

Zitholele Consulting (Pty) Ltd

Reg. No. 2000/000392/07

PO Box 6002 Halfway House 1685, South Africa
Building 1, Maxwell Office Park, Magwa Crescent West
c/o Allandale Road & Maxwell Drive, Waterfall City, Midrand
T : 011 207 2060 **F** : 086 674 6121 **E** : mail@zitholele.co.za



REPORT

SECTION 27 MOTIVATION REPORT FOR THE CONSTRUCTION AND OPERATION OF ADDITIONAL INFRASTRUCTURE ASSOCIATED WITH THE DEVELOPMENT OF THE NEW WASTEWATER TREATMENT WORKS NEAR LANSERIA, GAUTENG

APPLICATION REFERENCE: WU35194

Report No : 20003-46-Rep-003-Section 27
Motivation Report-Rev0 Draft1

Submitted to :

Department of Water and Sanitation
Private Bag X313
Pretoria, 0001

On behalf of :



Johannesburg Water SOC Ltd.
PO Box 61542
Johannesburg, 2107

12 March 2025

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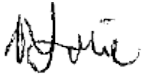

DOCUMENT CONTROL SHEET

Project Title : Section 27 motivation report for the construction and operation of additional infrastructure associated with the development of the new Wastewater Treatment Works near Lanseria, Gauteng

Project No : 20003

Document Ref. No : 20003-46-Rep-003

DOCUMENT APPROVAL

ACTION	DESIGNATION	NAME	DATE	SIGNATURE
Prepared	EAP	M. Vosloo	07.11.2022	
Reviewed	Project Associate	N. Lalie	14.11.2022	
Approved	Environmental Lead	M. Vosloo	16.11.2022	

RECORD OF REVISIONS

Date	Revision	Author	Comments
17.11.2022	0	M. Vosloo	Issued on eWULAAS

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LIST OF ACRONYMS

CA	Competent Authority
CMA	Catchment Management Agency
CMS	Catchment Management Strategy
DHSWS	Department of Human Settlements, Water and Sanitation
EA	Environmental Authorisation
GDARD	Gauteng Department of Agriculture and rural Development
JW	Johannesburg Water SOC Ltd
NWA	National Water Act (No. 36 of 1998)
WMA	Water Management Area
WUL	Water Use Licence
WULA	Water Use Licence Application
WwTW	Wastewater Treatment Works

1 INTRODUCTION

Johannesburg Water SOC Ltd (JW) proposes to develop a new Wastewater Treatment Works (WwTW) located adjacent to the Jukskei River within the Lanseria area. The preferred site is located immediately adjacent to Northern Farms in Lanseria on Portions 28, 29, 30, and 31 of Rietfontein Farm No. 532 JQ.

The WwTW will consist of three phases that will each be 50 Ml/d modules, thereby providing a total capacity of 150 Ml/d. The project area falls within the Jukskei River Catchment, quaternary catchment A21C, in the Limpopo Water Management Area.

The proposed infrastructure development falls within 500m of a wetland regulated area, while some of the infrastructure will be located within the delineated wetlands. In terms of Section 21 of the National Water Act (No. 36 of 1998) (NWA), the proposed development triggers listed water uses including the following:

- 21 (a): taking water from a water resource;
- 21 (c): impeding or diverting the flow of water in a watercourse;
- 21 (i): altering the bed, banks, course or characteristics of a watercourse;
- 21 (f): discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit; and
- 21 (g): disposing of waste in a manner which may detrimentally impact a water resource.

Johannesburg Water SOC Ltd (JW) applied for an Environmental Authorisation (EA) and Water Use Licence for the development and operation of the proposed Lanseria WWTW in 2017. EA was received from the Gauteng Department of Agriculture and rural Development (GDARD) on 17 November 2017, while the Water Use Licence (WUL), Licence No.: 07/A21C/ACFGI/9705, was issued by the Department of Human Settlements, Water and Sanitation (DHSWS) on 22 July 2020 for the construction and operation of the new Wastewater Treatment Works (WwTW) located adjacent to the Jukskei River within the Lanseria area.

