gezi	mS/m	220	112.85	<150	124
Khalisiyamu tanihi Ca	mg/l	220	52.8	<150	58
Manganisi tanihi Mg	mg/l	220	62.807	<100	69
Sodiyamu tanihi Na	mg/l	218	84.9	<200	93
Photheziyamu tanihi K	mg/l	218	3.669	<50	4.0
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	219	368.1	N/A	370[4]
Tlilkumbeayidi tanihi Cl	mg/l	220	92.0335	<200	101
Salipheyiti tanihi SO_4	mg/l	220	17.0815	<400	19
Nitireyiti tanihi NO_x-N	mg/l	218	4.6245	<10	5.1
Fulkumbeayidi tanihi F	Mg/l	217	0.469	<1.0	0.52
				Ntlawa wa mati ya nkoka	Ntlawa wa mbirhi

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

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Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B82J			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	26	8.0975	5.0 – 9.5	8.25
Maendlelo yo Fambisa Gezi	mS/m	26	176.5	<150	177[4]
Khalisiyamu tanihi Ca	mg/l	26	75.872	<150	83
Manganisi tanihi Mg	mg/l	26	184.0145	<100	184[4]
Sodiyamu tanihi Na	mg/l	26	70.92	<200	78
Photheziyamu tanihi K	mg/l	26	6.5275	<50	7.2
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	26	454.1	N/A	454[4]
Tlilkumbeayidi tanihi Cl	mg/l	26	205.8395	<200	206[4]
Salipheyiti tanihi SO_4	mg/l	26	29.3965	<400	32
Nitireyiti tanihi NO_x-N	mg/l	26	9.4955	<10	10.4
Fulkumbeayidi tanihi F	Mg/l	26	0.536	<1.0	0.59
				Ntlawa wa mati ya nkoka	**Ntlawa wa mbirhi**

[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

Mpimo wa Khemikhali	Yuniti	Laha mati ya Nambu wa Olifants ya Hlanganaka kona QC B83B			
		Nhlayo ya swikombisoo	Nkoka wa Ndhawu ya GW kumbe xikarhi[1)]	Mali ya BHN leyi nga vekiwa [2)]	Ku Hlayisa Mati ya Nkoka lama nga Ehansi ka misava[3]
pH	–	22	7.5	5.0 – 9.5	8.00
Maendlelo yo Fambisa Gezi	mS/m	18	105.991	<150	117
Khalisiyamu tanihi Ca	mg/l	22	484	<150	484[4]
Manganisi tanihi Mg	mg/l	20	4.691	<100	5
Sodiyamu tanihi Na	mg/l	22	105.219	<200	116
Photheziyamu tanihi K	mg/l	20	3.953	<50	4.3
Vunkwabyo bya Alikalinity tanihi $CaCO_3$	mg/l	21	484	N/A	484[4]
Tlilkumbeayidi tanihi Cl	mg/l	22	105	<200	116
Salipheyiti tanihi SO_4	mg/l	22	4.69	<400	5
Nitireyiti tanihi NO_x-N	mg/l	21	3.95	<10	4.3
Fulkumbeayidi tanihi F	Mg/l	20	0.70	<1.0	0.77
				Ntlawa wa mati ya nkoka	**Ntlawa wa nharhu**

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[1] Nkoka wa le xikarhi (wu hlayeriwile ku suka swikombiso swa nhlayo ya matalelo ya vanhu eka QC).
[2] Mpimo wa le henhla wa Ntlawa wa n'we wa mati ya nkoka (DWAF sw.sw. 1998).
[3] Nhlayo ya le xikarhi ku katsa na khume ra tiphesente ta Mati ya Nkoka lama nga hlayisiwa lama nga ehansi ka misava.
[4] Swiyimo swa misava ya ntumbuluko leyi nga ta vanga nhlohlotelo wo n'okisa swimakiwa swo tiya leswi nga le mati lama nga hansi ka misava.

Tekela leswi enhlokweni:

Eka mhaka ya Ntlawa lowukulu wa maribye lama ngaehansi ka misava lama hundzisaka mati ya Karoo na Ntlawa wun'we wa Leyara ya le Rustenburg, manganisi (Mg), sodiyamu (Na) na tlilkumbeayidi (Cl) nkoka wu fambelana ku ya hi swiphemu leswi nga na xiave xa nhlengeleto wo sungula swilo leswintsongo ngopfungopfu thyaka/ ribye ro hlanganisiwa hi swimakiwa swo tiya naswona ri humesiwile eka mati lama nga ehansi ka misava ku ya hi maxelo/ maendlelo yo hambanisa.

Nhlohlotelo wa nkoka wa vunkwabyo bya alikalinithi hi ku angarhela i mati lama humaka ehansi ka misava lama nga khemikhali ya mati leyi vonakaka eAfrika-Dzonga naswona swi nga endla ntsena eka timhaka tin'wana leti nga ta hetelela ti van a vuyelo wa le hansi wa vulavuri bya nkoka wa mati.

Nhlohlotelo wa nkoka wa niterayiti (NO3–N) yi tekeriwile enhlokweni ku ya hi masungulo hinkwawo ya laha mati ya hlengeletanaka kona, handle ka laha mati ya le hansi ya Lethaba ya hlengeletanaka kona (B 83), na ntikelo wa ~45 to 50 mg/l wu tekeriwile enhlokweni hi avanyiso wa mitlawa wa vu95.

Nxopanxopo wa nkoka wa mati lama nga ehansi ka misava mayelana na nkoka wa mati eka swilavekonkulu swa vanhu (SNV) swi vonaka tanihi leswi nga vekiwa swin'we hi ku hlohloteriwa ka ka nkoka wa nitereyiti (NO3–N) – i vi mati ya nkoka lama nga hlayisiwa lama nga le hansi ka misava ya nitereyiti ya vekiwile eka nkoka wa le xikarhi lowu eka timhaka hinkwato (handle ka Olifants ya le Xikarhi).

8. NHLAYISO WA NDHAWU LEYI TSAKAMAKA

Nkoka wa malongolokelo ya laha mati ya hlanganaka kona laha ku nga langutisiwa hi nkarhi wa ntlawa wa dyondzo hi Mawuwani 2015 yi anakanyiwile khwatsi eka ku endzela tindhawu tin'wana eka ku kambisisa matsalwa lama nga kona na nkambisiso wa vuxokoxoko bya ndhawu leyi tsakamaka. Malongolokelo ya laha mati ya hlanganaka kona ya langutiwile eka ku yisa ndzavisiso emahlweni, swotala swa swona swi langutisiwile eka ndhawu ya mindzavisiso.

Laha mati ya hlanganaka kona ku hlawuriwile ehansi ka mianakanyo leyi landzelaka:

- Tindhawu ta nkoka leti tsakamaka leti fanelaka ku endzeriwa (ti langutisiwile/ ti lulamisiwile eka tidokhumende ta sweswi ta Vuhlayiselo) eka swivangelo swo hambanahambana; na/kumbe
- Mavangwa ya vuswikoti lebyi nga tekeriweki enhlokweni na wona ya engetela nkoka wa tindhawu leti tsakamaka leti nga va ka kona naswona leti nga ta katsiwa kumbe ku lulamisiwa eka maendlelo yo Hlayisa.

Tafula 8.1 ri komba nkoka wa tindhawu leti tsakamaka eka Olifants na laha mati ya Lethaba ya hlanganaka kona na ku katsakanya PES, EIS, REC na vuxaka byin'wana bya swimilana, swifuwo na mbangu eka ku langutisa nkoka wa tindhawu leti tsakamaka.

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Tafula nhungu.n'we: Tafula ri komba vuyelo bya malulamiselo ya tindhawu leti tsakamaka.

IUA	Majongolokelo na No ya Ndhawu leyi tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungwini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
N'we	B11E Oli_1.1	Ndhawu leyi tsakamaka ya Blesbokspruit leyi nga hava Nkukhula	-26.222	29.059	E/F	Henhla	D	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Ku lunghisiwa ka mimpimo swi fanerile ku simekiwa eka sisiteme ku antswisa xiyimo xa sweswi.
N'we	B11E Oli_1.2	Ndhawu leyi tsakamaka ya Rietspruit Ku hava ndlela leyi mati ya nambu ya fambaka hi kona ehansi; Ndlela leyi mati ya nambu ya fambaka hi kona ehansi	-26.252	29.103	D	Henhla	C/D	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Ku lunghisiwa ka mimpimo swi fanerile ku simekiwa eka sisiteme ku antswisa xiyimo xa sweswi.
N'we	B11D Oli_1.3	Kriel wetland Ndlela leyi mati ya nambu ya fambaka hi kona ehansi	-26.268	29.229	C/D	Nhlayoxi karhi	C/D	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga

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IUA	Melongotokelo na No ya Ndhawu leyi tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungwini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
								anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Ku lunghisiwa ka mimpimo swi fanerile ku simekiwa eka sisiteme ku antswisa xiyimo xa sweswi.
N'we	B11F Oli_1.4	Klipokumbetjiespruit Ku hava ndlela leyi mati ya nambu ya fambaka hi kona ehansi eka ndhawu leyi tsakamaka	-26.087	29.141	D	Henhla	C/D	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC.
N'we	B11B Oli_1.5	Kkumbeingspruit ndhawu leyi tsakamaka leyi nga na Ndlela leyi mati ya fambaka hi kona, ehansi (xiyenge lexi nga hava ndlela leyi fambaka mati ehansi)	-26.094	29.385	D	Nhlayoxi karhi	C	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa.

IUA	Malongolokel o na No ya Ndhawu leyi tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungw ini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
								Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC. Ku lunghisiwa ka mimpimo swi fanerile ku simekiwa eka sisiteme ku antswisa xiyimo xa sweswi.
N'we	B11K Oli_1.6	Klipspruit ndhawu leyi tsakamaka leyi ku nga hava ndlela leyi mati ya nambu ya fambaka hi kona ehansi;	-25.801	29.135	D	Henhla	C/D	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Ku lunghisiwa ka mimpimo swi fanerile ku simekiwa eka sisiteme ku antswisa xiyimo xa sweswi.
N'we	B12A Oli_1.7	Ndlela leyi mati ya Klein-Olifants ya fambaka hi kona ehansi; Ndhawu leyi nga na le henhla na le hansi leyi nga na mati	-26.057	29.746	D	Henhla	C/D	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu

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IHA	Malongolokelo na No ya Ndhawu leyi tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungwini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
								tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC. Ku lunghisiwa ka mimpimo swi fanerile ku simekiwa eka sisiteme ku antswisa xiyimo xa sweswi.
N'we	B12B Oli_1.8	Ndhawu leyi tsakama ya Matla leyi nga na Ndlela leyi fambaka mati ehansi	-26.037	29.815	C	Nhlayoxi karhi	C	Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC. Ku lunghisiwa ka mimpimo swi fanerile ku simekiwa eka sisiteme ku antswisa xiyimo xa sweswi.
N'we	B12B Oli_1.9	Ndhawu yo tsakama ya Woes-alleenspruit leyi nga hava ndlela leyi mati ya fambaka hi kona ehansi	-25.990	29.581	C	Nhlayoxi karhi ya le henhla	C	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme

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IUA	Malongolokelo na Nkoka ya Ndhawu leyi tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungwini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
								leti fanelaka ku tirhisiwa. Ku lunghisiwa ka mimpimo swi fanerile ku simekiwa eka sisiteme ku antswisa xiyimo xa sweswi.
N'we	B12B Oli_1.10	Ndhawu yo tsakama ya Bosmanspruit leyi nga hava ndlela leyi mati ya fambaka hi kona	-25.909	29.715	C	Nhlayoxi karhi ya le henhla	C	Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC. Ku lunghisiwa ka mimpimo swi fanerile ku simekiwa eka sisiteme ku antswisa xiyimo xa sweswi.
N'we	B12C Oli_1.11	Ndhawu yo tsakama Kopermyn leyi nga hava ndlela leyi mati ya fambaka hi kona ehansi; Ndlela leyi mati ya fambaka hi kona ehansi; Ndhawu leyi nga na le henhla na le hansi leyi nga na mati	-25.847	29.720	C	Henhla	B/C	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Ku lunghisiwa ka mimpimo swi fanerile ku simekiwa eka sisiteme ku antswisa xiyimo xa sweswi.

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IUA	Malongolokel o ma No ya Ndhawu leyi Tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungwini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
N'we	B11C Oli_1.12	Ku hava nkhukhula Debeerspruit/ Piekespruit	-26.391	29.322	A/B	Henhla	A/B	Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC. Ku lunghisiwa ka mimpimo swi fanerile ku simekiwa eka sisiteme ku antswisa xiyimo xa sweswi.
N'we	B11A Oli_1.13	Ku hava nkhukhula eka Viskuile Vuxokoxoko Byo pfumala Nkhukhula	-26.261	29.492	C	Henhla Eka Henhla Swinene	B	Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC. Ku lunghisiwa ka mimpimo swi fanerile ku simekiwa eka sisiteme ku

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IUA	Malongololokelo na Nkio ya Ndhawu leyi tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungwini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
								antswisa xiyimo xa sweswi.
N'we	B11C Oli_1.14	Ku hava nkhukhula eka Steenkoolspruit	-26.337	29.354	D	Henhla	C/D	Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC.
Mbirhi	B20C Oli_2.1	Swikobyana swa Elandsvlei Xikobyana/ndhawu leyi nga hansi; Ndhawu leyi nga na le henhla na le hansi leyi nga na mati	-25.996	28.463	C	Henhla	B/C	Ku hava engetelo wa swa swimilana kumbe ku cinca laha ku tshamaka swifuwo na swilana eka tindhawu leti mati ya hlanganaka kona yi fanerile ku pfumeleriwa. Nkoka wa mati eka sisiteme leyinene yo veka leyi fanelaka ku pimeriwa ku tiyisisa leswaku mati na nhlanganiso wa masalela lama nga salela eka mpimo lowu amukelekaka lowu nga toloveleka (swo endla gezi na swihlanganisi swa gezi eka vuxaka bya mpimo lowu nga vekiwa) eka muxaka lowu wa nhlanganiso wa mati lama nga vekiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Hlayisa Byasi bya le Afrika lebyi ku tshamaka Swikhovha.

