Zitholele Consulting
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

TECHNICAL MEMORANDUM

Section 27 Motivation for the Proposed Water Use License Application for the existing Consol Glass in Nigel, Gauteng Province

Tech Memo No : 18027-46-Mem-001-Consol Section 27 Motivation-Rev0

Submitted to :

Consol Glass (Pty) Ltd
Visagie Weg,
Pretoriusstad,
Nigel, 1491

It's good. It's in glass.

28 January 2021 18027

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1 INTRODUCTION

Consol Glass (Pty) Ltd (Consol) is Africa's largest glass manufacturer. The South Africa operations produce glass packaging products for a wide range of industries in the beverage and food sectors. Consol directly export products to 17 different countries, primarily in the broader sub-Sahara African region. Consol has been manufacturing glass for more than 70 years and has the capacity to produce approximately 850,000 tonnes of container glass per annum in its four glass manufacturing plants. Consol's newest manufacturing plant is situated on the remaining extent of ERF 104, located at 1 Visagie Road, Pretoriusstad, Nigel, Gauteng Province. The plant has an annual production rate of 115,000 tonnes of glass.

Consol intents to expand the Nigel Consol Glass Plant, which will entail the construction of an additional furnace. The expansion of the Consol Plant will allow for increased productivity of the plant. The Consol Glass plant and the proposed expansion lies within 500m regulated zone of a wetland and triggers section 21 (c) and (i) of the National Water Act, Act 36 of 1998.