During the EIA process, a Preliminary Design was developed for the two proposed alternative development sites. By definition, the Preliminary Design provides sufficient detail in terms of the proposed engineering design, layout, and proposed infrastructure to allow informed decision-making by the Competent Authority (CA). Once the EA was granted, the Detail Design was commissioned based on the approved Preliminary Design and the approved development site. During the Detail Design phase, however, the design team were required to make minor changes to the initial Preliminary Design to ensure an optimised layout, functionality, and operability of the design. Some of the changes included the additional of additional stormwater infrastructure within the approved layout

The inclusion of the additional stormwater infrastructure triggered the need to obtain a WUL for the construction and operation of the additional infrastructure. As such, Zitholele Consulting is undertaking the Water Use Licence Application (WULA) process on behalf of JW. The WULA

requires a number of supporting technical documentation, which include the Section 27 Motivation Report. This report represents this required Section 27 Motivation Report.

2 SECTION 27 MOTIVATION

This section details information for consideration in issuing authorisations and licences in terms of Section 27 (1).

In issuing an authorisation or licence, a responsible authority must consider all relevant factors, including –

(a) Existing lawful water uses;

No existing lawful water uses are associated with the development site. However, a Water Use Licence (WUL), Licence No.: 07/A21C/ACFGI/9705, was issued by the Department of Human Settlements, Water and Sanitation (DHSWS) on 22 July 2020 for the construction and operation of the new Wastewater Treatment Works (WwTW). This WUL authorised the following water uses associated with the approved Lanseria WwTW development:

- 21 (a): taking water from a water resource;
- 21 (c): impeding or diverting the flow of water in a watercourse;
- 21 (i): altering the bed, banks, course or characteristics of a watercourse;
- 21 (f): discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit; and
- 21 (g): disposing of waste in a manner which may detrimentally impact a water resource.

This new WULA has been launched to authorise additional stormwater management infrastructure that has become necessary to make the WwTW operable.

(b) The need to redress the results of past racial and gender discrimination

One objective of the NWA is to address past racial and gender discrimination and to alleviate poverty in South Africa. Therefore, it is of utmost importance to support and stimulate economic development to realise the upliftment of previously disadvantaged groups and/or individuals. The proposed project will support the already approved WwTW development, which will facilitate increased capacity for sanitation management within Gauteng. This will directly improve or strengthen basic living conditions for communities linked to this sewage system through existing and new reticulation. The key areas that will be affected by the new WwTW and associated services will include areas within the greater Lanseria area, Diepsloot that currently do not have sanitation services, as well as parts of the Mogale Local Municipality.

JW, through the Social and Ethics Committee of the Board, has adopted Corporate Social Responsibility (CSR) to ensure that the organisation consistently operates in a manner that minimises detrimental impacts to society and the environment.

JW reported in their 2021/22 Mid-year Report the following:

- A total of 2 125 households have been provided with access to basic water against a target of 3 325 while no households were provided with access to basic sanitation against the annual target of 5 720.
- In mitigating the performance of the basic sanitation project, the procurement process was expedited and finalised and the work is planned to commence in February 2022 following public participation.
- The response time to water bursts restored within 48 hours of notification was 76.09% against a target of 92%, and the corresponding sewer blockages cleared within 24 hours of notification was 94.76% against a target of 95%. A close attention is paid on the response times to ensure an improvement.
- The Entity managed to reduce the water consumption to 263.49 l/c/d against a target of 263.49 l/c/d.
- On the pipe replacement programme, JW have replaced a total of 31.4 km and 17.2 km of water and sewer pipes against the annual targets of 26 km and 15.7 km, respectively. Targets for the financial year have already been exceeded in this area. Whilst we would have preferred to replace more of the water and sewer pipes, the financial resources are very limited. Ideally, the Entity's backlog assessment indicates that we need to annually renew our infrastructure at a rate of 2%. Currently, we were only able to budget for a renewal rate of 0.81%.
- JW managed to spend 29% (R331.859 million) of its allocated capital budget against a target of 35%. In expending this capital budget, the Entity supported 71 SMMEs against a target of 30 for the mid-year. These SMMEs were mainly from the respective communities where projects were being implemented, and preference was given to those that were compliant with the Broad-Based Black Economic Empowerment (B-BBEE) programme. This culminated in the achievement of B-BBEE recognition level of 131% on SMMEs against a target of 125%. The national benchmark is 75%.
- Johannesburg Water ensured that all its labour-intensive programmes provided job opportunities to support the national Expanded Public Works Programme (EPWP). Through this programme, 783 job opportunities were created against a target of 694. Whilst we have strived to achieve a number of targets during this difficult time, our health and safety protocols were not compromised, and this was evident in the achievement of the Disabling Injury Frequency Rate of 0.46 against a target of 1.
- As at the end of June 2021, JW supplied 1.6 billion litres per day of potable water, procured from Rand Water, through a water distribution network of 12 364 km, 128 reservoirs and water towers, and 37 water pump stations. Wastewater is collected and reticulated through 11 816 km of wastewater networks and 38 sewer pump stations. Johannesburg Water treats 979 Ml/day of sewage at its six Wastewater Treatment Works (WWTW), which includes one of its pilot biogas-to-energy plants where methane gas is converted to energy.