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IUA	Mahlongolokela ya Ndhawu leyi Tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungwini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
Mbirhi	B20B Oli_2.2	Ku hava ndlela leyi mati ya Koffiespruit ya fambaka hi kona ehansi	-26.071	28.599	A/B	Nhlayoxi karhi wa le henhla	A/B	Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC.
Mbirhi	B20A Oli_2.3	Ndhawu yo tsakama ya Delmas leyi nga hava ndlela leyi mati ya fambaka hi kona ehansi	-26.137	28.690	D	Nhlayoxi karhi	D	Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC.
Mbirhi	B20A Oli_2.4	Ndhawu ya Bronkhkumbestspruit	-26.252	28.767	C	Henhla	B	Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti

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IUA	Malongololokela na/kumbe ya Ndhawu leyi tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungwini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
		leyi nga hava ndlela leyi mati ya fambaka hi kona ehansi; Ndlela leyi mati ya fambaka hi kona ehansi; Ndhawu leyi nga na le henhla na le hansi leyi nga na mati						fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC.
Mbirhi	B20E Oli_2.5	Ndlela ya Wilge leyi nga hava Nkhuluko; Ndlela leyi fambaka ehansi	-26.126	28.935	A/B ku ya eka C	Nhlayoxi karhi ya le henhla	B/C	Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC.
Mbirhi	B20G Oli_2.6	Ndhawu yo tsakama ya Zaalklap leyi nga hava ndlela leyi mati ya fambaka hi kona	-25.908	29.053	D	Henhla	C/D	Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa.

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IMA	Malonggolokel o ya Nkhu ya Ndhawu leyi tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungwini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
		ehansi						Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC.
Mbirhi	B20G Oli_2.7	Ndhawu yo tsakama ya Saalboomspruit leyi nga hava ndlela leyi mati ya fambaka hi kona ehansi; Ndlela leyi mati ya fambaka hi kona ehansi	-25.864	29.008	D	Nhlayoxi karhi ya le henhla	C/D	Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC.
Mbirhi	B20E Oli_2.8	Ehenhla ka Nambu wa Wilge lowu nga hava Nkhukhula	-26.131	28.874	D	Henhla	C/D	Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga

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IDA	Mulongoloko wa Ndhawu leyi Tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungwini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
								anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC.
Nharhu	B12E Oli_3.1	Ku hava ndlela leyi mati ya Klein-Olifants ya fambaka hi kona ehansi; Ndlela leyi mati ya fambaka hi kona ehansi; Ndhawu leyi nga na le hansi na le henhla leyi nga na mati	-25.659	29.407	A/B ku ya eka C	Henhla	B	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa.
Mune	B31A Oli_4.1	Ndhawu yo tsakama ya Elands laha mati ya fambaka hi kona ehansi; Ndhawu leyi nga na le henhla na le hansi leyi ku nga na mati	-25.627	28.650	C	Henhla	B/C	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa.

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IUA	Malongolokelo na No ya Ndhawu leyi tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungwini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
Ntlhanu	B51C Oli_5.1	Ndlela leyi mati ya Makotswane ya fambaka hi kona ehansi Ndhawu leyi nga na le henhla na le hansi leyi nga na mati	-24.852	29.701	C	Ehenhla swinene	B	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Maendlelo ya vulawuri lebyi tekeriwaka enhlokweni na ku lunghisa makatselo swi fanerile ku simekiwa ku hlayisa na ku antswisa swivumbeko swa tindhawu leti tsakamaka na ku tirhisa na ku hlanganisa misava leyi nga endliwa hi swimilana swo bola na ku hlanganisa leswi nga ta humesiwa.
Tsevu	B41A Oli_6.1	Ndhawu yo tsakama ya Lakenvlei leyi nga na vuxokoxoko byo pfumaleka ka ndlela leyi mati ya fambaka hi kona ehansi Ndlela leyi mati ya fambaka hi kona ehansi Ndhawu leyi nga na le henhla na le hansi leyi nga na mati	-25.560	30.097	A/B	Ehenhla swinene	A/B	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Tindhawu hinkwato leti ku tshamaka swimilana na swifuwo na vuswikoti bya nhlayo ya Vuxokoxoko bya Swinyenyana swo Tshuka leswi fanelaka ku hlayisiwa. Ku hava madamu yantshwa lama fanelaka ku makiwa eka sisiteme leyi handle ka vuxokoxoko lebyi landzelaka bya maendlelo ya nawu. Ku hava engetelo wa swimilana kumbe ku cinca ka laha swimilana na swifuwo swi tshamaka kona eka ndhawu leyi tsakamaka ya le hansi na le henhla ti fanerile ku pfumeriwa. Ku lunghisiwa ka mimpimo swi fanerile ku simekiwa eka sisiteme ku

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ILIA	Malonggolokelo ya No ya Ndhawu leyi tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungwini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
								antswisa xiyimo xa sweswi. Matirhiselo yan'wana na yan'wana eka nhluvukiso ku katsa mayini wu tala ku onha sisiteme leyi, handle ka ku ya hi maendlelo ya ntolovelo ya mpfumelelo, ya fanerile ku katsa Levhele ya le Xikarhi yo Hlayisa Ndhawu leyi Tsakamaka ya le hansi leswi katsaka muxaka wa makhulukelo (ehenhla na mati lama nga ehansi ka misava ku katsa makhulukelo ya le ndzeni) xikombiso xo sungula matimba yo hlohlotela mayelana na ku antswisa REC.
Tsevu	B41B Oli_6.2	Ndhawu yo tsakama ya le Welgevonden Ndlela leyi mati ya fambaka hi kona ehansi Ndhawu leyi nga na le henhla na le hansi leyi nga na mati	-25.467	30.082	A/B	Ehenhla ku ya eHenhla	A/B	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa.
Tsevu	B41F Oli_6.3	Ndhawu yo tsakama ya n'we ya le Draaikraal Ndlela leyi mati ya fambaka hi kona ehansi	-25.254	30.034	C	Henhla ku ya eHenhla swinene	B	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa.
Tsevu	B41F Oli_6.4	Ndhawu yo tsakama ya mbirhi ya le Draaikraal	-25.217	30.075	A/B ku ya eka C	EHenhla ku ya eHenhla	A/B ku ya eka B	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme.

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[illegible]	Malango ya na le Ndhawu leyi Tsakamaka	Vitsoha Ndhawu leyi Tsakamaka leyi Mayaka	Ma-transmissie		PES	EIS	REC	vungha kwa ka nga ya swihi ana swifuvo na mbangu *
			Ndhawu ku suka ka emahlweni kumbe ezongeni	Ndhawu ku suka ka evonseni kumbe emagcaleni dyambe				
		Ndlela leyi mati ya fambaka hi kona ehansi				swinene		Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa.
Tsevu	B41F Oli_6.5	Ndhawu yo tsakama ya nharhu ya le Draaikraal Ndhawu leyi nga na le henhla na le hansi leyi nga na mati	-25.178	30.057	A/B	EHenhla ku ya eHenhla swinene	A/B	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa.
Tsevu	B41F Oli_6.8	Ndhawu yo tsakama ya Verlkumbeen Valei Yi na xikombiso xa ndhawu leyi nga na le henhla na le hansi leyi nga na mati na Ndlela leyi mati ya fambaka hi kona na ndhawu leyi tsakamaka leyi nga hava ndlela leyi mati ya fambaka hi kona ehansi;	-25.298	30.111	A/B	Ehenhla swinene	A	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Ntumbuluko lowu nga hava ndlela ya swiyenge swa ndhawu leyi tsakamaka leyi fanelaka ku hlayisiwa. Hlayisa xivumbeko xa swimilana na swihlanganisi. Hlayisa swilo leswi nga cheriwangeki nchumu leswi nga ta va kona vutomi hinkwabyo eka tindhawu leti tsakamaka. Nhlayiso wa mimpimo na maendlelo ya vufambisis tanihi Vuxokoxoko lebyi nga Tumbetiwa hi Ramsar (VTR) (https://rsis.ramsar.kumbeg/RISapp/files/RISrep/ZA1110RIS.pdf) eka Nhlayiso wa Ntumbuluko wa Verlkumbeen Valei wu fanerile ku simekiwa na ku hlayisiwa xikan'we na ku engetela makungu ya vulawuri/maendlelo lama hi nkarhi lowu landzelaka wu nga ta simekiwa hi Bodo ya Phaka ya le Mpumalanga.

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IUA	Malongololekelo na No ya Ndhawu leyi tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungwini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
Tsevu	B41A Oli_6.9	Ndhawu yo tsakama ya Belfast leyi nga na vuxokoxoko byo pfumala ndlela leyi mati ya fambaka hi kona ehansi Ndlela leyi mati ya fambaka hi kona ehansi Ndhawu leyi nga na le henhla na le hansi leyi nga na mati	-25.695	30.036	A/B ku ya eka C	Ehenhla ku ya eHenhla swinene	B ku ya eka A/B	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Tindhawu leti tsakamaka leti nga hava laha mati ya fambaka hi kona ti fanerile ku hlayisiwa tanihi tisisiteme leti pfumalaka ndlela. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Tihelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa.
kaye	B60F Oli_9.1	Ndhawu yo tsakama ya Krankloofpsruit leyi nga na ndlela leyi mati ya fambaka hi kona ehansi	-24.932	30.506	C	Nhlayoxi karhi	C	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa.
kaye	B60H Oli_9.2	Ndhawu yo tsakama ya Ohrigstad Ndlela leyi mati ya fambaka hi kona ehansi	-24.531	30.708	C	Ehenhla ku ya eHenhla swinene	B	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa.
khume	B71G Oli_10.1	Lribye leri mati ya fambaka eka rona entshaveni	-24.457	30.610	B	Ehenhla swinene	A/B	Hlayisa mati lama nga ta va kona vutomi hinkwabyo eka ndhawu leyi mati ya khulukaka hi kona eka ribye swi na nkoka eka ku yisa maribye ya le ntshaveni emahlweni. Matirhelo yan'wana na yan'wana eka mati lama nga le hansi ka misava lama tirhisiwaka eka ndhawu ya ta lava ku anakanyiwa khwatsi eka leswinene eka sisistemem leyi, hi vumbirhi ka swona ku suka eka mavonelo ya EIA na WUL, na swiyimo swa mpfumelelo leswi nga na matimba ku katsa ku antswisa sisiteme leyi fanelaka ku tirha. Lawula migingiriko ya xintu eka ndhawu leyi tsakamaka, xik: ku tshovela munyu. Ndhawu yin'wana leyi nga na mimpimo ya vulawuri yi fanerile ku kurisiwa eka ku tihlanganisa na muganga wa le ka ndhawu ya leyo ku tiyisisa nsirhelelo lowu ya ka emahlweni wa sisisteme leyi.

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IUA	Metongolokel o na tlo ya Ndhawu leyi tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'watungw ini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
khumen harhu	B60C Oli_13.1	Ndhawu yo tsakama ya Treur Ndhawu leyi nga na le henhla na le hansi leyi nga na mati	-24.776	30.880	C	Ehenhla swinene	B	Ntumbuluko lowu nga hava ndlela ya swiyenge swa ndhawu leyi tsakamaka leyi fanelaka ku hlayisiwa. Hlayisa swilo leswi nga cheriwangeki nchumu leswi nga ta va kona vutomi hinkwabyo eka tinhawu leti tsakamaka. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhelo lama nga na matimba lama nga fanela eka mahambaniselo ya nhova. Nhlayo ya vanhu leyi nga ta anakanyiwa khwatsi ya Nambu wa Treur Barb lowu nga na tinhlampfi wu fanerile ku hlayisiwa.
Khume nharhu	B60D Oli_13.2	Ribye ra le ntshaveni leri mati ya Kadishi ya fambaka eka rona	-24.566	30.795	A/B	Ehenhla swinene	A/B	Hlayisa mati lama nga ta kona vutomi hinkwabyo eka ribye leri khulukaka mati eka ribye leri nga le ntshaveni. Matirhiselo yan'wana na yan'wana eka mati lama nga le hansi ka misava lama tirhisiwaka eka ndhawu ya ta lava ku anakanyiwa khawtsi eka sisiteme leyinene, hi vumbirhi ka EIA na mavonelo ya WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa.
N'we	B81A Let_1.1	Ndhawu yo tsakama ya Stanfkumbed leyi nga hava Nkhukhulo	-23.893	29.984	D	nhlayoxik arhi	D	Ntumbuluko lowu nga hava ndlela ya swiyenge swa ndhawu leyi tsakamaka leyi fanelaka ku hlayisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhelo lama nga na matimba lama nga fanela eka mahambaniselo ya nhova. Maendlelo ya vulawuri bya ndhawu leyi tsakamaka leyi nga tekeriwa enhlokweni na ku lunghisa leswi endlaka swi fanerile ku simekiwa ku antswisa xivumbeko xa ndhawu leyi tsakamaka na matirhelo. Leswi

