



Private Bag X313, Pretoria, 0001, Sedibeng Building 185 Francis Baard Street, Pretoria  
Tel: (012) 336 8764 Fax: (012) 323 2715 www.dwa.gov.za

**ENQUIRIES:** Mr S. Mndaweni      **Fax:** 021 336 6731      **E-mail:** MndaweniS@dws.gov.za

**REFERENCE:** WP 10997

## **GROUNDWATER FEASIBILITY PLAN FOR GROUNDWATER RESOURCE DEVELOPMENT OF THE MALMANI DOLOMITES WITHIN THE OLIFANTS RIVER WATER SUPPLY SYSTEM:**

### **BACKGROUND INFORMATION DOCUMENT**

#### **1. GENERAL BACKGROUND**

The Olifants River Water Supply System Reconciliation Strategy (DWA, 2011) has recommended the management and control of over-exploited groundwater resources, the development of under-exploited groundwater resources, and conjunctive use of groundwater and surface water. Due to the increasing water requirements in the study area, various water supply options need further investigation to identify possible sources to augment the current water supply.

The strategy indicated that groundwater is available throughout the Olifants Water Management Area and further recommended that the potential of the Malmani dolomites along the Limpopo and Mpumalanga escarpment as water resource should be investigated (DWA, 2011).

Umvoto Africa has been appointed by the Department of Water and Sanitation (DWS) Directorate: Water Resources Planning Systems (D: WRPS), as the Professional Service Provider (PSP) to develop a *Feasibility Plan for Groundwater Resource Development of the Malmani Dolomites within the Olifants River Water Supply System* to address these aspects. The project duration is 24 months, starting on 15 June 2016 and ending on 15 June 2018.

As per the Terms of Reference (ToR), the main aims of the study are:

- To secure groundwater as a long-term option to augment the water supply to the Olifants River Water Supply System (ORWSS) by optimising the conjunctive use between surface water and groundwater.
- To determine the possibilities of artificial recharge of the groundwater.

#### **2. STUDY AREA**

The study area comprises of the dolomites, the quaternary catchments B41K, B51G, B52A, D, G, J, B60A – D, H, B71A - D, F, G and B72F, and covers an area of approximately 1 600 km<sup>2</sup> (see **Figure 1-1**). The study area falls within Capricorn, Sekhukhune and Ehlanzeni District Municipalities (DM). Land use and water use sectors are shown on **Figure 1-2**. The land use varies across the study area and includes agriculture, forest plantations, Nature Reserves and other protected areas, rural communities and mining. Groundwater from the Malmani dolomites is used for domestic, agricultural, industrial and mining purposes.