JW awarded the following contracts/tenders to black designated groups in terms of its empowerment initiatives for the quarter:

- Youth owned: R0 million (2020/21: R2.6 million) (Enterprises that are more than 50% owned by black youth)
- Women owned: R35.5 million (2020/21: R12.7 million) (Enterprises that are more than 30% owned by black women)
- SMMEs: R28.8 million (2020/21: R86.8 million) (Exempted micro & small enterprises that have a turnover up to R50 million) Black owned: R386.2 million (2020/21: R99.8 million) (Enterprises that are more than 50% owned by black people)
-

(c) *Efficient and beneficial use of water in the public interest;*

The establishment of a new Lanseria WwTW on a greenfields site is an opportunity to develop a /facility that reflects the JW strategy with respect to:

- Leadership in the municipal wastewater treatment sector in South Africa with respect to the best wastewater treatment technology, operating and maintenance practices;
- Sustainability of wastewater treatment with respect to efficient water and electrical power utilisation, beneficial use of the waste sludge, limited carbon footprint and resource recovery; and
- Cost-effective and efficient wastewater treatment and associated sludge stabilisation and use.

The construction of three 50M³/d modules (total capacity of 150 M³/d) of an activated sludge WwTW will expand the CoJ's capacity to provide wastewater services to the Lanseria, Diepsloot and Northern suburb areas, amongst other areas, that currently do not have access to this service.

(d) *the socio-economic impact -*

(i) of the water use or uses if authorised; or

Development of the proposed project will create job opportunities to the local residents, mainly during construction phase. The proposed development will improve basic living conditions and access to services to areas that previously were without sanitation services. The introduction of sewage reticulation and WwTW services will promote residential and commercial development, which would translate into job creation and economic growth.

(ii) of the failure to authorise the water use or uses;

Failure to approve this water use authorisation will impact the validity of the existing approved WUL and result in the constrained operation of the existing WwTWs in the Johannesburg City area. Therefore, there will not be sufficiently available wastewater treatment capacity to facilitate growth in Lanseria, Diepsloot and Northern suburb areas. Without the relevant Water Use License, JW may not be able to meet its intention to expand on its provision of adequate sanitation services in South Africa.

(e) any catchment management strategy applicable to the relevant water resource;

Chapter 2 of the NWA addresses the development of strategies to facilitate the management of water resources. “Part 2 requires every catchment management agency to progressively develop a Catchment Management Strategy (CMS) for the water resources within its water management area”. A CMS is the framework for water resource management in a WMA and provides a coherent approach (and intent) for managing water resources in the WMA (DWA, 2014).

The proposed project falls within the Limpopo Water Management Area (WMA) within the A21C Jukskei catchment. As such, a CMS has not yet been developed. In the interim, until CMAs are fully operational, and the Department’s Regional Offices are able to hand over the water resource management functions to them, the Department has developed Internal Strategic Perspectives for each of the 9 WMAs to serve as the frameworks for the management of water resources in each WMA.

(f) the likely effect of the water use to be authorised on the water resource and on other water users;

An EIA was undertaken to identify the impacts that are likely to occur as a result of the proposed development. Specialist studies were undertaken to support the EIA application and included, amongst other, a wetland impact assessment undertaken by a wetland specialist team from The Biodiversity Company.

Two wetland types were identified and delineated within the project area, these are valley bottom and hillslope seepage systems. A riparian zone associated with the Jukskei River was also identified and delineated for the project. The status of the wetlands was determined to be moderately modified, with the modifications largely associated with the local land uses and development of the catchment area.

The proposed WWTW footprint areas encroached within the delineated wetland (and buffer) areas in selected areas (only) resulting in some loss of wetland area. The significance of the remaining aspects (impacts sources) was determined to be minor without mitigation, with the significance being reduced to negligible for the majority of the aspects.

When three alternative layout designs and bridge designs were considered and compared with one another and the original layout submitted with the EIA, the overall footprint of the development will be larger due to the proposed changes when compared to the original designs. However, the proposed amendments (Option B and Option C) have achieved further avoidance of the delineated wetland and buffer areas when compared with the original layout, namely Option A. This with regards to the mitigation hierarchy, the proposed options have achieved further avoidance, albeit not completely avoiding the wetlands.