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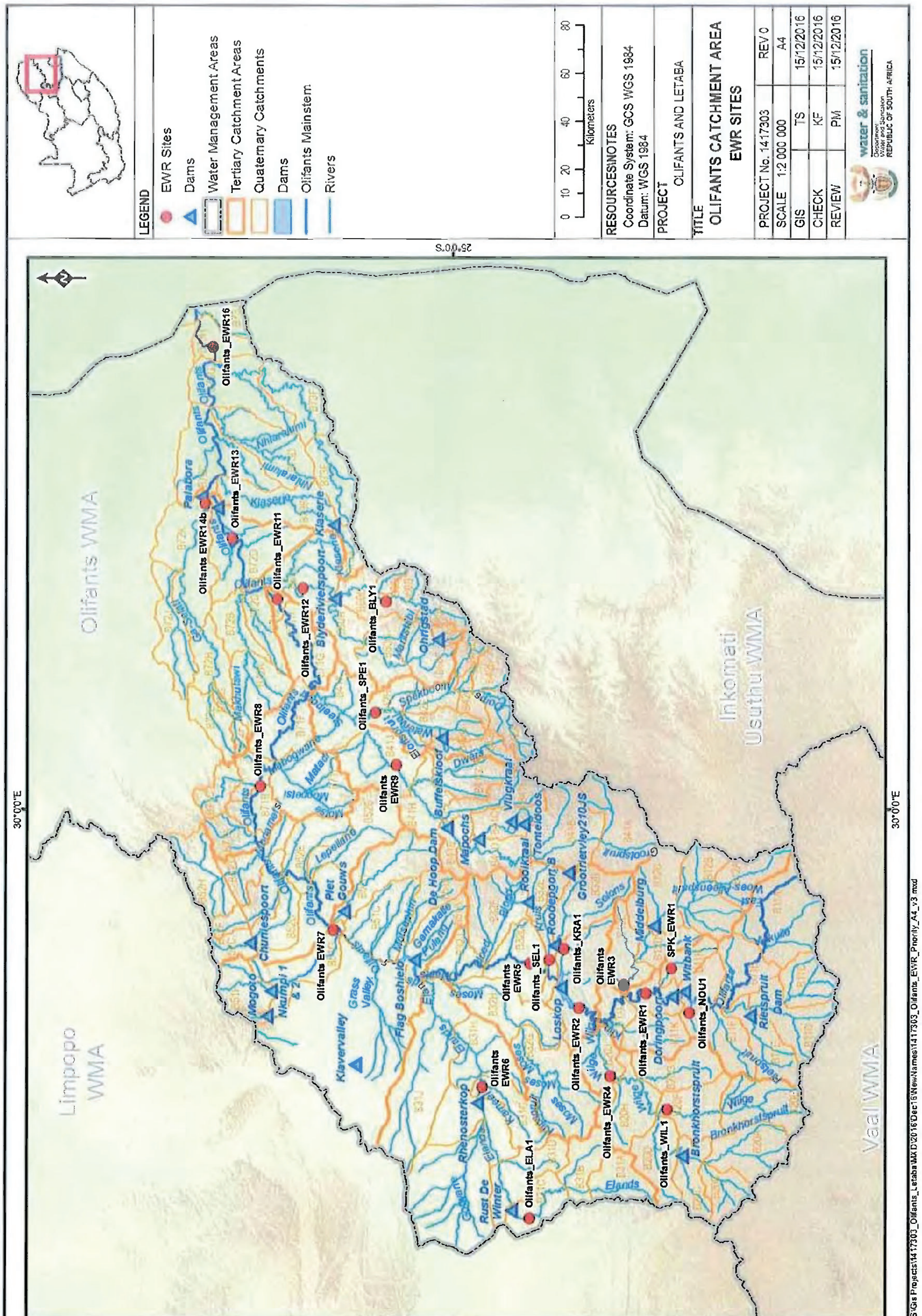
IUA	Malongolokel o na Mo ya Ndhawu leyi tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungw ini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
								swi fanerile ku tivisiwa eka nhova yin'wana leyi yelanaka na malulamiselo ya mimpimo.
N'we	B81B Let_1.2	Ndhawu yo tsakama ya le Dan'wini ra leTzaneen Ku hava ndlela leyi mati ya fambaka hi yona ehansi Ndlela leyi mati ya fambaka hi kona	-23.729	30.200	D/E	Nhlayoxi karhi	D	Ntumbuluko lowu nga hava ndlela ya swiyenge swa ndhawu leyi tsakamaka leyi fanelaka ku hlayisiwa. Tlhelo leri khulukaka eka ndhawu leyi tsakamaka ri fanerile ku sirheleriwa ku ya hi ku tirhisa mahanyiselo ya mati lama nga anakanyiwa khwatsi hi ndzavisiso wa misiva leyi nga na mati lowu nga endliwa tanihi xiphemu xa EIA na/kumbe ku tirhisiwa WUL, na swiyimo swa mpfumelelo lowu nga na matimba ku katsa ku antswisa tisisiteme leti fanelaka ku tirhisiwa. Matirhiselo lama nga na matimba lama nga fanela eka maavanyiselo ya nhova.
Mbirhi	B81D Let_2.1	Ndhawu yo tsakama ya le Thabina Ndlela leyi mati ya fambaka hi kona	-23.992	30.260	C	Henhla	B	Ntumbuluko lowu nga hava ndlela ya swiyenge swa ndhawu leyi tsakamaka leyi fanelaka ku hlayisiwa. Muxaka lowu nga kona wa swimilana na xivumbeko swifanerile kumbe ku antswisiwa na swivangelo swa ntumbuluko leswi nga na swihlawulekisi. Maendlelo ya vulawuri lebyi tekeriwaka enhlokweni na ku lunghisa makatselo swi fanerile ku simekiwa ku hlayisa na ku antswisa swivumbeko swa tindhawu leti tsakamaka na ku tirhisa. Tlhelo rin'wana ra vulawuri bya mimpimo ri fanerile ku kurisiwa eka ku ku ti hlanganisa na muganga wa le ndhawini ya leyo ku tiyisisa vuhlayisi na ku lawula matirhelo ya le ka ndhawu leyi tsakamaka.
kaye	B82G Let_9.1	Ndhawu yo hisa ya Baleni Ndhawu	-23.419	30.912	B	Ehenhla swinene	A/B	Vuhlayisi bya mati lebyi nga ta va kona vutomi hinkwabyo eka ndhawu leyi tsakamaka byi na nkoka eka ribye ra le ntshaveni na ku sivela okisayidi. Matirhelo yan'wana na yan'wana eka mati lama nga le hansi ka misava lama tirhisiwaka eka ndhawu ya ta lava ku anakanyiwa khwatsi eka leswinene eka sisistemem leyi, hi vumbirhi ka swona ku suka eka mavonelo ya EIA na WUL, na swiyimo swa mpfumelelo leswi nga na matimba ku katsa ku antswisa sisiteme leyi fanelaka ku tirha. Lawula migingiriko ya xintu eka ndhawu leyi tsakamaka, xik: ku tshovela munyu. Ndhawu yin'wana leyi nga na mimpimo ya vulawuri yi

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IUA	Mafongolokeli Q.sa No ya Ndhawu leyi tsakamaka	Vito ra Ndhawu leyi Tsakamaka na Muxaka	Ndzinganiso		PES	EIS	REC	vuxaka byin'wana bya swimilana,swifuwo na mbangu *
			Ndhawu ku suka en'walungwini kumbe edzongeni	Ndhawu ku suka eka evuxeni kumbe evupela dyambu				
								fanerile ku kurisiwa eka ku tihlanganisa na muganga wa le ka ndhawu ya leyo ku tiyisisa nsirhelelo lowu ya ka emahlweni wa sisisteme leyi.
khume mbirhi	B83C Let_12.1	Ku hava ndlela leyi mati ya Nshawu ya fambaka hi kona ehansi Ndlela leyi mati ya fambaka hi kona ehansi	-23.537	31.487	C	Henhla	B	Hlayisa makhulukelo lama nga kona na matimba yo ehleketa xikombiso eka sisiteme. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisi. Ku hava migingiriko yintshwa leyi nga ta endla swihlanganisi leswi nga ta khulukaka swi fanerile ku pfumeleriwa eka sisiteme handle ka vuxokoxoko lebyi landzelaka bya maendlelo ya nawu.
khume mbirhi	B83D Let_12.2	Ndhawu yo tsakama ya Manyeleti/ Makhadzi Ku hava ndlela leyi mati ya mati ya famabaka hi kona ehansi	-23.657	31.607	A	Henhla	A	Ntumbuluko lowu nga hava ndlela eka ndhawu leyi tsakamaka yi fanela ku hlayisiwa. Hlayisa xivumbeko xa swimilana leswi nga kona na swihlanganisiwa. Maintain existing vegetation structure and composition. Ku hava migingiriko yintshwa leyi nga ta endla swihlanganisi swo khuluka leswi nga ta pfumeriwa eka sisisteme handle ka ku landzelela vuxokoxoko bya maendlelo ya nawu. Ku hava engetelo wa nkatsakanyo wa mati lama nga ehansi ka misava na leswi nga ekusuhi hi nkarhi wa lowo eka ndhawu leyi tsakamaka handle ka maendlelo ya vuxokoxoko bya nawu lowu nga landzeleriwa.

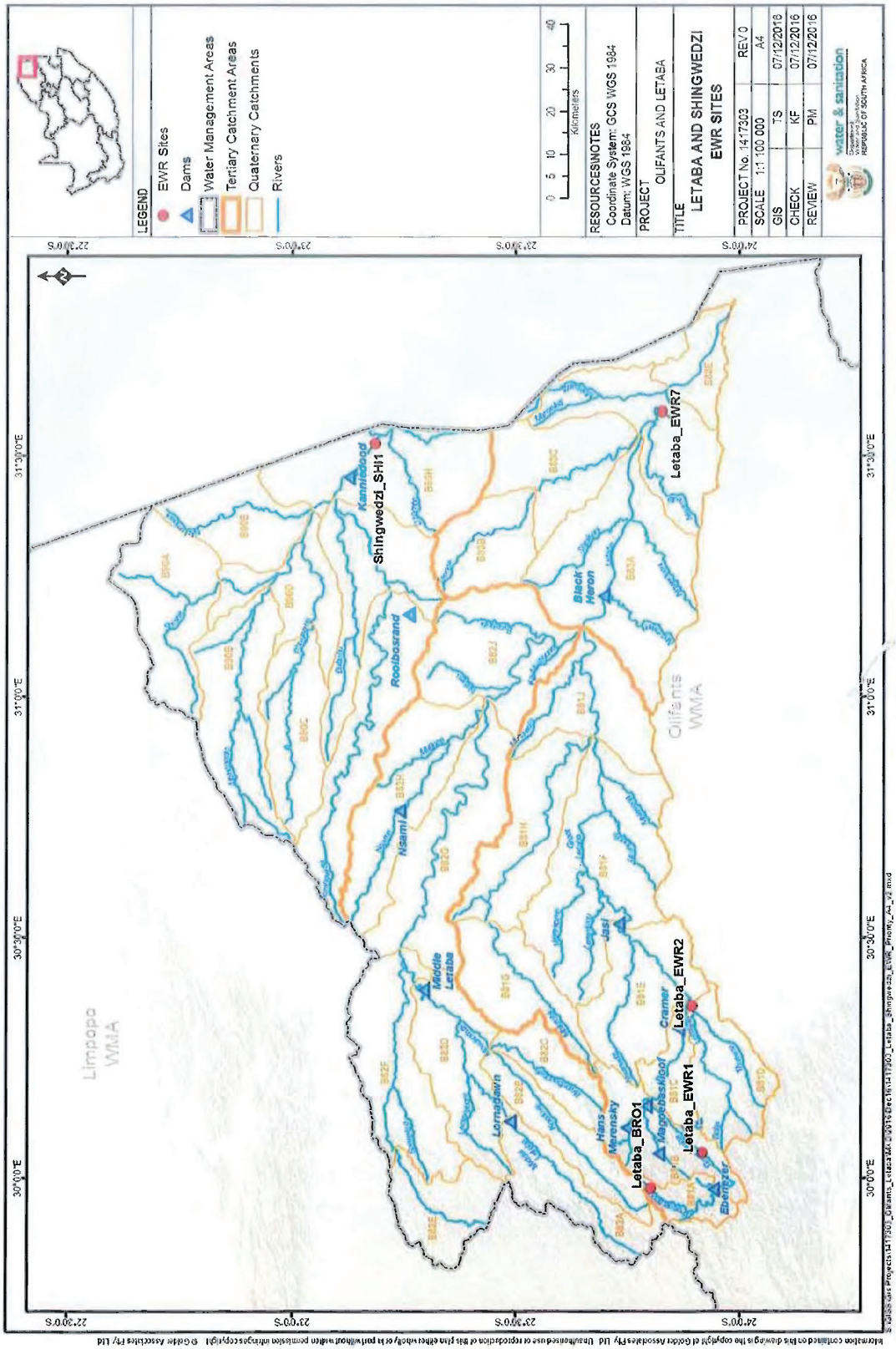
***Tekela enhlokweni:** Swin'wana leswi nga ri ku na khombo eka mbangu (Laha ku tshamaka swimilana na swifuwo) swi hlamuseriwile eka vafambisis na ku hlayisa vafambisa tanihi swikongomelo swa ndhawu leyi ku tshamaka swimilana na swifuwo leyi fanelaka ku fikeleriwa. Ku antswisa swin'wana na vafambisi swi nga komba leswaku leswaku switirhisiwa leswi cincaka nkarhi wo leha na loko Nhlayiso wu fikeleriwile. Loko wu nga fikeleriwanga, maendlelo ya vufambisi swi nga laveka ku kota ku kuma ntlawa lowu naveriwaka wa laha ku tshamaka swimilana na swifuwo. Swilaveko swo antswisa swi kombiwile eka Swin'wana leswi nga ri ku na khombo eka mbangu, Xiviko No: **RDM/WMA02/00/CON/0516**.

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Figara ya n'we: Mepe wa le ka ndhawu ya laha mati ya Olifants ya Hlanganaka kona ya komba maavanyiselo ya tindhawu ta EWR

87



Figara ya mbirhi: Mepe wa Letaba na Laha mati ya le Shingwedzi ya hlanganaka kona ya komba maavanyiselo ya tindhawu ta EWR.

CONTINUES ON PAGE 386 - PART 4



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Staatskoerant

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GENERAL NOTICES • ALGEMENE KENNISGEWINGS

DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES

NOTICE 534 OF 2018

PRESS RELEASE

POTATO INDUSTRY - APPLICATION FOR THE CONTINUATION OF STATUTORY MEASURES

NAMC REQUESTING COMMENTS

On 24 August 2018, the Minister of Agriculture, Forestry and Fisheries received a request from Potatoes South Africa (PSA) for the continuation of statutory measures in the potato industry for a new term of four years. The existing statutory measures expire on 30 June 2019, and it is proposed that the new period be from 1 July 2019 and lapse on 30 June 2023.

The PSA requested the introduction and promulgation of the following statutory measures in the potatoes industry:

- Section 15 of the Marketing of Agricultural Products Act (MAP): Levies relating to potatoes;
- Section 18 of the MAP Act: Records and returns; and
- Section 19 of the MAP Act: Registration.

The proposed staturoy measure relating to registration of the relevant role players with PSA is necessary to assist the administrator to ensure that continuous, timeous and accurate market information relating to the potato industry is available to all role players.

The proposed statutory measure relating to records and returns to be submitted to PSA is necessary to ensure continuous, timeous and accurate market information.

The proposed statutory levy will finance:

- basic as well as applied research, including cultivar development and evaluation, and the dissemination of all relevant technical information;
- the gathering, processing, analysing and compiling of industry related information, including market statistics, and the dissemination thereof;
- marketing, inclusive of the development of foreign markets for South African potatoes and generic product promotion;
- transformation, inclusive of black economic empowerment, e.g. by creating market access for emerging farmers (small and medium scale) as well as development projects related to the potato production and marketing chain; and
- the levy administration services rendered by the appointed administrator.

The proposed statutory levies for the four year period are as follows:

Commodity	2018/2019 Current levy amount	2019/20	2020/21	2021/22	2022/23
	c/kg				
Table potatoes	2,125	2,050	2,130	2,210	2,290
Seed potatoes *	0,844	0,814	0,846	0,878	0,910
Potatoes for processing	0,997	0,962	0,999	1,037	1,074
Potatoes for export	2,125	2,050	2,130	2,210	2,290
Imported potatoes	1,500	1,447	1,504	1,560	1,617

(The differentiation in the levy payable by the various commodities is based on the services received. For example, seed potatoes will not benefit from generic product promotion and seed producers are therefore exempted from paying for this service.*)

Initially, the levy will decrease from the 2018/19 to the 2019/20 period (with 0,075c/kg), however, PSA managed to keep the annual increase for the rest of the period, at 3.76% on average, which is well below the current inflation rate.