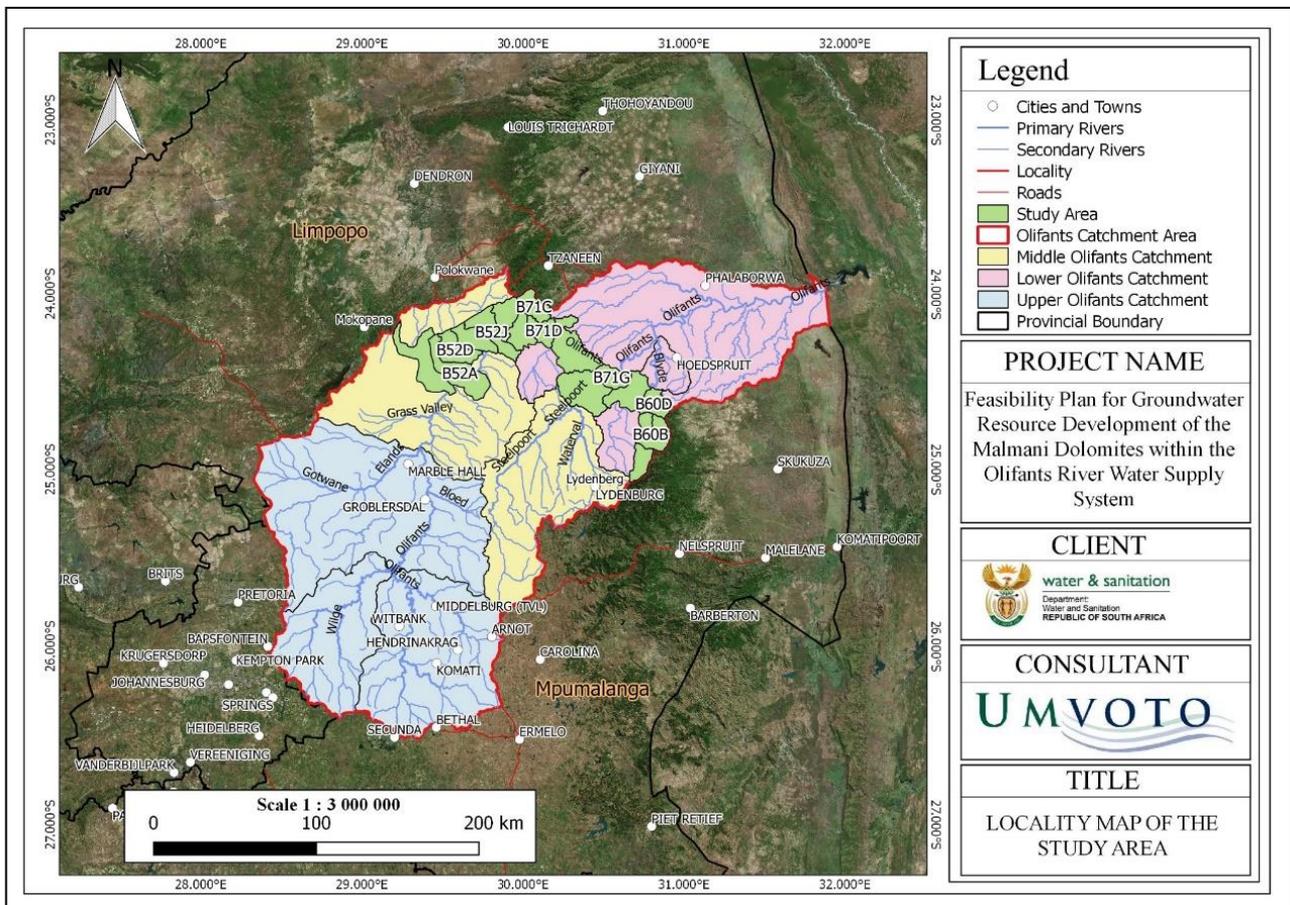


Figure 1-1: Overview locality map within the Olifants River catchment

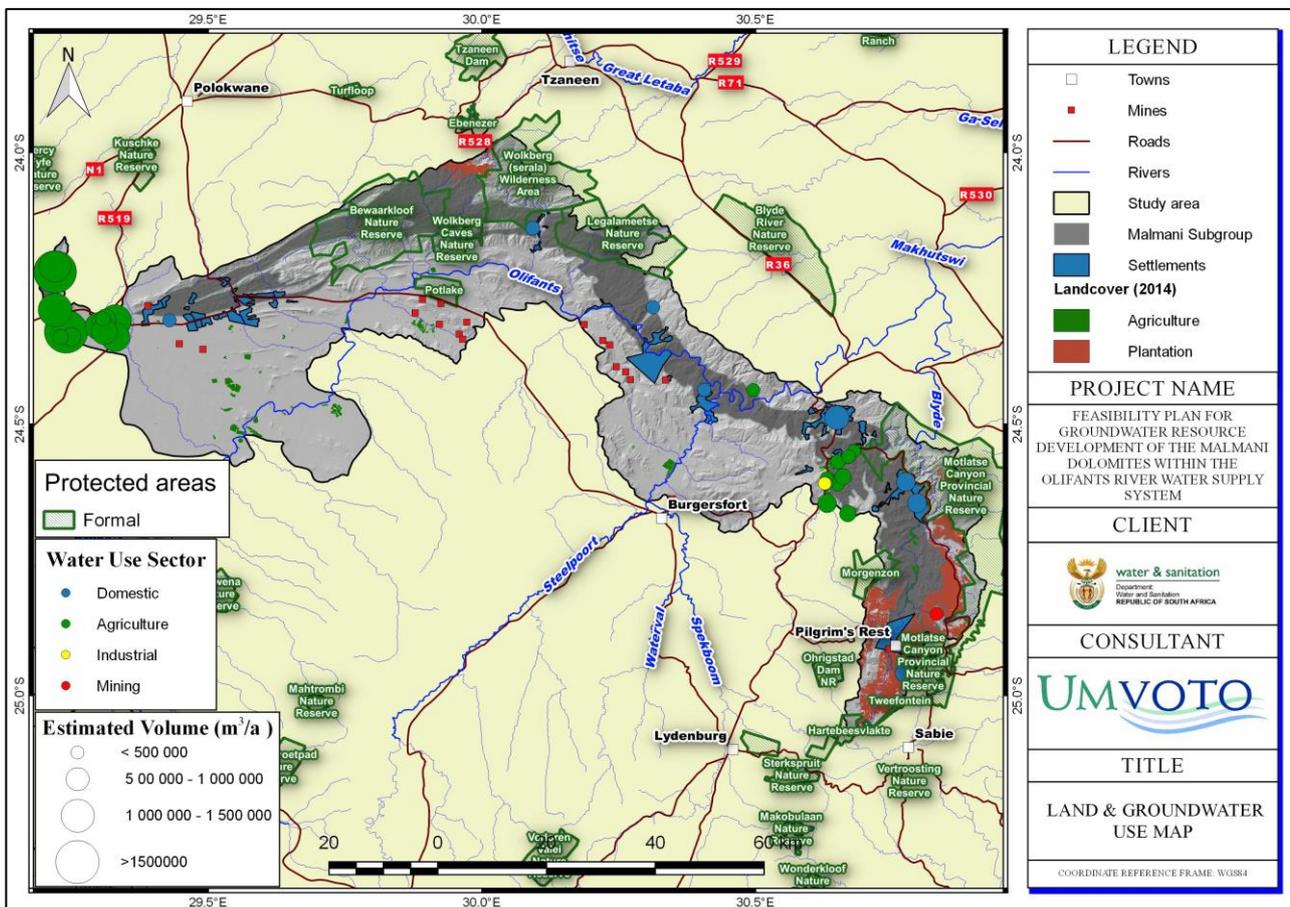


Figure 1-2: Land use and groundwater use in study area.

### 3. SCOPE OF WORK: FEASIBILITY STUDY

This feasibility study is aimed to provide an understanding of the groundwater potential in the above-mentioned study area, to provide conjunctive support to the surface water supply in order to meet the increasing water requirements. This study will develop a water balance to evaluate the groundwater potential, identify target areas and develop a plan for implementation of the wellfields. It involves collating all relevant existing hydrogeological data on the study area, field work and intensive data analysis, including numerical modelling. Field testing where necessary will be conducted to supplement available data, either due to a paucity of available data in certain regions or where data needs to be verified and ground-truthed.

Specific field activities that will be required to implement the above include:

- Hydrocensus
- Geophysical survey (geodesy) and remote testing.
- Borehole siting and drilling of new boreholes; and
- Pump testing of current and new boreholes.

Needs and requirements to implement the above will include:

- Access to properties; institutions, state owned and private land; and
- Vehicle access to the above-mentioned properties.