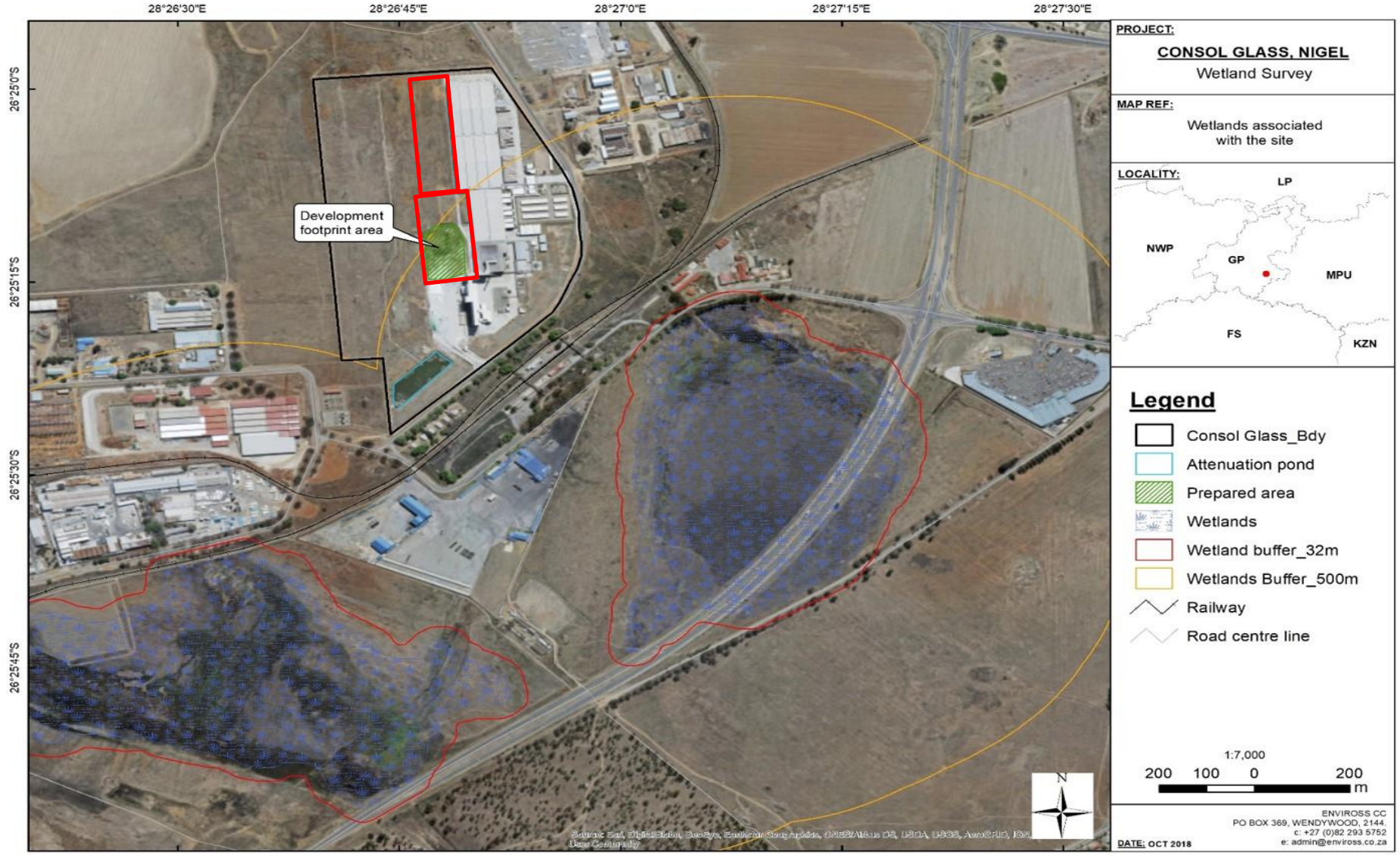

Figure 1: Consol Plant in relation to the wetlands

2 SECTION 27 MOTIVATION

2.1 Section 27 (1)(a) Existing lawful water uses.

No known existing lawful water uses exist for Erf 104, Pretoriusstad Extension 7.

2.2 Section 27 (1)(b) The need to redress the results of past racial and gender discrimination.

Consol's rich South African history is one of vision and transformation, not just for product advancement and evolution, but most importantly for people. Consol is committed to ensuring that all people of South Africa are given the opportunity to reach their potential and contribute to our growing economy, for the benefit of themselves, their families and South Africa as a whole. As a company, Consol has achieved a Level 3 Contributor Status against the Revised Codes of Good Practice, as rated by Empowerdex, an accredited Economic Empowerment Rating Agency.

2.3 Section 27 (1)(c) Efficient and beneficial use of water in public interest

According to the National Water Resource Strategy (NWRS), water is required in manufacturing processes for cooling. This project is aimed at the efficient use of water for the good of the country from a social, economic and environmental perspective. The Consol Glass manufacturing process incorporates infrastructure to ensure water recycling and re-use. Process water used in the glass manufacturing process are contained in a closed loop system and recycled and re-used in the manufacturing process as far as possible. Some process water, however, is lost due to system losses such as evaporation.

2.4 Section 27 (1)(d)(i) Socio-economic impact of the water uses if authorised.

Consol is Africa's largest glass manufacturer. The South Africa operations produce glass packaging products for a wide range of industries in the beverage and food sectors. Consol has been manufacturing glass products for 70 years and directly export products to 17 different countries, primarily in the broader sub-Sahara African region. The development of the glass manufacturing plant in Nigel has no doubt contributed to the local economy in the region through increased employment opportunities, as well as the country's GDP.

Therefore, authorising the water uses would ensure that the Consol would be compliant with the National Water Act (Act No. 36 of 1998) and continue to operate and contribute to the South African economy.

2.5 Section 27 (1)(d)(ii) Socio-economic impact of failure to authorise water use or uses.

According to the National Water Resource Strategy (NWRS), the manufacturing industry contributes approximately 15.5% to the country's GDP and approximately 13.3% to jobs in 2009.

The Consol Glass plant in Nigel has contributed to the GDP and the increase in employment since 2009. Therefore, the impact of not authorising the water use will mean that the plant is not complaint with the National Water Act, 36 of 1998. This may cause discontinuation in the operation of the plant and worse-case result in loss of employment opportunities at a local, regional and national level, as well as GDP losses.

2.6 Section 27 (1)(e) Catchment Management Strategy applicable to the relevant water resource

The Consol Glass in Nigel falls within quaternary catchment C21E in the upper Vaal Catchment area, refer to Figure 2. The Vaal Water Management Area (WMA) is the result of the consolidation of the Upper, Middle and Lower Vaal catchments. The Vaal Water Management Area occupies the Central North Eastern area of South Africa. It extends to Ermelo in Mpumalanga, just west of Swaziland in the east across to Kuruman in the Northern Cape to the West. To the northwest, the WMA borders Botswana and the Crocodile (West) and Olifants Catchments. Johannesburg sits on the boundary of the Catchment Management Area. To the south east it is bounded by Lesotho. The Vaal catchment area is split into 3 management areas, the Upper Vaal, Middle Vaal and Lower Vaal management areas.

A Salinity Modelling of the Vaal Catchment area was compiled in 2012. In this WR2012 study, it was decided that due to the intense level of development in the Vaal River catchment, it would be very valuable to analyse the entire Upper Vaal, Middle Vaal and Lower Vaal sub- Water Management areas (subWMAs) which have now been combined into the Vaal WMA. This would help in further improving the implementation of the Integrated Water Quality Management Plan for the Vaal River System.