The MAP Act stipulates that a statutory levy may not exceed 5% of the price realised for a specific agricultural product at the first point of sale. The maximum of 5% must be based on a guideline price calculated as the average price at the first point of sale over a period not exceeding three years. The proposed guideline prices are calculated as follows:

		Percentage of guideline price (%)			
Commodity	Guideline price (average 2015-2017 price) (R/kg)	2019/2020	2020/2021	2021/2022	2022/2023
Table potatoes	3.45	0.59	0.62	0.64	0.66
Seed potatoes	8.24	0.10	0.10	0.11	0.11
Potatoes for processing	2.95	0.33	0.34	0.35	0.36
Potatoes for export	3.45	0.59	0.62	0.64	0.66
Imported potatoes (FOB)	12.11	0.12	0.12	0.13	0.13

From the above it is clear that the guideline price is well below the 5% as prescribed by the MAP Act. For the 2019/20 financial year, PSA is expected to collect R49 712 875 to finance generic functions in the potato industry.

The NAMC believes that the continuation of the proposed statutory levy is consistent with the objectives of the MAP Act (as set out in section 2 of the Act).

Directly affected groups (e.g. producers, traders, agents, processors, exporters and importers) in the potato industry are kindly requested to submit any comments, in writing, regarding the proposed implementation of statutory measures, to the NAMC on or before 28 September 2018, to enable the Council to finalise its recommendation to the Minister in this regard.

ENQUIRIES:

National Agricultural Marketing Council
Mathilda van der Walt
e-mail: mathilda@namc.co.za
Tel.: (012) 400 9745
Fax No.: (012) 341 1119

DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES

NOTICE 535 OF 2018

National Agricultural Marketing Council
Promoting market access for South African agriculture

Block A | 4th Floor | Meintjiesplein Building | 536 Francis Baard Street | Arcadia |0002
Private Bag X935 | Pretoria | 0001
Tel: 012 341 1115 | Fax: 012 341 1811/1911
http://www.namc.co.za

PRESS RELEASE

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Mathilda van der Walt
e-mail: mathilda@namc.co.za
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Fax No.: (012) 341 1119

DEPARTMENT OF AGRICULTURE, FORESTRY AND FISHERIES

NOTICE 536 OF 2018

NOTICE OF THE LIST OF PROTECTED TREE SPECIES UNDER THE NATIONAL FORESTS ACT, 1998 (ACT NO. 84 OF 1998)

By virtue of powers vested in me under section 15(3) of the National Forests Act, 1998, I, Senzeni Zokwana, Minister of Agriculture, Forestry and Fisheries hereby publish a list of all protected trees belonging to a particular species under section 12(1) (d) set out in the schedule below.

The effect of this declaration is that in terms of section 15(1) of the National Forests Act, 1998, no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated.

Contravention of this declaration is regarded as a first category offence that may result in a person who is found guilty being sentenced to a fine or imprisonment for a period up to three years, or to both a fine and imprisonment.

SCHEDULE A

Botanical name	**English common names**	**Other common names** **Afrikaans (A), Sepedi (P), Sesotho (S), Setswana (T), Tshivenda (V), isiXhosa (X), isiZulu (Z), Xitsonga (XT)**	**National tree number**
Acacia erioloba	Camel thorn	Kameeldoring (A)/Mogohlo (NS)/Mogôtlhô (T)/	168
Acacia haematoxylon	Grey camel thorn	Vaalkameeldoring (A)/Mokholo (T)	169
Adansonia digitata	Baobab	Kremetart (A)/Seboi (NS)/Mowana (T)/Ximuwu (XT)	467
Afzelia quanzensis	Pod mahogany	Peulmahonie (A)/Mutokota (V)/Inkehli (Z)	207
Balanites subsp. *maughamii*	Torchwood	Groendoring (A)/Ugobandlovu (Z)	251
Barringtonia racemosa	Powder-puff tree	Poeierkwasboom (A)/Iboqo (Z)	524

Boscia albitrunca	Shepherd's tree	Witgat (A)/Mohlôpi (NS)/Motlhôpi (T)/ Muvhombwe (V)/Umgqomogqomo (X)/Umvithi (Z)	122
Brachystegia spiciformis	Msasa	Msasa (A)	198.1
Breonadia salicina	Matumi	Mingerhout (A)/Mohlomê (NS)/Mutu-lume (V)/Umfomfo (Z)	684
Bruguiera gymnorrhiza	Black mangrove	Swartwortelboom (A)/isiKhangati (X)/IsiHlobane (Z)	527
Cassipourea swaziensis	Swazi onionwood	Swazi-uiehout (A)	531.1
Catha edulis	Bushman's tea	Boesmanstee (A)/Mohlatse (NS)/Igqwaka (X)/Umhlwazi (Z)	404
Ceriops tagal	Indian mangrove	Indiese wortelboom (A)/isinkaha (Z)	525
Cleistanthus schlechteri var. *schlechteri*	False tamboti	Bastertambotie (A)/Umzithi (Z)	320
Colubrina nicholsonii	Pondo weeping thorn	Pondo-treurdoring (A)	453.8
Combretum imberbe	Leadwood	Hardekool (A)/Mohwelere-tšhipi (NS)/Motswiri (T)/Impondondlovu (Z)	539
Curtisia dentata	Assegai	Assegaai (A)/Umgxina (X)/Umagunda (Z)	570
Elaeodendron transvaalensis	Bushveld saffron	Bosveld-saffraan (A)/Monomane (T)/Ingwavuma (Z)	416
Erythrophysa transvaalensis	Bushveld red balloon	Bosveld-rooiklapperbos (A)/Mofalatsane (T)	436.2
Euclea pseudebenus	Ebony guarri	Ebbeboom-ghwarrie (A)	598
Ficus trichopoda	Swamp fig	Moerasvy (A)/Umvubu (Z)	54
Leucadendron argenteum	Silver tree	Silwerboom (A)	77
Lumnitzera racemosa var. *racemosa*	Tonga mangrove	Tonga-wortelboom (A)/isiKhaha-esibomvu (Z)	552
Lydenburgia abbottii	Pondo bushman's tea	Pondo-boesmanstee (A)	407
Lydenburgia cassinoides	Sekhukhuni bushman's tea	Sekhukhuni-boesmanstee (A)	406
Mimusops caffra	Coastal red milkwood	Kusrooimelkhout (A)/Umthunzi (X)/Umkhakhayi (Z)	583
Newtonia hildebrandtii var. *hildebrandtii*	Lebombo wattle	Lebombo-wattel (A)/Umfomothi (Z)	191
Ocotea bullata	Stinkwood	Stinkhout (A)/Umhlungulu (X)/Umnukane (Z)	118
Ozoroa namaquensis	Gariep resin tree	Gariep-harpuisboom (A)	373.2
Philenoptera violacea	Apple-leaf	Appelblaar (A)/Mphata (NS)/Mohata (T)/isiHomohomo (Z)	238
Pittosporum viridiflorum	Cheesewood	Kasuur (A)/Kgalagangwe (NS)/Umkhwenkwe (X)/Umfusamvu (Z)	139
Podocarpus elongatus	Breede River yellowwood	Breëriviergeelhout (A)	15

Podocarpus falcatus (Afrocarpus falcatus)	Outeniqua yellowwood	Outniekwageelhout (A)/Mogôbagôba (NS)/Umkhoba (X)/Umsonti (Z)	16
Podocarpus henkelii	Henkel's yellowwood	Henkel se geelhout (A)/Umsonti (X)/Umsonti (Z)	17
Podocarpus latifolius	Real yellowwood	Regte-geelhout (A)/Mogôbagôba (NS)/Umcheya (X)/Umkhoba (Z)	18
Protea comptonii	Saddleback sugarbush	Barberton-suikerbos (A)	88
Protea curvata	Serpentine sugarbush	Serpentynsuikerbos (A)	88.1
Prunus africana	Red stinkwood	Rooistinkhout (A)/Umkhakhase (X)/Umdumezulu (Z)	147
Pterocarpus angolensis	Wild teak	Kiaat (A)/Morôtô (NS)/Mokwa (T)/Mutondo (V)/Umvangazi (Z)	236
Rhizophora mucronata	Red mangrove	Rooiwortelboom (A)/isiKhangathi (X)/Umhlume (Z)	526
Sclerocarya birrea subsp. *caffra*	Marula	Maroela (A)/Morula (NS)/Morula (T)/Umganu (Z) /Nkanyi (XT)	360
Securidaca longepedunculata	Violet tree	Krinkhout (A)/Mmaba (T)	303
Sideroxylon inerme subsp. *inerme*	White milkwood	Witmelkhout (A)/Ximafana (X)/Umakhwelafingqane (Z)	579
Tephrosia pondoensis	Pondo poison pea	Pondo-gifertjie (A)	226.1
Warburgia salutaris	Pepper-bark tree	Peperbasboom (A)/Molaka (NS)/Mulanga (V)/isiBaha (Z)	488
Widdringtonia cedarbergensis	Clanwilliam cedar	Clanwilliamseder (A)	19
Widdringtonia schwarzii	Willowmore cedar	Baviaanskloofseder (A)	21

MR SENZENI ZOKWANA
MINISTER OF AGRICULTURE, FORESTRY AND FISHERIES

DEPARTMENT OF LABOUR

NOTICE 537 OF 2018

PLEASE FIND SET OUT BELOW A LIST OF PRIVATE AGENCIES THAT HAVE BEEN ACCREDITED BY THE CCMA IN TERMS OF THE PROVISIONS OF THE LABOUR RELATIONS ACT 66 OF 1995 (AS AMENDED) FOR CONCILIATION AND/ OR ARBITRATION AND/ OR INQUIRY BY ARBITRATOR, WITH THE TERMS OF ACCREDITATION ATTACHED FOR THE PERIOD 01 AUGUST 2018 TO THE 31 AUGUST 2018.

PRIVATE AGENCIES ACCREDITED TO CONDUCT CONCILIATIONS AND ARBITRATIONS SUBJECT TO CONDITIONS WHERE APPLICABLE
(RENEWAL OF ACCREDITATION)

Name of Agency	Accredited Functions
Azatinetix (Pty) Ltd t/a Labour Elite	To be accredited for con and arb (which includes Inquiry by arbitrator) from **1 August 2018** until **31 July 2019** on condition that the agency meets all the CCMA efficiencies and to ensure compliance with the accreditation criteria and that all sections 198 and 198A to 198C -matters must be allocated to panellists who have been successfully trained by the CCMA on section 198 and its insertions to ensure the Private Agency meets the standards of the CCMA.

TERMS OF ACCREDITATION FOR CONCILIATION, ARBITRATION AND INQUIRY BY ARBITRATOR

1. SCOPE OF ACCREDITATION:

Herewith categories of disputes for which Private Agencies are eligible to apply for accreditation.

PRIVATE AGENCIES ARE ACCEDITED TO PERFORM THE FOLLOWING DISPUTE RESOLUTIONS FUNCTIONS:

Unfair dismissal disputes	**- Section 191**
Unfair Labour practice	**- Section 191**
Mutual Interest disputes	**- Section 64**
Interpretation of Collective Agreement disputes	**- Section 24 (1)**
Essential Services disputes	**- Section 74**
Inquiry by Arbitrator	**- Section 188A**
Regulation of non-standard work	**- Section 198, 198A, 198B, 198C and 198D**
Disputes about Interpretation and Application of Chapter 2	**- Section 9**

PRIVATE AGENCIES MAY NOT SEEK ACCREDITATION FOR THE FOLLOWING DISPUTE RESOLUTION FUNCTIONS REGARDING DISPUTES OVER THE FOLLOWING (see FOOTNOTE 11 of SECTION 51):

Organisational rights (sections 16, 21 and 22);

Collective Agreements where the agreement does not provide for a dispute resolution procedure or the procedure is inoperative or any party frustrates the resolution of disputes (section 24(2) to (5));

Agency shops and closed shops (section 24(6) and (7) and section 26(11);

Determinations made by the Minister in respect of proposals made by a Statutory Council (section 45);

The interpretation and application of Collective Agreements of a Council whose registration has been cancelled (section 61(5) to (8));

Demarcation of sectors and areas of Councils (section 62);

The Interpretation or application of Part C (Bargaining Councils), Part D (Bargaining Councils in the Public Service), Part E (Statutory Councils) and Part F (General Provisions concerning Councils) (Section 63);

Picketing (section 69(8) to 10);

Proposals which are the subject of joint-decision making in a workplace forum (section 86);

Disclosure of information to workplace forums (section 89);

Interpretation or Application of the provisions of Chapter 5 of the LRA which deals with workplace forums (section 94);

Enforcement of the Collective Agreements by Bargaining Councils (section 33A) and;

Enforcement of arbitration awards in terms of section 143. Only the Director of the CCMA, unless the power has been delegated to a CCMA Senior Commissioner may certify awards as if it were an order of the Labour Court;

Facilitating mass retrenchment disputes section 189(A).

2. POWERS OF ACCREDITATION:

Only those persons who are accredited by the CCMA, or are part-time Commissioners appointed by the Governing Body of the Commission in the terms of section 117 (2) of the Labour Relations Act, may perform the accreditation functions of the Agency for the Private Agency.

The following provisions of the LRA, as amended apply to Private Agency accredited for conciliation and arbitration:

(a) For the purpose of this paragraph any reference in Part C of Chapter VII of the LRA to:
"Commission" must be read as a reference to the Private Agency;
"Commissioner" must be read as a reference to a conciliator or arbitrator appointed by the Private Agency.
"Director" must be read as a reference to the CEO of the Private Agency

(b) The provisions of the sections contained in Part C of Chapter VII (section 127(6)) of the LRA shall apply to the Private Agency in the performance of its accredited functions:

(i) The provisions of section 133 to 136;
(ii) The provisions of section 138 to 142, S143,S144 and S145;
(iii) The provisions of section 146
(iv) The provision of 148

3. EXTENSION OF ACCREDITATION:

Despite the expiry of the period of accreditation as stated in the Certificate of Accreditation, the Private Agency may continue to perform its accredited functions in respect of any dispute referred to it during the period of accreditation, but not yet resolved by the time the period expires, until the dispute is resolved either through conciliation or arbitration.

4. TRANSGRESSION OF TERMS OF ACCREDITATION:

If the accredited Private Agency fails to comply with the terms of accreditation, the Governing Body of the CCMA may revoke accreditation. In terms of section 130 of the LRA, as amended the Governing Body of the CCMA may withdraw accreditation after having given reasonable notice of withdrawal.