Overall, Layout Design Option C is the preferred option based on most of the wetland areas being avoided. For the bridge development the high-level bridge (Design 4) is the preferred option as the overall disturbance will be lower. It is of utmost importance that the mitigations be strictly

adhered to in order to limit the extent of the impact. Overall, no fatal flaws were identified for the planned amendment and additional infrastructure.

(g) the class and the resource quality objectives of the water resource;

The project falls within MRU 22 Crocodile 1 resource unit, under the Jukskei SQR and within quaternary catchment A21C. The reach spans 18.7 km of the Jukskei River. A large degree of riparian and wetland zone modification is present in the catchment. The PES for the Jukskei SQR (A21C-1167) is categorised as an E-class rating due to urbanisation, industrialisation, return flows (increased flows) and poor water quality (The Biodiversity Company, 2015a).

No Water Resource Quality Objectives (WRQO) could be sourced for the Crocodile River (West) catchment. However, a brief overview of the Crocodile River catchment as well as its water quality is given below.

The upper portion of the catchment, south east of Hartbeespoort Dam, is located in the Gauteng Province. The north and north-east corners lie in the Limpopo Province whereas the central or western sections fall within the North-West Province. The total area of the Crocodile River Catchment is 29 400 km². There are nine major storage dams in the catchment with very limited scope for additional dams. Large quantities of water are transferred into the Crocodile River (West) Catchment to augment the local water resources, constituting close to 46% of the total water use in the catchment. The most significant transfers of water are the supply of potable water via the Rand Water bulk distribution system from the Upper Vaal WMA to northern Johannesburg, Tshwane, Rustenburg and surrounds. A quantity of almost 520 million m³ of water was transferred during the year 2000 (DWA, 2014).

(h) investments already made and to be made by the water user in respect of the water use in question;

The following investments have been made and are to be made by JW for the proposed project:

- Site selection and pre-feasibility study – ±R1.48m (Excl. VAT);
- EIA processes including specialist studies – ± R1.32m (Excl. VAT);
- WUL application including specialist studies – ± R580 000 (Excl. VAT);
- Engineering process to date – ±R13.05m (Excl. VAT); and
- Engineering process to be made – ±R848.67m (Excl. VAT).
- Biodiversity Offset process currently ongoing - ±R3.5m (Excl. VAT)

(i) the strategic importance of the water use to be authorised;

The importance of the proposed construction of three 50 Ml /d modules (total capacity of 150 Ml/d) of an activated sludge WwTW will expand the CoJ's capacity to provide wastewater services to residential areas that currently do not have access to this service. The scale of wastewater treatment service provided in the City of Johannesburg will be expanded to service areas including Lanseria, Diepsloot and Northern suburbs.

(j) the quality of water in the water resource which may be required for the Reserve and for meeting international obligations; and

A Hydrological Assessment of the Jukskei River Catchment (A21C) was undertaken during the EIA process.

DWS is mandated to undertake a Reserve determination in support of each licence application. A preliminary reserve determination and ecological categorisation were undertaken for surface water resources in the Crocodile (West) Catchment as part of the Crocodile West and Mario Intermediate Reserve Determination Study conducted in 2014 by the DWS (DWA, 2014). The A21C quaternary catchment is delineated from the origin of the Jukskei River to just downstream of the discharge of Johannesburg Northern Works (The Biodiversity Company, 2015a).

A summary of Eco Classification and Preliminary Reserve for each for the A21C catchment is as follows (DWA, 2014):

Table 2-1: Preliminary Reserve based on Present day flows (DWA, 2014)

Water Resource	EWR Site	Catchment	PES	EIS	REC	PD MAR (Mm ³ /a)	EWR (%PDMAR)	BHNR Requirement (% PDMAR)	Reserve Requirement (% PDMAR)
Jukskei	2	A21C	E	Moderate	D	139.90	24.87	4.90	29.77

The study found that there was no potential to improve the PES in the Ecological Water Requirements (EWR) due to the continuous discharges from WwTWs in the catchment, irrigation, that impact on the water quality and quantity as well as the water transfers that further increases the flow (DWA, 2014). Therefore, the Recommended Ecological Category (REC) for most of the sites remained the same (DWA, 2014).

(k) the probable duration of any undertaking for which a water use is to be authorised.

A Water Use License is required for the construction and operation of the proposed Lanseria WwTW for a permanent period. Therefore, it is recommended that the water use be authorised for a maximum period as required and mentioned above; and be subjected to a review every 5 years.

ZITHOLELE CONSULTING (PTY) LTD