### 4. ENVIRONMENTAL SCREENING AND PUBLIC PARTICIPATION PROCESS

Potential environmental impacts of large-scale wellfield abstraction from the ORWSS dolomites will be determined. An initial environmental screening will be carried out based on a desktop analysis of available data. This will be updated in due course with new field data and the results from the modelling. The gathered potential impact data and information will become an input into the environmental impact assessment (EIA), which will be carried out subsequently to this feasibility study and does not fall within the responsibility of the PSP.

### 5. STUDY STAKEHOLDER MEETING

The two Study Stakeholder Meetings (SSM) will be held within the study area, the first SSM will take place at the beginning of the project to introduce stakeholders to the project and the second SSM towards the end of the project will inform stakeholders of the main findings and recommendations. The two meetings are planned for:

- 09 November 2016
- 14 March 2018

**Should you wish to receive further information during the development of the project, please contact any of the two people listed below:**

Mr Sakhile Mndaweni	Project Manager	Tel: (012) 336 8764 Fax: (021) 336 6731	<a href="mailto:MndaweniS@dws.gov.za">MndaweniS@dws.gov.za</a>
Mr Paul Lee	Task Leader	Tel: (021) 709 6700 Fax: (086) 685 5725	<a href="mailto:paul@umvoto.com">paul@umvoto.com</a>