5. AMENDMENT OF ACCREDITATION:

An Accredited Private Agencies may apply to the Governing Body of the CCMA in terms of section 129 of the LRA to amend its accreditation.

DEPARTMENT OF LABOUR

NOTICE 538 OF 2018

Notice of the Productivity SA Annual General Meeting (AGM)

Productivity SA is established in terms of section 31 of the Employment Services Act, No. 4 of 2014 as a juristic person and an Entity of the Department of Labour. Our mandate is to promote employment growth and productivity thereby contributing to South Africa's socio-economic development and competitiveness.

The organisation offers Productivity and Competitiveness Improvement Solutions to accelerate wealth and decent employment creation. Moreover, mechanisms to assist businesses to stabilise and become more profitable, in the form of a suite of Business Processes Improvement tools and Techniques which systematically help businesses of different sizes, including all their subsidiaries to optimise all aspects of underlying processes in the business to achieve financial stability, sustainability, more efficient results, wealth creation, job retention and creates environment conducive for job creation through the following programmes: Turnaround Solutions Strategies, Small, Medium and Micro Enterprise and Workplace Challenge Programme.

Productivity SA's objectives are aimed at enhancing the productive capacity and operational efficiency of enterprises throughout the business lifecycle to accelerate wealth and decent employment creation. The interventions include: Developing relevant productivity competencies and competitiveness in workplaces; Promoting and inculcating a culture of productivity and competitiveness mind-set and generating and disseminating productivity and competitiveness related information and knowledge.

In terms of clause 6 (6.1 – 6.6) of the Productivity SA's Constitution, the Board of Productivity SA is required to hold the Annual General Meeting each year within six months of the end of the preceding financial year of Productivity SA.

Notice is hereby given that Productivity SA's Board will be holding the Annual General Meeting with the Key Stakeholders: Department of Labour as Shareholder, Organised Business, Organised Labour and Government with a maximum of three representatives, Strategic partners and Alliances, appointed Internal and External Auditors, Media, Executive Committee to attend the Annual General Meeting to be held on:

- **Date: 20th September 2018 (Thursday)**
- **Time: 10h00 – 13h00**
- **Venue: Accolades Boutique Venue, 72 Dale Road, President Park, Midrand**

The Annual General Meeting will discuss the following for adoption:

- Productivity SA Annual Report for the period 2017/18
- Productivity SA Annual Financial Statements for the period April 2017 – March 2018
- Productivity SA Performance Information for the period April 2017 – March 2018
- Productivity SA Annual Performance Plan and Budget for the period 2018/19
- Productivity SA Priorities for the period 2019/20
- Productivity SA Strategic Plan and Annual Performance Plan for the Medium Term Strategic Framework 2019/20 – 2023/24

Please RSVP to Dorcas Khasake at: dorcask@productivitysa.co.za on or before the 13th September 2018. She can be contacted at 011 848 5398 for further enquiries.

DEPARTMENT OF RURAL DEVELOPMENT AND LAND REFORM

NOTICE 539 OF 2018

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

Notice is hereby given in terms of Rule 5 (a) regarding the procedure of the Rules of the Commission in accordance with the Restitution of Land Rights Act, 1994 (Act No. 22 of 1994), as amended. These claims for the restitution of land rights have been submitted to the Regional Land Claims Commissioner: Western Cape. The particulars regarding these claims are as follows:

Reference Number : Various

Areas : Various

Compensation : Unknown

Number of Claimants : previous owners and tenants have lodged individual claims on various erven

Num	Reference	Claimant Initial and Surname	Property Description	Extent	Capacity	Date Submitted
1	KRK6/2/3/A/6/0/77/1/G323	S Gester	Gatesville	Not available	owner	30/12/1998
2	KRK6/2838A83/15/0/91/T235/T236	GA Thinzi	Erven 113418, 677 Modderdam	tenant	tenant	30/05/1998
3	KRK6/2/3/A/17/39/0/D635	JC De Bruin	Buitekant Street Caledon	595 sqm	owner	31/12/1998
4	KRK6/2/3/A/1/0/331/16/B687	F.Benjamin	15 Mckenzie Street Cape Town	Not available	owner	31/12/1998
5	B686	F Benjamin	25 Louis Street Cape Town	Not available	Not available	Not available
6	KRK6/2/3/A/1/0/2101/9/S303	A Sinnet	Erf 16210 Cape Town	109sqr,136sqf	owner	11/11/1996
7	KRK6/2/3/A/1/0/0/31/S447	Naslie Styer	Standzigt Farm High Level Rd	Not available	owner	24/04/1996
8	KRK6/2/3/A/1/0/331/8/A617	Aubrey Cecil Arendse	224 Long Street Cape Town	Not available	owner	23/10/1998
9	KRK6/2/3/A/6/0/391/224/A653	H.Adams	Erf 523289 Claremont	48sqr,88sqf	owner	31/08/1998
10	KRK6/2/3/A/32/184/0/12/A861	Y Abdulatief	38 Stegman road Claremont	Not available	owner	15/01/1999
11	Not available B509	Sybil Benjamin	Havey Lodge-Third Avenue Claremont	Not available	owner	28/04/1998
12	KRK6/2/3/A/6/0/39/29/B598	PJ Benjamin	Palm Cottage Stanley Road Claremont	tenant	tenant	31/12/1998
13	KRK6/2/3/A/6/391/27/B581	L Brown	7 Draper Street, Claremont	tenant	tenant	31/12/1998
14	KRK6/2/3/A/6/0/391/30/D540	Manharlal Dala	Cnr of Pebrock to Bedford Rd Claremont	Not available	owner	31/12/1998
15	KRK6/2/3/A/6/0391/245/E103	L Ebrahiem	2nd Avenue Claremont	Not available	owner	31/12/1998
16	KRK6/2/3/A/6/0/391/74/G304	LZ Gwayi	Belvedere Road Claremont	tenant	tenant	31/12/1998
17	KRK6/2/3/A/6/0/391/147/N346	AV Naidoo	Erf 53698 Claremont	tenant	tenant	31/12/1998
18	KRK6/2/3/A/6/0/391/131/N369	O Noordien	Surrey Str. Claremont	tenant	tenant	15/01/1999
19	KRK6/2/3/A/6/0/422/341/P448	MF Peters	14 Suffolk Street Harfield	tenant		31/12/1998

20	KRK2/3/A/6/0/391/207/S642	Pasiwe Saunders	14 Ructland Street, Claremont	tenant		09/07/1998
21	KRK6/2/3/A/6/0/391/159/S831	Achmat Sheldon	94 1st Avenue, Claremont	Not available	Not available	29/12/1998
22	KRK6/2/3/A/6/0/391/178/S848	Rashaad Salie	7 Draper Street , Claremont	Not available	Not available	18/01/1998
23	KRK6/2/3/A/6/0/422/14/C371	I.Coenrad	Erf 2274Constantia	Not available	Not available	29/12/1998
24	KRK6/2/3/A/6/0/422/6/D521	A. Daniels	Cloete Cottage	Not available	Not available	31/12/1998
25	KRK6/2/3/A/6/0/422/8/D522	Gadija Daniels	Cloetes Cottage Constantia	Not available	Not available	31/12/1998
26	KRK6/2/3/A/6/0/391/224/A653	H.Adams	Erf 523289 Claremont	48sqr,88sqf	owner	31/08/1998
27	KRK6/2/3/A/6/0/422/13/E149	Amina Jardien	Alphen Hill & Constantia Road	Not available	Not available	31/12/1998
28	KRK6/2/3/A/6/0/422/18/F143	M.H. Frans	No 5 Paggasvlei, Constantia	Not available	Not available	29/11/1996
29	KRK6/2/3/A/2/0/10520/86/G496	GJ Botha	49 Arsenal Road Constantia	tenant	tenant	26/07/1996
30	KRK6/2/3/A/6/0/422/75/O59	Barbara Oliver	Number 2 Lot 4, Ladies Mile Road	tenant	tenant	29/11/1996
31	KRK6/2/3/A/2/0/0/4/P334	LH Punt	Rem of Portion 1 of Farm Silveryn No 923	14,4785ha	owner	11/03/1997
32	KRK6/2/3/A/6/0/422/77/S1317	Connie Searborne	Strawberry Road Constantia	tenant	tenant	31/12/1998
33	KRK6/2/3/A/6/0/422/68/S721	Magmoed Sadien	Strawberry Lane Constantia	tenant	tenant	19/06/1998
34	KRK6/2/3/A/6/0/422/121/S810	Omar Sadien	Farm Constantia	Not available	owner	31/12/1998
35	KRK6/2/3/A/6/0/528/19J295	CA Johnson	c/o Kendal & Myburgh Rd, Diep River	Not available	owner	26/03/1997
36	KRK6/2/3/A/A878	H Abrahams	3 Lavenderhill Street, District Six	tenant	tenant	30/12/1998
37	KRK6/2/3/A/1/0/1084/26/B479	Bougardt	21 Constitution Street, District Six	tenant	tenant	04/04/1997
38	KRK6/2/3/A/1/0/331/191/B885	E Balla	District Six	Not available	Not available	31/12/1998
39	KRK6/2/3/A/1/0/331/578/D90	DF Davids	12 Fawley Terrace, District Six	Not available	Not available	18/03/1996
40	KRK6/2/3/A/1/0/331/42/D813	Mr SWL De Kock	Land situated very near to the Lower station of the Table Mountain Cable Way	tenant	tenant	26/12/1998
41	KRK6/2/3/1/0/331/360/E38	M Rubin	8 Selkirk, District Six	Not available	owner	29/04/1996
42	KRK6/2/3/A/13/3/2700/451/E47	B&F Elmodien	11 Mount Street District Six	tenant	tenant	07/05/1996
43	KRK6/2/3/A/1/0/331/1279/I159	M Ismail	49 Upper Darling Street	tenant	tenant	29/12/1998
44	KRK6/2/3/A/1/0/331/1869/J143/L378	W Losper	4 St Ledger Street, District Six	tenant	tenant	12/06/1996
45	KRK6/2/3/A/J631	Kevin Jacobs	Block B, Bloemhof Flats, District Six	tenant	tenant	30/12/1998
46	KRK6/2/3/A/1/0/331/2129/L55	PJ Lawrence	63 Upper Constitution Street, District Six	tenant	tenant	16/02/1996
47	KRK6/2/3/A/1/0/331/596/S118	A Salie	7A Plymouth Street, District SIX	396sqm	tenant	01/04/1996
48	KRK6/2/3/A/S1195	U Simrie	10 Milton Street, District Six	tenant	tenant	31/12/1998

49	KRK6/2/3/A/4/0/331/602/S162	F. Samsodien	39 Tilbury Street, 50District Six	tenant	tenant	21/05/1996
50	KRK6/2/3/A/3/15/0/80/S471	Aaron Stimela	Silver Sands Eersteriver	tenant	tenant	25/04/1997
51	KRK Not available N305	Kulukazi C Nxele	Erf 12703	tenant	tenant	30/05/1998
52	KRK6/2/3/A/4/12314/0/782/W282	SN De Wet	No 24 Mageru Street Elsies River	tenant	tenant	04/04/1997
53	KRK6/2/3/A/4/12314/0/204/G497	D.Geldoen	Erf 2372 Goodwood	tenant	tenant	30/11/1998
54	KRK6/2/3/A/4/12314/0/872/J549	F Jones	Erf 2372 Goodwood	tenant	tenant	31/12/1998
55	KRK6/2/3/A/4/12314/0/558/P507	CA Peterse	Hugo Street Goodwood	Not available	owner	31/12/1998
56	KRK6/2/3/A/17/89/0/61/N516	Bonakele Ntenyane	Newton Grabouw	tenant	tenant	31/12/1998
57	KRK6/2/3/A/17/92/0/129/N609/N553	Thandiwe Nodwele	Newton Grabouw	tenant	tenant	30/12/1998
58	KRK6/2/3/A/42/3/2682/1/W4	Layusa Rhoda	Erf 2919 Grassy Park	2052sqm	owner	17/11/1996
59	Not available A767	Adkar Family	Not available	Not available	Not available	Not available
60	KRK6/2/3/A/6/39/0/18/M1270	Ms S Mento	Oakhurst street, Houtbay	Not available	owner	30/12/1998
61	KRK6/2/3/A/2/0/10520/65/M2046	Z Williams	9 Marrine Villa Simonstown	tenant	tenant	1998/12/31
62	Not available P728	H Presence	Dido Valley Simonstown	tenant	tenant	1996/12/26
63	KRK6/2/3/A/20/10520/511/P779	D Pool	136 Waterfall Road Simonstown	tenant	tenant	2005/01/16
64	Not available S1363	Maud Smart	81 Riverside Road, Simonstown	tenant	tenant	1998/12/31
65	KRK6/2/3/A/2/0/10520/69/T441	Lynette Troter	Runceman's Drive Simons Town	tenant	tenant	1996/07/26
66	KRK6/2/3/A/2/0/10520/R391	Abdul Gakiem Raban	Not available	Not available	Not available	
67	KRK6/2/3/A/7/2634/0/1/N461	E Ngabaza	Waterkloof Street, Somerset West	tenant	tenant	1998/12/31
68	KRK6/2/3/A/1/0/2241/1/K319	Jolene Koert	Erf 60 Stanford	tenant	tenant	1998/07/01
69	KRK6/2/3/A/6/0/2250/25/V189	J Van Sensie	Not available	tenant	tenant	
70	KRK6/2/3/A/9/77/0/49/M221	WS Davy	35 Merrimanlaan Stellenbosch	tenant	tenant	1996/06/12
71	KRK6/2/3/A/9/77/0/53N317	Mrs NN Ntombana	Not available	tenant	tenant	1998/03/30
72	KRK6/2/3/A/8/72/0/29/V215	Yusuf Van Der Fort	Hudson Street	Not available	owner	1998/12/30
73	KRK6/2/3/A/25/125/0/13/P643	Charles John Petersen	Lindt Street Swellendam	3851sqm	owner	1998/12/21
74	KRK6/2/3/A/4/0/825/1/E143	A Jardien	Erf 12174 Lot No. 49 portion 49-50, Walmer Esttate	238sqm	owner	1998/12/29
75	KRK6/2/3/A/1/0/331/44/E144/E145	A Jardien	Lot 43,45,47 Walmer Estate	22sqr,82sqf	owner	31/12/1998
76	KRK6/2/3/A/1/0/2534/9/J756	Amina Jardien	Lot 49 Walmer Estate	22sqr,82sqf	owner	31/12/1998
78	KRK6/2/3/A/11/85/0/16/A775	Leslie Adonis	Erven 19, 56, 3 Wellington	30morgen/60m 298sqr/12m 298 sqr/9m,166sqr,4 sqf/51m,168sqr	owner	30/12/1998
79	KRK6/2/3/A/11/85/0/2/D207	MM Kanemeyer	Erf 2215 Wellington	Not available	Not available	15/11/1996
80	KRK6/2/3/A/1/0/2676/95/F405	A&C Frank	Erven 7552&12177, Woodstock	tenant	tenant	31/07/1996