2.7 Section 27 (1)(f) Likely effect of the water use to be authorised on the water resource and other water users (quality and quantity)

The Consol Glass Nigel plant falls within a regulated area of the wetland, therefore, the operation of the plant has the potential to lead to the impediment of the wetland. The site clearance during future expansions and operation of the plant may cause sediments transported into the wetlands in case of run-off during rain. To mitigate potential impacts on the water resources, the Consol Glass has implemented an attenuation pond system at the outlet of the stormwater system before leaving the plant site. This pond system is maintained with a living reeds system to traps potential heavy metals and other contaminants and are cleaned and reset when required. Water quality monitoring is further taking place monthly. The rehabilitation and maintenance plan associated with this application will further ensure that the impacts on the wetland is minimised or avoided completely.

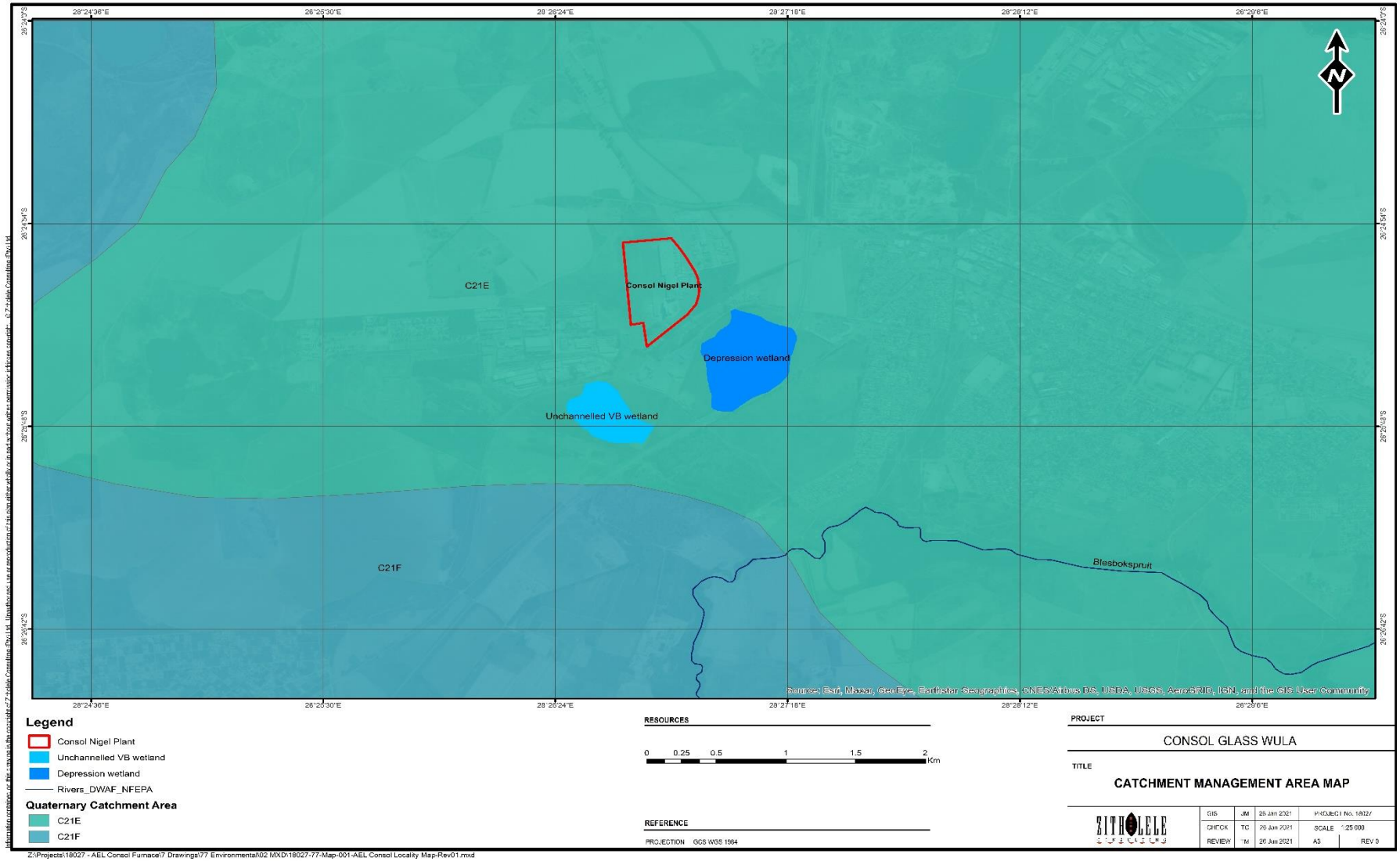

Figure 2: Consol Nigel plant in relation to quaternary catchments

2.8 Section 27 (1)(g) Likely effect of the water use on the class and resource quality objectives.

The runoff from the construction and operation of the plant may lead to contamination of the water resource affecting the quality of the wetland. As part of the plant's stormwater management system, Consol has constructed an attenuation pond to attenuate stormwater run-off to avoid flooding and to trap sediments and contaminants of concern that could be carried into the water courses. Given the scrubbing effect of the attenuation pond system, it is unlikely that stormwater releases from the plant via the stormwater infrastructure would deteriorate the PES of D to a lower category or significantly impact the Resource Class of III assigned to the Resource Unit and catchment.

