

HIGH CONFIDENCE GROUNDWATER RESERVE DETERMINATION STUDY IN THE BERG CATCHMENT

Background Information Document No.02

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water & sanitation

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PURPOSE OF THIS DOCUMENT

The purpose of this Background Information Document (BID) is to inform stakeholders about the study, initiated by the Department of Water and Sanitation (DWS), to determine a High Confidence Groundwater Reserve in the Berg catchment. This study will determine groundwater Reserve requirements, in terms of quantity and quality, to satisfy the basic human needs (BHN) and to protect aquatic ecosystems in priority water resources within the Berg catchment. Detailed determinations aim to produce high-confidence results, which are based on site-specific data collected by specialists, and are used for all compulsory licensing exercises, as well as for the individual licence applications that could have a large impact on any catchment, or a relatively small impact on ecologically important and sensitive catchments.

Stakeholders are invited to participate by commenting on information sent, attending meetings or workshops, or by corresponding with the stakeholder engagement office or the technical team at the addresses provided below.

CONTACTS

Stakeholder Engagement Office:	David McGibbon Tel: 021 709 6700	Umvoto South Africa (Pty) Ltd. Email: david.m@umvoto.com
Technical Enquiries:	Kornelius Riemann Tel: 021 709 6700	Umvoto South Africa (Pty) Ltd. Email: kornelius@umvoto.com
DWS Study Manager:	Philani Khoza Tel: 012 336 7866	CD: Water Ecosystems Management Email: khozap@dws.gov.za

PROJECT WEBSITE LINKS

Study Deliverables

<https://www.dws.gov.za/rdm/currentstudies/default.aspx>

Groundwater Resource Units

In order to meet the Terms of Reference (TOR) for this study, the Groundwater Resource Units (GRUs) delineated for the Berg catchment in previous studies were re-evaluated and updated to ensure all groundwater resources are aquifer specific. GRU extents were selected based on the physical geometry (predominantly controlled by geology), recharge areas, and aquifer boundary conditions, therefore, a single GRU may contain multiple resource units (RUs). The Delineation of Groundwater Resource Units Report (DWS, 2022d) outlines the approach for delineating aquifer-specific GRUs and provides detail around the physical, management and functional criteria considered for selecting their extents. The revised aquifer-specific GRU extents are illustrated in **Figure 1**.

Ecological Reference Conditions and Present Status

In terms of the overall groundwater Reserve determination process, and in order to correlate the results of this study to existing Water Resource Classes & Resource Quality Objectives (RQOs) outlined in DWS (2019b: 121), the current ecological reference conditions were re-evaluated and the present state of the GRUs re-assessed. Three guidance tables were used in the groundwater characterisation including 1) sustainable use, 2) level of stress, and 3) contamination / water quality, to define Present Status Category for both groundwater availability and groundwater quality

Guide for determining groundwater availability Present Status Category

Present Status Category	Description	Stress Index
A	Unstressed or slightly stressed	<0.05
B		0.05 – 0.20
C	Moderately stressed	0.20 – 0.40
D		0.40 – 0.65
E	Highly stressed	0.65 – 0.95
F	Critically stressed	>0.95

Guide for determining groundwater quality Present Status Category

Present Status Category	Description	Percentage exceedance
A	Unmodified, pristine conditions	<16.7 %
B	Localised, low levels of contamination, but no negative impacts apparent	16.7 – 33.4 %
C	Moderate levels of localised contamination, but little or no negative impacts apparent	33.4 – 50.1 %
D	Moderate levels of widespread contamination, which limit the use of potential use of the aquifer	50.1 – 66.8 %
E	High levels of local contamination which render parts of the aquifer unusable	66.8 – 83.5 %
F	High levels of widespread contamination which render the aquifer unusable	>83.5 %

Summary of groundwater Present Status Categories per GRU in the Berg catchment

GRU	Groundwater Availability Present Status Category	Groundwater Quality Present Status Category
Cape Flats	D	D
Atlantis	C	C
Yzerfontein	A	A
Elandsfontein	B	B
Langebaan Road	C	B
Adamboerskraal	B	B
Cape Peninsula	B	B
Steenbras-Nuweberg	B	B
Drakensteinberge	A	-
Wemmershoek	A	A
Voëlvlei-Slanghoek	A	-
Witsenberg	A	-
Groot Winterhoek	B	-
Piketberg	C	-
Cape Town Rim	C	C
Stellenbosch-Helderberg	C	C
Paarl-Franschhoek	C	-
Malmesbury	C	B
Wellington	B	B
Tulbagh	C	-
Eendekuil Basin	C	C
Middle-Lower Berg	B	C
Northern Swartland	B	C
Darling	B	C
Vredenberg	B	-

Project Plan and Progress

	STEP	OUTCOME	STATUS
PHASE 1	Inception	<ul style="list-style-type: none"> • Scope of work • Capacity building programme • Expenditure schedule & projections • Stakeholder engagement planning 	Complete
	PHASE 2		
	Data collection and collation	<ul style="list-style-type: none"> • Collate, review and analyse all available, relevant data and literature pertaining to the project area in the form of a desktop assessment. 	Complete
PHASE 3			
	Step 1	Initiate Groundwater Reserve Study <ul style="list-style-type: none"> • Complete a review of available information and data to determine the process and detail of the assessment and determination • Identify relevant stakeholders to be included in the project. 	Complete
	Step 2	Water RU Delineation <ul style="list-style-type: none"> • Determine eco-regions, delineate aquifer specific groundwater related RUs (GRUs), select study sites. 	Complete
	Step 3	Ecological Status and Reference Conditions per RU <ul style="list-style-type: none"> • Determine the reference conditions, Present Ecological Status (PES), Ecological Importance (EI) and Ecological Sensitivity (ES) of each of the selected study sites. 	Complete
	Step 4	Determine BHN and EWR <ul style="list-style-type: none"> • Determine the groundwater component of the BHN and EWR for all GRUs delineated in the study area, supported by the ecological findings of the gazetted Water Resource Classes and RQOs. 	In progress
	Step 5	Operational Scenarios & Socio-economic <ul style="list-style-type: none"> • Review current and future operational scenarios and its socio-economic and ecological consequences. 	Not Started
	Step 6	Evaluate scenarios with Stakeholders <ul style="list-style-type: none"> • Evaluate the scenarios with stakeholders where the outcome of Step 3 – Step 5 will be presented, evaluated, adjusted and agreed upon. 	Not Started
	Step 7	Monitoring Programme <ul style="list-style-type: none"> • Design an appropriate monitoring programme by taking into account the hydraulic characteristics and the status of identified water resources. 	Not Started
	Step 8	Gazette & implement Reserve <ul style="list-style-type: none"> • Gazetting template will be drafted, based on the results of the study 	Not Started

Public Meetings

Six PSC meetings will be held during the study, with the second scheduled for 22 November 2022. The PSC is representative of all major sectors and interests within the study area and are encouraged to provide strategic advice and guidance. Comments can be sent to the Stakeholder Engagement Office, DWS Study Managers or the PSP team for Technical Enquiries.