81	KRK6/2/3/A/1/0/331/73/J544	A.Jardien	Erf 13522 Woodstock	39sqr,106sqf	owner	31/12/1998
82	KRK6/2/3/A/1/0/2676/47/N139	O Ngamlana	117 Albert Road Woodstock	tenant	tenant	14/07/1997
83	KRK6/2/3/A/1/0/2676/71/V355	S Van Sensie	Woodstock	tenant	tenant	16/10/1998
84	KRK6/2/2/A/30/0/0/4/M1567	JM Jacobs	Hamsland Worcester	Not available	owner	31/12/1998
85	KRK6/2/3/A/6/0/26/2/29/F154	Debbie Greeff	Erf 823 Wynberg	25950Hec	owner	27/01/1997
86	KRK6/2/3/6/2711/0/5/J769	Gary Jayson	9 Leon Terrace Wellington Walk	tenant	tenant	31/12/1998
87	KRK6/2/3/A/1/0/331/8/A617	Elizabeth Arendse	District Six	tenant	tenant	23/10/1998
88	KRK6/2/3/A/1/0/331/1780/S1349	J Solomon	Primrose Street District Six	Not available	Not available	31/12/1998
89	KRK6/2/3/A/25/125/0/30/P711	August Daniel Pieterse	Lemmetjies Dorp Swelendam	tenant	community	29/12/1998
90	KRK6/2/3/A/6/37/0/69/P741	J Phindani	Erf 82168 Grassy Park	tenant	tenant	24/04/1998
	KRK6/2/3/A/4/12314/0/283/J0535 & J0540 & J0542	G Jansen	21 Litten Street & 169 Stuart Street Goodwood	Not available	owner	31/12/1998
91	KRK6/2/3/A/6/0/1637/21/J475	G Jallien	6 Palmboom Newlands	Not available	Not available	31/12/1998
92	KRK6/2/3/A/1/1718/2/L17	Labeeba Davids	Erf 25725 Observatory	4048sqf	owner	18/10/1995
93	KRK6/2/3/A/6/0/2250/27/V190	JJ Van Dieman	Sasson Road Steenberg	Not available	Not available	31/12/1998
94	Not available M1267	BB Mjo	6th Avenue Kensington	Not available	Not available	Not available
95	KRK6/2/3/A/1/0/1084/407N277	N. Ndamane	Opposite Allies Shop 10TH Avenue Kensington	tenant	tenant	1997/04/04
96	KRK6/23/A/1/0/2640/13/N404	N. A. Nhlapo	27 8/9 TH Avenue 4th Street Windermere, Kensington	tenant	tenant	1998/12/31
97	P731 No KRK	TG Putuna	12 Avenue Kensington	tenant	tenant	1998/12/30
98	KRK6/2/3/A/6/2742/0/29/B600	JMA Blankenberg	Northview Erf 60121 Blankenberg Road Lansdowne	496 sqm	Owner	1998/12/31
99	KRK6/2/3/A/6/2742/0/13/J496	FP Jooste	15 Block rd Lansdowne	402.0000 sqm	Owner	1998/12/31
100	KRK6/2/3/A/6/0/1309/10/G294	JF Gideon	700 3rd Avenue Lotus River	tenant	tenant	1998/11/17
101	KRK6/2/3/A/12/212/0/8/S961	S Smith	Erf in Mamre	Not available	Owner	1998/12/31
102	KRK6/2/3/A/6/0/1575/16/K254	A Kariem	35 Ayres Mowbray	Not available	Not available	1998/02/13
103	KRK6/2/3/A/1/0/1587/6/S489	Patricia Rose Stanbridge	120 Beach Court Mansions, Muizenberg	275 SQM	Owner	1996/05/06
104	KRK6/2/3/A/6/0/84/171/B783	Ebrahim Bawa	Lodewyk Crescent , Newfields	713 SQM	Owner	1998/12/27
105	KRK6/2/3/A/6/46/J492	Elizabeth Johnson	4 Optimus Farm Ottery	Tenancy	tenant	1998/12/29
106	Not available A96	NA Jouhaar	Lot 21 Section Erf 384 Ottery	Not available	Not available	Not available
107	KRK6/2/3/A/10/82/0/118/L459	Cheryl Marlene Ludwig	Huguenot Station Paarl	Not available	Not available	1998/12/10
108	KRK6/2/3/A/10/82/0/68/M1446	J. James	Erf 41 & 42 Paarl	Not available	Not available	Not available
109	Q36 No KRK	NM Qudi	76 De Villiers Cottage Klippiesdal Paarl	Tenant	Tenant	1997/12/11

110	KRK6/3/3/A/47/0/0/9/G319	DR Galloway	Reirsvlei Eisleben Road Phillipi (part of Farm 796)	Not available	Owner	1998/12/31
111	KRK6/2/3/A/6/0/1870/21/J239	NA Jonathan	Erf 71831 Plumstead	5000 SQM	Owner	1996/11/28
112	KRK6/2/3/A/0/1870/23/N366	Wilhelmina Naidoo	7 Rotherfield Road Plumstead	Tenant	Tenant	1998/12/31
113	KRK6/2/3/A/6/0/1870/14/V84	RJ Valentine	Vernon Road Plumstead	Not available	Not available	1996/11/29
114	KRK6/2/3/A/5/0/1989/74/K358	Mabel Mavis Kayiyana	3rd Avenue Retreat	Tenant	Tenant	1998/12/31
115	KRK6/2/3/A/2117/0/286/S1133	Sindiswa Constance Sotyantya	Tommys Bush	Tenant	Tenant	1998/12/17
116	KRK6/2/3/A/2/10/0/42/A631	Sulaiman Ahmed	Erf 1076 Simonstown	Tenant	Tenant	1998/12/21
117	KRK6/2/3/A/20/10520/522/A1020	Gregory Adams	Cardiff Road Simonstown	Not available	Not available	1998/12/31
118	KRK/6/2/3/A/2/0/10520/309/C517	E.E.Carolissen	10 Smiths Lane Simonstown	Tenant	Tenant	1996/07/26
119	KRK6/2/3/A/2/2/0/10520/22/D551	Ehsania Fatima Davids	Criterion Flats, St Georges Street	Tenant	Tenant	1998/12/31
120	KRK6/2/3/A/6/0/528/72/G434	V Groenewald	Erf 71506 Waterford Road	76 SQ RDS 56 SQ FT Ownership	Tenant	1998/12/31
121	KRK6/2/3/A/20/10520/519/J876	CB Jones	Riverside Road Simonstown	Not available	Not available	1998/12/31
122	KRK6/2/3/A/20/10520/520/J877	LJ Jonathan	Riverside Road Simonstown	Not available	Not available	1998/12/31
123	KRK6/2/3/A/2/0/10520/59/K612	G Khan	53 Riverside Road Simonstown	Tenant	Tenant	1998-12-31
124	KRK6/2/3/A/6/0/2177/9/M1280	R Millet	Criterion Flats,St Georges street Simonstown	Not available	Not available	Not available
125	KRK6/2/3/A/6/0/391/81/A635	Maridia Ahmed	Draper Street Claremont	Not available	Owner	31-12-1998
126	KRK6/2/3/A/10/82/0/5/A711	P Adams	Paarl	Not available	Not available	30-12-1998
127	KRK6/2/3/A/21/0/0/3/B810	R Benardede	Montagu	Tenant	Tenant	29-12-1998
128	KRK6/2/3/A/6/272/14/C363	JWK Crames	363 Lansdowne Road, Lansdowne	Tenant	Tenant	30-12-1998
129	KRK/6/2/3/A/3/23/0/8/D26	M. Dowling	42 9th street Parow	Not available	Ownership	10-05-1995
130	KRK/6/2/3/A/1/0/331/1286/D530	Ian Davids	34 Cauvin Road, Cape Town	Tenant	Tenant	30-01-1998
131	KRK6/2/3/A/11/85/0/2/D207	R Basson	Wellington	Not available	Not available	15-11-1996
132	KRK6/2/3/A/6/0/391/144/D604	R Davis	Claremont	Tenant	Tenant	30-12-1998
133	KRK6/2/3/A/9/77/0/20/D623	L Daniels	Erf 2180 Stellenbosch	Not available	Owner	31-12-1998
134	KRK6/2/3/A/1/0/2676/11/E198	A Essop	Erf 7253 Woodstock	Not available	Owner	31-12-1998
135	KRK6/2/3/A/6/0/422/82/F300	SC Fritz	Constantia	Not available	Not available	29-12-1998
136	KRK6/2/3/A/2/0/1056/15/F381	W Fischer	Kalkbay	Not available	Not available	26-08-1998
137	KRK6/2/3/A/6/0/422/58/H247	M Heuvel	5 Greendales Constantia	Not available	Not available	26-03-1997
138	KRK6/2/3/A/6/0/39/21/H257	GR Henkel	Erf 54017, Claremont	51sqr 38sqft/731sqm	Owner	04-04-1997
139	KRK6/2/3/A/6/0/422/32/H342	SCB Hatnick	9 Silvehurst, Constantia	Tenant	Tenant	22-09-1998
140	KRK6/2/3/A/23/200/0/2/J795	LA Jacobs	Erf 452 Tulbagh	Not available	Not available	30-12-1998
141	KRK6/2/3/A/1/0/331/1036/M1206	S Manuel	78 Petersen	Tenant	Tenant	26-11-1998

			Street, Kensington			
142	KRK6/2/3/A/6/0/1870/38/M361	MA Mitchell	Erf 71544 Plumstead	5000 sqft	Owner	28-11-1996
143	KRK6/2/3/A/4/1234/0/557/P393	M Epatonisi	36th Street Masuri Sqatter Camp Elsies River	Tenant	Tenant	04-04-1997
144	KRK6/2/3/A/6/0/1080/8/S1395	C Soeker	Erf 64528 Kenilworth	923sqm	Owner	21-09-1995
145	KRK6/2/3/A/1/0/1084/538/S346	GM Van Schalkwyk	167 Eight Avenue Kensington	Not available	Not available	29-11-1996
146	KRK6/2/3/A/1/0/478/2/T418	C Titus	Erf 347 Darling	620sqm	Owner	30-12-1998
147	KRK6/2/3/A/6/0/2211/7/V130	FW Van Stavel	Plumstead	69sqr,64sqft	Owner	13-02-1998
148	KRK6/2/3/A/1/0/1056/2/WC176	R Joshua	Erven 90219 & 90220 Kalkbay	1188sqm	Owner	18-07-1995
149	KRK6/2/3/A/10/82/0/268/Y4	J Yasvain	Erf 116 Klein Drakenstein Rd Paarl	98sqrdt,132 sqft	Owner	18-10-1996
150	KRK6/2/3/A/1/0/331/1797/A167	E Arendse	Erf 9090 Cape Town	Not available	Not available	14-05-1996
151	KRK6/2/3/A/1/0/331/474/E43	MW Eksteen	Erf 25620 Salt River	43sqft	Owner	11-04-1996
152	KRK6/2/3/A/1/0/2676/62/S227	S Salaam	Erf 11642 Woodstock	347 sqm	Owner	30-12-1996
153	KRK6/2/3/A/6/2742/0/49/A641	DJ Adams	31O'Kiep rd Lansdowne	421sqm	Owner	31-12-1998
154	KRK6/2/3/A/1/0/2676/90/W73	Z Van Wyk	Erf 11347 Woodstock	122sqm	Owner	01-07-1996
155	KRK6/2/3/A/6/46/0/5/D241	VJ Dumse	Parkwood Location	Tenant	Tenant	31-12-1998
156	KRK6/2/3/A/19/0/0/25/T4	MF Tobias	Bredasdorp	Not available	Not available	09-11-1995
157	KRK6/2/3/A/1/0/2676/54/O105	M Omar	46 Melbourne Rd Woodstock	Tenant	Tenant	21-08-1998

Date Submitted : Various Dates

The Regional Land Claims Commission investigated these claims in terms of provisions of the Act. Any party who has an interest in the above-mentioned land is hereby invited to submit, within 30 days from the publication of this notice, any comments / information to:

The Regional Land Claims Commission: Western Cape
14 Long Street, Cape Town
Private Bag X 9163
Cape Town
8000

Tel: (021) 409-0300
Fax: (021) 424-5146

CHECKED.....

DATE 10/8/2018

APPROVED.....

DATE 2018/08/24
Mr LH Maphutha
Regional Land Claims Commissioner

SOUTH AFRICAN RESERVE BANK

NOTICE 540 OF 2018

THE BANKS ACT, 1990 (ACT NO. 94 OF 1990 – "THE BANKS ACT")

WITHDRAWAL OF CONSENT GRANTED IN TERMS OF SECTION 34 OF THE BANKS ACT TO MAINTAIN A REPRESENTATIVE OFFICE OF A FOREIGN INSTITUTION IN THE REPUBLIC OF SOUTH AFRICA: BANK ONE LIMITED

Notice is hereby given, for general information, that the consent granted to Bank One Limited, by the erstwhile Registrar of Banks, to maintain a representative office of a foreign institution in the Republic of South Africa was withdrawn with effect from 1 May 2018.

SOUTH AFRICAN RESERVE BANK

NOTICE 541 OF 2018

SECTION 13(1) OF THE MUTUAL BANKS ACT, 1993 (ACT NO. 124 OF 1993)

REGISTRATION – BANK ZERO MUTUAL BANK

Notice is hereby given for general information, that **Bank Zero Mutual Bank** was registered as a mutual bank with effect from 17 August 2018.

SOUTH AFRICAN RESERVE BANK

NOTICE 542 OF 2018

THE BANKS ACT, 1990 (ACT NO. 94 OF 1990 – "THE BANKS ACT")

WITHDRAWAL OF CONSENT GRANTED IN TERMS OF SECTION 34 OF THE BANKS ACT TO MAINTAIN A REPRESENTATIVE OFFICE OF A FOREIGN INSTITUTION IN THE REPUBLIC OF SOUTH AFRICA: NOVO BANCO, S.A.

Notice is hereby given, for general information, that the consent granted to Novo Banco, S.A., by the erstwhile Registrar of Banks, to maintain a representative office of a foreign institution in the Republic of South Africa was withdrawn with effect from 30 June 2018.