2.9 Section 27 (1)(h) Investment already made and to be made by the water users in respect of the water use.

As part of the plant's stormwater management system, Consol has constructed an attenuation pond to attenuate stormwater run-off to avoid flooding and to trap sediments and contaminants of concern that could be carried into the water courses. Consol's Corporate Social Investment and Environmental Responsibility also included the process of procuring glass from the market and operating recycling plants that process the material to benchmark quality standards to be reused in the manufacturing of glass containers.

2.10 Section 27 (1)(i) Strategic importance of the water use to be authorised.

The licensing of existing Consol Glass Nigel plant is required to authorise the water uses taking place at the plant. This project is needed to continue ensuring compliance with the NWA while manufacturing glass, which has been declared by the NWRS as a strategic water use. In addition, this will also ensure use of water in an environmentally responsible and sustainable manner, promoting the water conservation and management in the plant's water use activities.

2.11 Section 27 (1)(j) Quality and quantity of the water in the water resource which may be required for the Reserve and for meeting international obligations.

Resource Classes and Resource Water Quality Objectives (RWQO) for the Upper Vaal sub-management area were promulgated in 2016 (GN 468 of 22 April 2016). In terms of the RWQOs the Consol Glass Nigel plant falls within the Klip River Integrated Unit of Analysis (IUA). This IUA has been assigned a Class III water resource class. The closest Ecological Resource (EWR) site is EWR11 located at the downstream extent of quaternary catchment C21F in the Blesbokspruit, which is a tributary of the Suikerbosrand River. The Blesbokspruit has a Present Ecological State (PES) of D.

Water quality variables proposed for monitoring, including the threshold limits in terms of the Upper Vaal WRQO (DWS, 2016) and Blesbokspruit Forum Water Quality Guideline are provided in Table 1.

Table 1: Water quality variables and threshold limits

Variables	Measured as	Threshold Limits	
		WRQO Upper Vaal, GN468, 2016 (IUA=UI, River=Vaal, RU=RU65, Node=UI.3)	Blesbokspruit Forum Water Quality Guideline, 2003
Electrical Conductivity (EC)	mS/m	≤ 111	≤ 120
Dissolved Oxygen (O_2)	mg/l O_2		> 5.0
pH	pH units		6.5 - 8.5
Suspended Solids	mg/l		≤ 55
Chemical Oxygen Demand (COD)	mg/l		≤ 55
Aluminium (Al)	mg/l	≤ 0.15	≤ 0.5
Ammonia (NH_4)	mg/l		≤ 5.0
Chloride (Cl)	mg/l		≤ 200
Fluoride (F)	mg/l	≤ 3.0	≤ 1.0
Iron (Fe)	mg/l		≤ 1.0
Magnesium (Mg)	mg/l		≤ 70
Manganese (Mn)	mg/l	≤ 1.3	≤ 1.0
Nitrate (NO_3)	mg/l		≤ 6.0
Phosphate (PO_4)	mg/l		≤ 0.6
Sodium (Na)	mg/l		≤ 150
Sulphate (SO_4)	mg/l		≤ 500
Arsenic (As)	mg/l	≤ 0.13	
Cadmium (Cd)	mg/l	≤ 0.005	
Chromium VI (Cr)	mg/l	≤ 0.2	
Copper (Cu)	mg/l	≤ 0.008	
Mercury (Hg)	mg/l	≤ 0.0017	
Lead (Pb)	mg/l	≤ 0.013	
Selenium (Se)	mg/l	≤ 0.03	
Zinc (Zn)	mg/l	≤ 0.036	
Variables	**Measured as**	**GN 665 of 6 September 2013**	
Petrochemicals (Oil and Grease) *	mg/l	≤ 2.5	

2.12 Section 27 (1)(k) The probable duration of any undertaking for which a water use is to be authorised.

The decommissioning of the facility is not envisioned; therefore, the water use license will be for the duration of the operation the Consol Glass.

3 CONCLUSION

The proposed water uses will ensure compliance with the National Water Act and will seek for environmental protection, sustainability, and management. These water uses will ensure effectiveness of Consol's activities which in turn will contribute to the local economy through income generation and employment. Consol intends to avoid causing any irreversible impacts on the watercourses identified at the proposed site by identifying negative impacts on water resources as well as providing sustainable mitigation measures.

ZITHOLELE CONSULTING (PTY) LTD