DEPARTMENT OF TOURISM

NOTICE 543 OF 2018

TOURISM ACT, 2014 (ACT NO. 3 of 2014)

REGULATIONS IN RESPECT OF THE NATIONAL TOURISM INFORMATION AND MONITORING SYSTEM

I, DEREK ANDRE HANEKOM, Minister of Tourism, intends under section 61(1)(a) and (2), read with section 5 of the Tourism Act, 2014 (Act No. 3 of 2014), to make the Regulations in the Schedule.

Interested and affected persons are invited to submit within one (1) month from the date of publication of this notice, written representation on the proposed Regulations to the following:

By Post:

The Director-General
Department of Tourism
Private Bag X424
Pretoria
0001

Attention: Ms Nonkqubela Silulwane

By Hand: Ground Floor (Reception) Tourism House, 17 Trevenna Street, Sunnyside;

By email: nsilulwane@tourism.gov.za

Enquiries in connection with the Draft Regulations can be directed to Ms Silulwane at (012) 444-6402

Comments received after the closing date may not be considered.



Derek Hanekom, MP
Minister: Tourism

SCHEDULE

TABLE OF CONTENTS

PART 1

INTERPRETATION AND PURPOSE OF REGULATIONS

1. Interpretation and Purpose of Regulations

2. Tourism and Monitoring System

3. General Provisions

PART 2

NTAIONAL TOURISM INFORMATION AND MONITORING SYSTEM

4. Nature and form of System

5. Categories, content and form of data and information to be captured on System

6. Content and form of data and information which must be captured on System

7. Submission of databases by organs of state

8. Submission of data and information

9. Record keeping

10. Verification of data and information

PART 3

GENERAL PROVISIONS

11. Offences and penalties

12. Short title and commencement

PART 1

INTERPRETATION AND PURPOSE OF REGULATIONS

Definitions

1. In these Regulations a word or expression to which a meaning has been assigned in the Tourism Act, 2014 (Act No. 3 of 2014), has the meaning so assigned and, unless the context indicates otherwise—

"Department" means the national Department responsible for the management and growth of tourism;

"System" means the national tourism information and monitoring system established in terms of section 5 of the Tourism Act, 2014 (Act No. 3 of 2014); and

"the Act" means the Tourism Act, 2014 (Act No. 3 of 2014).

Purpose of Regulations

2. The purpose of these Regulations is to regulate the collection, recording, management, analysis and dissemination of information and data on tourism to monitor developments and trends in tourism.

Application of Regulations

3. These Regulations apply uniformly in all provinces of the Republic of South Africa.

PART 2

TOURISM AND MONITORING SYSTEM

Nature and form of the System

4. The System must be a set of processes and procedures designed to capture, store, disseminate and analyse tourism information.

Categories, content and form of data and information to be captured on the System

5. (1) Categories of data and information to be captured on the System include—

(a) all tourism related information, such as Tourism Satellite Account ("TSA") classifications and categories;

(b) accommodation;

(c) meetings, exhibitions, conferences and special events;

(d) attractions and activities;

(e) tour operators and tourist guide services;

(f) restaurants and similar services;

(g) tourism information services;

(h) hiring and leasing;

(i) passenger transport and related services;

(j) travel agencies and other reservation services;

(k) cultural services;

(l) sports and recreational services; and

(m) tourism related infrastructure.

Content and form of data and information which must be captured on the System

6. The content and form of data and information which must be captured on the system includes, but is not limited to, the following:

(a) legal name of business;

(b) trading name;

(c) CIPC registration number;

(d) years of operation;

(e) physical and postal address;

(f) type of business or company;

(g) business structure;

(h) franchise information;

(i) ownership type;

(j) classification and category of business;

(k) classification of business;

(l) Broad–Based Black Economic Empowerment (BBBEE) information;

(m) tourism grading and levy information;

(n) universal accessibility;

(o) member association;

(p) number and type of rooms;

(q) number of beds;

(r) type of amenities providers;

(s) number of conference rooms and total seating capacity;

(t) total parking capacity;

(u) dietary restrictions, liquor license information and smoking facilities;

(v) type of travel services, number of vehicles and carrying capacity;

(w) type of cultural and recreational services offered;

(x) amenities (wellness spa, swimming pool and others); and

(y) contact information;

Submission of databases by organs of state

7. The Director-General shall implement systems to ensure that organs of state submit databases with complete information.

Submission of data and information

8. (1) Data and information may be provided in hard copies or electronically.

(2) Data and information must be provided at least once a year.

(3) Data and information must be provided within 30 days where there are changes to the information or upon request.

Record keeping

9. (1) A person must keep a record of the information submitted to the Department.

(2) The records contemplated in sub-regulation (1) must be—

(a) retained for a period of at least five years; and

(b) made available for inspection by a representative of the Department, upon request.

Verification of data and Information

10. (1) The Department may notify a person who submitted information or data that verification of information will be conducted within a period determined by the Department.

(2) If the Department reasonably believes that the information provided during the verification process is incorrect or misleading, the Department must, in writing and within a reasonable period, afford a person who the information belongs to an opportunity to correct the information.

PART 3

GENERAL PROVISIONS

Offences and penalties

11. (1) A person commits an offence if a person provides incorrect or misleading information knowing it to be incorrect or misleading.

(2) A person who commits an offence contemplated in sub-regulation (1) is liable on conviction to—

(a) imprisonment for a period not exceeding 12 months;

(b) an appropriate fine; or

(c) both a fine and imprisonment.

Short title and commencement

12. These Regulations are called the National Tourism Information and Monitoring System Regulations, and take effect on the date of publication thereof.

TOURISM ACT, 2014 (MOLAO 3 wa 2014)

MELAWANA MALEBANA LE LENANEO LA TSHEDIMOŠO YA TŠA BOETI LA BOSETŠHABA LE TEKOLO

Nna, DEREK ANDRE HANEKOM, Tona ya Tša Boeti, ke kemišetša ka tsela ya karolo 61(1)(a) le (2), e balwa le karolo 5 ya *Tourism Act, 2014* (Molao 3 wa 2014), go dira Melawana mo Šetuleng.

Batho bao ba nago le kgahlego le bao ba amegago ba laletšwa go romela mo bekeng ye tee (1) go tloga ka letšatšikgwedi la kgatišo ya tsebišo ye, kemedi ka tsela ya lengwalo mabapi le Melawana yeo e šišintšwego go:

Ka Poso:

The Director-General
Department of Tourism
Private Bag X424 Pretoria
0001

E lebišwe go: Moh Nonkqubela Silulwane

Ka seatla: Ground Floor (*Reception*) Tourism House, 17 Trevenna Street, Sunnyside; Ka

emeile: nsilulwane@tourism.gov.za

Dipotšišo mabapi le Melawana Thalwa di ka romelwa go Moh Silulwane go (012) 444-6402 Diswayaswayo

tšeo di hweditšwego morago ga letšatšikgwedi la mafelelo di ka se eleletšwe.

Derek Hanekom, MP Tona: Tša Boeti

No. KURANTA YA MMUŠO 2018

ŠETULE

LENANEO LA DIKAGARE

KAROLO 1

TLHATHOLLO LE NOHOLA WA MELAWANA

1. Tlhathollo le Mohola wa Melawana

2. Lenaneo la tša Boeti le Tekolo

3. Ditaelo Kakaretšo

KAROLO 2

NTAIONAL TOURISM INFORMATION AND MONITORING SYSTEM

4. Mokgwa le mohuta wa Lenaneo

5. Magoro, dikagare le mohuta wa datha le tshedimošo yeo e swanetšego go lotwa Lenaneong

6. Dikagare le mohuta wa datha le tshedimošo yeo e swanetšego go lotwa Lenaneong

7. Thomelo ya didathabeise ka makala a mmušo

8. Thomelo ya datha le tshedimošo

9. Go lota rekhoto

10. Netefatšo ya datha le tshedimošo

KAROLO 3

DITAELO KAKARETŠO

11. Melato le dikotlo

12. Thaetlele ye kopana le go thoma go šoma

KAROLO 1

TLHATHOLLO LE MOHOLA WA MELAWANA

Dihlalošo

1. Mo Melawaneng ye lentšhu goba mmolelwana woo o nago le hlalošo go *Tourism Act, 2014* (Molao 3 wa 2014), o na le hlalošo yeo mme, ntle le ge tshwaraganyo e laetša ka tsela ye nngwe—

"Kgoro" e ra Kgoro ya Bosetšhaba yeo e nago le maikarabelo a taolo le kgodišo go ekonomi;

"Lenaneo" e ra tshedimošo ya lenaneo la tša boeti ya bosetšhaba le tekolo yeo e hlanngwego go ya ka karolo 5 ya *Tourism Act, 2014* (Molao 3 wa 2014); le

"Molao" o ra *Tourism Act, 2014* (Molao 3 wa 2014).

Mohola wa Melawana

2. Mohola ya Melawana ke go laola kgoboketšo, go rekhotiwa, taolo, phetleko le phatlalatšo ya tshedimošo le datha go tša boeti go lekola ditšweletšo le ditlwaelo go tša boeti.

Go šoma ga Melawana

3. Melawana ye e šoma ka go swana diprofenseng ka moka tša Rephabliki ya Afrika Borwa.

KAROLO 2

LENANEO LA TŠA BOETI LE TEKOLO

Mokgwa le mohuta wa Lenaneo

4. Lenaneo le swanetše go ba la ditshepetšo le ditshepedišo tšeo di diretšwego go swara, lota, phatlalatša le go lekola tshedimošo ya tša boeti.

Magoro, dikagare le mohuta wa datha le tshedimošo yeo e swanetšego go lotwa Lenaneong

5. (1) Magoro a datha le tshedimošo yeo e swanetšego go lotwa Lenaneong di akaretša-

(a) tshedimošo ka moka ye malebana le tša boeti, go swana le magoro a Akhaonto ya Sathalaete ya tša Boeti {"TSA"};

(b) madulo;

(c) dikopano, dipontšho, dikopano le ditiragalo tše di kgethegilego;

(d) dikgogedi le mahlahla;

(e) ditshepetšo tša maeto le ditirelo tša tlhahlo ya baeti;

(f) diresturente le ditirelo tše di swanago;

(g) ditirelo tša tshedimošo ya tša boeti:

(h) go hira le go hiriša;

(i) dinamelwa tša banamedi le ditirelo tše malebana;

(j) diagente tša maeto le ditirelo tše dingwe tša peakanyetšo;

(k) ditirelo tša setšo;

(l) ditirelo tša dipapadi le boitapološo; le

(m) mananeokgoparara a malebana le tša boeti.

Dikagare le mohuta wa datha le tshedimošo yeo e swanetšego go lotwa Lenaneong

6. Dikagare le mohuta wa datha le tshedimošo yeo e swanetšego go lotwa mo lenaneong di akaretša, efela ga di felele go, tše di latelago:

(a) leina la molao la kgwebo;

(b) leina leo go rekišwago ka lona;

(c) nomoro ya ngwadišo ya CIPC;

(d) mengwaga ya mošomo;

(e) aterese ya madulo le poso;

(f) mohuta wa kgwebo goba khamphani;

(g) sebopego sa kgwebo;

(h) tshedimošo ya forentšhaese;

(i) mohuta wa borui;

(j) legoro le karolo ya kgwebo;

(k) legoro la kgwebo;

(l) Tshedimošo ya Maatlafatšo yeo e Nabilego ya Ekonomi ya Batho Baso (BBBEE);

(m) magoro a tša boeti le tshedimošo ya ditefišo;

(n) phihlelelo ya lefase ka bophara;

(o) mokgatlo wa boloko;

(p) Nomoro le mohuta wa dikamore;

(q) palo ya malalo;

(r) mehuta ya baabi ba didirišwa;

(s) palo ya dikamore tša kopano le palomoka ya bodulo;

(t) palomoka ya mothamo wa go phaka;

(u) dithibelo dijong, tshedimošo ya laesense ya go rekiša tagi le didirišwa tša go kgoga;

(v) mehuta ya ditirelo tša maeto, palo ya difatanaga le mothamo wa go swara;

(w) mohuta wa ditirelo tša setšo le boitapološo tšeo di abelwago;

(x) didirišwa (boitekanelo bja tša go thoba mmele, lefelo la go rutha le tše dingwe); le

(y) tshedimošo ya boikgokaganyo;

Thomelo ya dathabeise ka makala a mmušo

7. Molaodi-Kakaretšo o tla tsenyatirišong mananeo a go netefatša gore makala a mmušo a romela di dathabeise ka tshedimošo yeo e feletšego.

Thomelo ya datha le tshedimošo

8. (1) Datha le tshedimošo di ka phethagaletšwa ka dikhophi tša letlakala goba ka elektroniki.

(2) Datha le tshedimošo di swanetše go phethagaletšwa le ge e ka ba ga tee mo ngwageng.

(3) Datha le tshedimošo e swanetše go phethagaletša mo matšatšing a 30 moo go nago le diphetošo go tshedimošo goba ka kgopelo.

Go lota rekhoto

9. (1) Motho o swanetše go lota rekhoto ya tshedimošo yeo e

(2) rometšwego kgorong. Direkhoto tše di hlalošitšwego go molawana (1) di swanetše go-

(a) lotwa botelele bja nako ya mengwaga ye mehlano; le

(b) hwetšagatšwa bakeng sa go lekolwa ke moemedi wa Kgoro, ge go kgopelwa.

Netefatšo ya datha le tshedimošo

10. (1) Kgoro e ka tsebiša motho yo a rometšwego tshedimošo goba datha gore netefatšo ya

tshedimošo e tla diragatšwa mo nakong yeo e laolwago ke Kgoro.

(2) ge Kgoro e dumela ka mo go kwagalago gore tshedimošo yeo e neilwego ka nako ya netefatšo ga se ya go nepagalo goba ke ya go lahletša, Kgoro e swanetše go, ka tsela ya lengwalo mme mo nakong yeo e kwagalago, nea motho yoo tshedimošo e lego ya gagwe monyetla wa go lokiša tshedimošo.

KAROLO 3

DITAELO TŠA KAKARETŠO

Melato le dikotlo

11. (1) Motho o dira molato ge motho a nea tshedimošo ye e sa nepagalago goba ya tahletšo ka tsebo ya gore ka tsebo ya gore ke yeo e sa nepagalago goba ya tahletšo.

(2) Motho yo a dirago molato wo o hlalošitšwego go molawana (1) o tla hwetša kotlo, ge a tšhotšhišwa, ya—

(a) kgolego botelele ba nako yeo e sa fetego dikgwedi tše 12;

(b) faene ye e swanetšego; goba

(c) faene le kgolego ka bobedi bja tšona.

Thaetlele ye kopana le go thoma go šoma

12. Melawana ye e bitšwa Melawana ya Lenaneo la Tshedimošo ya tša Boeti ya Bosetšhaba le Tekolo, mme e thoma go šoma ka letšatšikgwedi la kgatišo ya yona.

DEPARTMENT OF TRADE AND INDUSTRY

NOTICE 544 OF 2018

STANDARDS ACT, 2008
STANDARDS MATTERS

In terms of the Standards Act, 2008 (Act No. 8 of 2008), the Board of the South African Bureau of Standards has acted in regard to standards in the manner set out in the Schedules to this notice.

SECTION A: DRAFTS FOR COMMENTS

The following draft standards are hereby issued for public comments in compliance with the norm for the development of the South Africa National standards in terms of section 23(2)(a) (ii) of the Standards Act.

Draft Standard No. and Edition	Title, scope and purport	Closing Date
SANS 10227 Ed 3	*Criteria for the accreditation of approved inspection authorities performing inspection in terms of the Pressure Equipment Regulations*. Covers the specific criteria for the accreditation of approved inspection authorities performing inspection on pressure equipment in terms of the relevant national legislation (see foreword).	2018-10-29
SANS 949 Ed 3	*Strongroom doors or Vault doors*. Specifies the requirements for six categories of strongroom and vault door that will also give protection against fire for a maximum period of 30 min.	2018-10-30

SCHEDULE A.1: AMENDMENT OF EXISTING STANDARDS

The following draft amendments are hereby issued for public comments in compliance with the norm for the development of the South African National Standards in terms of section 23(2)(a) (ii) of the Standards Act.

Draft Standard No. and Edition	Title	Scope of amendment	Closing Date
SANS 1039 Ed 1.4	*Wooden ceiling and panelling boards*.	Amended to update the figure on mean annual equilibrium moisture content of wood.	2018-10-23
SANS 344 Ed 1.2	*Dynamic measuring devices and systems for cryogenic liquids.*	Amended to remove reference to South African regulations in the foreword, and to update referenced standards	2018-10-30

SCHEDULE A.2: WITHDRAWAL OF THE SOUTH AFRICAN NATIONAL STANDARDS

In terms of section 24(1)(C) of the Standards Act, the following published standards are issued for comments with regard to the intention by the South African Bureau of Standards to withdrawn them.

Draft Standard No. and Edition	Title	Reason for withdrawal	Closing Date
ARP 20474-14	*Earth-moving machinery - Safety Part 14: Information on national and regional provisions.*	The standards is obsolete	2018-10-31

SCHEDULE A.3: WITHDRAWAL OF INFORMATIVE AND NORMATIVE DOCUMENTS

In terms of section 24(5) of the Standards Act, the following documents are being considered for withdrawal.

Draft Standard No. and Edition	Title	Reason for withdrawal	Closing Date

SECTION B: ISSUING OF THE SOUTH AFRICAN NATIONAL STANDARDS

SCHEDULE B.1: NEW STANDARDS

The following standards have been issued in terms of section 24(1)(a) of the Standards Act.

Standard No. and year	Title, scope and purport
SANS 1781:2018 Ed 1	*Biological based treatment products*. Specifies characteristics and requirements for biologically based treatment products for bioremediation, bio-augmentation, and biodegradation.
SANS 2231:2018 Ed 1	*Bactericidal efficacy of alcohol based products intended for general use.* Specifies a method to determine the bactericidal efficacy of alcohol based products intended for general use.
SANS 45001:2018 Ed 1	*Occupational health and safety management systems - Requirements with guidance for use.* Specifies requirements for an occupational health and safety (OH&S) management system, and gives guidance for its use, to enable organizations to provide safe and healthy work places by preventing work-related injury and ill-health, as well as by proactively improving its OH&S performance.

SCHEDULE B.2: AMENDED STANDARDS

The following standards have been amended in terms of section 24(1)(a) of the Standards Act.

Standard No. and year	Title, scope and purport
SANS 387:2018 Ed 2.8	*Hammer heads and hand hammers*. *Consolidated edition incorporating amendment No. 8.* Amended to update the requirements for hardness.
SANS 1329-4 :2018 Ed 4.1	*Retro-reflective and fluorescent warning signs for road vehicles Part 4: Retro-reflective chevron signs and decals*. *Consolidated edition incorporating amendment No. 1.* Amended to change tables on coefficient of retro-reflection (RA) cd / (lx.m2), chromaticity co-ordinates of the points of intersection of the boundary lines of the limiting area on the chromaticity diagram, before and after weathering, for red surfaces, and on chromaticity co-ordinates of the points of intersection of the boundary lines of the limiting area on the chromaticity diagram, before and after weathering, for yellow surfaces, to update the requirements for the test for low temperature behaviour, and to move the figure on retro-reflective chevron sign (type J) from the subclause on test temperature for low temperature behaviour to the annex on notes to purchasers.
SANS 1921-2:2018 Ed 1.1	*Construction and management requirements for works contracts Part 2: Accommodation of traffic on public roads occupied by the contractor. Consolidated edition incorporating amendment No. 1.* Amended to update the list of parts in the foreword and referenced standards.

SCHEDULE B.3: WITHDRAWN STANDARDS

In terms of section 24(1)(C) of the Standards Act, the following standards have been withdrawn.

Standard No. and year	Title
SANS 8968-2:2006	*Milk - Determination of nitrogen content Part 2: Block-digestion method (Macro method).*
SANS 8968-5:2006	*Milk - Determination of nitrogen content - Part 5: Determination of protein-nitrogen content.*

SCHEDULE B.4: ESTABLISHMENT OF TECHNICAL COMMITTEES

In terms of section 4(2) (l) the South African Bureau of Standards has established the following technical committees:

Technical Committee No.:	Title	Scope

SCHEDULE B.4: DISBANDMENT OF TECHNICAL COMMITTEES

In terms of section 4(2) (l) the South African Bureau of Standards has disbanded the following technical committees:

Technical Committee No.:	Title	Scope

If your organization is interested in participating in these committees, please send an e-mail to Dsscomments@sabs.co.za for more information.

SCHEDULE 5: ADDRESSES OF THE SOUTH AFRICAN BUREAU OF STANDARDS OFFICES

The addresses of offices of the South African Bureau of Standards where copies of the standards mentioned in this notice can be obtained, are as follows:

1. Gauteng Head Office, 1 Dr Lategan Road, Groenkloof, Private Bag X191, Pretoria 0001.
2. Western Cape Regional Office, SABS, Liesbeek Park Way, Rosebank, PO Box 615, Rondebosch 7701.
3. Eastern Cape Regional Office, SABS, 30 Kipling Road, cor. Diaz and Kipling Roads, Port Elizabeth, PO Box 3013, North End 6056.
4. KwaZulu-Natal Regional Office, SABS, 15 Garth Road, Waterfall Park, Durban, PO Box 30087, Mayville 4058.

DEPARTMENT OF TRANSPORT

NOTICE 545 OF 2018

AIR SERVICE LICENSING ACT, 1990 (ACT NO.115 OF 1990) APPLICATION FOR THE GRANT OR AMENDMENT OF DOMESTIC AIR SERVICE LICENCE

Pursuant to the provisions of section 15 (1) (b) of Act No. 115 of 1990 and Regulation 8 of the Domestic Air Regulations,1991, it is hereby notified for general information that the application detail of which appear in the appendix, will be considered by the Air Service Licensing Council. Representation in accordance with section 15 (3) of the Act No.115 of 1990 in support of, or in position, an application, should reach the Air Service Licensing Council. Private Box X 193, Pretoria, 0001, within 21 days of date of the publication thereof.

APPENDIX I

(A) Full name and trade name of the applicant. (B) Full business or residential address of the applicant. (C) Class of licence applied for. (D) Type of air service to which application applies. (E) Category of aircraft to which application applies.

(A) Air Ambulance Health Services (Pty) Ltd; Air Ambulance Health Services. (B) Hanger 1, Gate 11, Airport Road, Bram Fischer Airport, Bloemfontein. (C) Class II & III. (D) Type N1, N2, G3, G6, G7, G8, G10 & G15. (E) Category A1, A2, A3, A4, H1 & H2.

(A) Garden Route Media (Pty) Ltd. (B) Unit 2, Fairview Office Park, Courtenay and 1st Street, George, Western Cape. (C) Class III. (D) Type G3, G4, G10 & G16 (RPAS). € Category H1.

(A) Step Above (Pty) Ltd. (B) 85 Bank Street, Nigel, 1491. (C) Class III. (D) Type G2, G3, G4, G8, G14, G15 & G16 (RPAS). (E) Category H1.

APPENDIX II

(A) Full Name and trade name of the applicant. (B) Full business or residential address the applicant. (C) The Class and number of license in respect of which the amendment is sought (D) Type of air service and the amendment thereto which is being applied for (E) Category of aircraft and the amendment thereto which is being applied for.

(A) Combined Private Investigations (Pty) Ltd; CPI Aviation. (B) 33 New Road, Grand Central, Halfway House. (C) Class III; G1030D. (D) Type G2, G3, G4, G8, G10 & G16 (Powerline Survey). (E) H2. **Changes to the Management Plan:** R. R. Robertson is Appointed as the Accountable Manager, M. Vergottini as the RP; Flight Operations, S. Wilson as the Air Service Safety Officert & J. L. Lombaard as the RP: Aircraft.

(A) Kishugu Aviation (Pty) Ltd. (B) 1 Club Street, Nelspruit Airfield. (C) Class II & III; N1109D & G921D. (D) Type N1, N2, G3, G5, G8, G10, G15 & G16. (E) Category A2, A3, A4 & H2.**Changes to the Management Plan:** Mr F. J. Jager replaces Mr G. B. Broberg as the RP: Aircraft, Mr T. M. Wilson replaces Mr V. K. Whitehead as the RP: Flight Operations & Ms Mashaba replaces Ms V. de Villiers-Burgers as the Air Service Safety Officer and **addition of category** H1.

(A) Overberg Aviation Services (Pty) Ltd; Overberg Aviation. (B) 2 Douglas Road, General Aviation Area, Cape Town International Airport, 7525. (C) Class II & III; N1075D & G1076D. (D) Type N1, N2, G2, G3, G4 & G10. (E) Category H1. **Changes to the Management Plan:** D. Louw is appointed as the Air Service Safety Officer & **addition of type** G5, G7, G11, G15 & G16 (Offshore Operations).

DEPARTMENT OF TRANSPORT

NOTICE 546 OF 2018

INTERNATIONAL AIR SERVICE ACT, (ACT NO.60 OF 1993)
GRANT /AMENDMENT OF INTERNATIONAL AIR SERVICE LICENSE

Pursuant to the provisions of section 17 (12) of Act No.60 of 1993 and Regulation 15 (1) and 15 (2) of the International Air Regulations,1994, it is hereby notified for general information that the applications, detail of which appear in the Schedules hereto, will be considered by the International Air Services Council (Council) representation in accordance with section 16(3) of the Act No. 60 of 1993 and regulation 25(1) of International Air Services Regulation, 1994, against or in favour of an application, should reach the Chairman of the International Air Services Council at Department of Transport, Private Bag X 193, Pretoria, 0001, within 28 days of the application hereof. It must be stated whether the party or parties making such representation is / are prepared to be represent or represented at the possible hearing of the application.

APPENDIX II

(A) Full name, surname and trade name of the applicant. (B) Full business or residential address of the applicant. (C) Class of licence applied for. (D) Type of International Air Service to which application pertains. (E) Category or kind of aircraft to which application pertains. (F) Airport from and the airport to which flights will be undertaken. (G) Area to be served. (H) Frequency of flight.

(A) SRS Aviation (Pty) Ltd. (B) Lanseria Airport, Gate 5, Hangar 43, Lanseria. (C) Class II & III; I/N175 & I/G250. (D) Type N1, N2, G3, G8, G10 & G15. (E) Category A2, A3, A4 & H2. (F). (G) Africa, Europe, Asia, Middle East, South America, North America & Canada. Addition of category A2, A3 & A4 & addition of type G2, GH3, G7, G8, G10 &G15.

BOARD NOTICES • RAADSKENNISGEWINGS

BOARD NOTICE 100 OF 2018

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

Notice is hereby given in terms of Section 11(1) of the Restitution of Land Rights Act, 1994 (Act No. 22 of 1994), as amended. This claim for the restitution of land rights has been submitted to the Regional Land Claims Commission: Western Cape. The particulars regarding this claim are as follows:

Reference Number	:	KRK6/2/3/A/1/0/1084 (P275)
Dispossessed person (s)	:	MR. ABDULLAH PARKER
Claimant	:	MR. ESSACK JAMALOODIEN PAKER
Property Description	:	Erven 24819 (Portion of Erf 21866), Remainder of Erf 21866, 21864, 21865 and 21945 Cape Town at Maitland
Extent	:	711m², 1272m², 1487m², 991m² and 2844m²
Capacity	:	Ownership
Deed of Acquisition	:	T25041/1947
Deed of Dispossession	:	T32199/1946 & T3808/1967
Current Owners	:	TRANSNET LDT AND MUNICIPALITY OF CAPE TOWN
Date Submitted	:	27 March 1997

The Regional Land Claims Commission investigated this claim in terms of provisions of the Act. Any party who has an interest in the above-mentioned land is hereby invited to submit, within 60 days from the publication of this notice, any comments / information to:

The Regional Land Claims Commission: Western Cape
Private Bag X 9163
Cape Town
8000
Tel: (021) 409 0300
Fax: (021) 424-5146

Mr. L. H. Maphutha
Regional Land Claims Commissioner

APPROVED .....
DATE 2016/06/27

CHECKED .....
DATE 20/06/2016

WARNING!!!

To all *suppliers and potential suppliers* of goods to the Government Printing Works

The Government Printing Works would like to warn members of the public against an organised syndicate(s) scamming unsuspecting members of the public and claiming to act on behalf of the Government Printing Works.

One of the ways in which the syndicate operates is by requesting quotations for various goods and services on a quotation form with the logo of the Government Printing Works. Once the official order is placed the syndicate requesting upfront payment before delivery will take place. Once the upfront payment is done the syndicate do not deliver the goods and service provider then expect payment from Government Printing Works.

Government Printing Works condemns such illegal activities and encourages service providers to confirm the legitimacy of purchase orders with GPW SCM, prior to processing and delivery of goods.

To confirm the legitimacy of purchase orders, please contact:

Renny Chetty (012) 748-6375 (Renny.Chetty@gpw.gov.za),

Anna-Marie du Toit (012) 748-6292 (Anna-Marie.DuToit@gpw.gov.za) and

Siraj Rizvi (012) 748-6380 (Siraj.Rizvi@gpw.gov.za)

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