

DECEMBER 2022

BEATRIX TAILINGS
 STORAGE FACILITY (TSF) 2

DETAILS OF TAILINGS STORAGE FACILITY

Tailings Storage Facility (TSF) Name	Beatrix TSF 2 (BTX2)
Operation	Beatrix
Operational Status	Active
Operating Segment	RSA - Gold
Location	Theunissen, Free State – please refer to Figure 1
Latitude, Longitude (decimals)	-28.2736972, 26.7716583
Ore Source	Underground
Type of Storage Facility	Impoundment (upstream development)
Deposition Methodology	Day-Wall Paddock
Year of Commissioning	2002
Consequence Classification (GISTM, 2020)	Extreme
Operating Contractor	Stefanutti Stocks Inland (SSI)
Engineer of Record (EoR)	Knight Piesold (Pty) Ltd (KP)
Current Maximum Height (m)	25
Final Maximum Height (m)	30
Maximum Storage Capacity (tons/month)	240 000
Life of TSF (year)	2029 @ 1,5m/year

TECHNICAL ASPECTS:

Adopted Factor of Safety (FoS) Australian National Committee on Large Dams (ANCOLD)
 (July 2019)



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Stability Assessment and Mitigation Measures (if applicable)

A detailed stability assessment based on piezocone probing and laboratory test work was conducted in 2022 (KP Reference: RI301-00840/06 Rev 0, 13 April 2022)

Construction of a buttress in the north-west flank to improve stability and intercept seepage was completed in May 2022. Additional vibrating wire piezometers (VWP's) have been installed to enhance monitoring.

Additional piezocone testing and shear vanes tests were undertaken November 2022 to January 2023 to calibrate the stability assessment results. Final analysis results awaited.

Dam Breach Assessment

Assessment completed in 2022 (KP Reference: RI301-00840/06 Rev 0, 13 April 2022)

Area of Inundation

Has been identified by EoRs – please refer to Figures 2 & 3

Summary of Human Exposure

Consequence classification has been based on Population at Risk (PAR). Farmers have been identified and are being engaged through various means

DOCUMENTATION:

Site Specific OMS Manual

Version 2022 available

Dam Safety Review (DSR)

Carried out by an independent third party in 2019/2020 with no material findings (KP Reference: 301-00840/02-009 Rev 1, February 2020)

Design Basis Report (DBR)

Version 2022 available (KP Reference: 301-00726/05 Rev B, 4 July 2022)

Environmental Management Programme (EMPr)

In place



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Surveillance:

Surveillance Frequency

Daily by the Operator and monthly reports of critical controls submitted to and reviewed by the EoR

Surveillance Technology/System

K2Fly Decipher

Deformation Monitoring

Interferometric Synthetic Aperture Radar (InSAR)

Phreatic Surface Levels & Pore Pressure Measurements

Standpipe piezometers
 AquaSense Retrofit piezometers (IoT device)
 Vibrating Wire Piezometers (VWP's)

**RISK MANAGEMENT /
 EMERGENCY PREPAREDNESS:**

Risk Assessment

Annual Risk Assessment (Failure Mode Effect Analysis and Bowtie) completed with no untoward risk identified

Risk Management

Site specific OMS Manual in place
 Site specific Trigger Action Response Plans (TARPs) in place
 Critical controls established and implemented

Site Specific Emergency Preparedness & Response Plans (EPRP)

Version 2022 available

Annual emergency mock drill for a catastrophic TSF failure – undertaken on 26 May 2022 with SSW employees and contractors.

CLOSURE & POST CLOSURE

Closure Planning

In place - report prepared by Golder Associates (Golder Reference: 20353619-341344-2, April 2021)

Closure Costing

Adequate financial capacity in place
 Financials prepared by Golder Associates (Golder Reference: 20447293-349381-4, December 2021)

Asset Insurance Cover

In place – July 2022 to June 2023



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Independent Reviews:

Independent Tailings Review Board (ITRB)	14 July 2022 with no material concerns identified
Future ITRB Review	June 2023
Performance Reviews	Annual and quarterly reports with inspections completed by EoR (KP Reference: RI301-00726/05 Rev A, 19 April 2022)



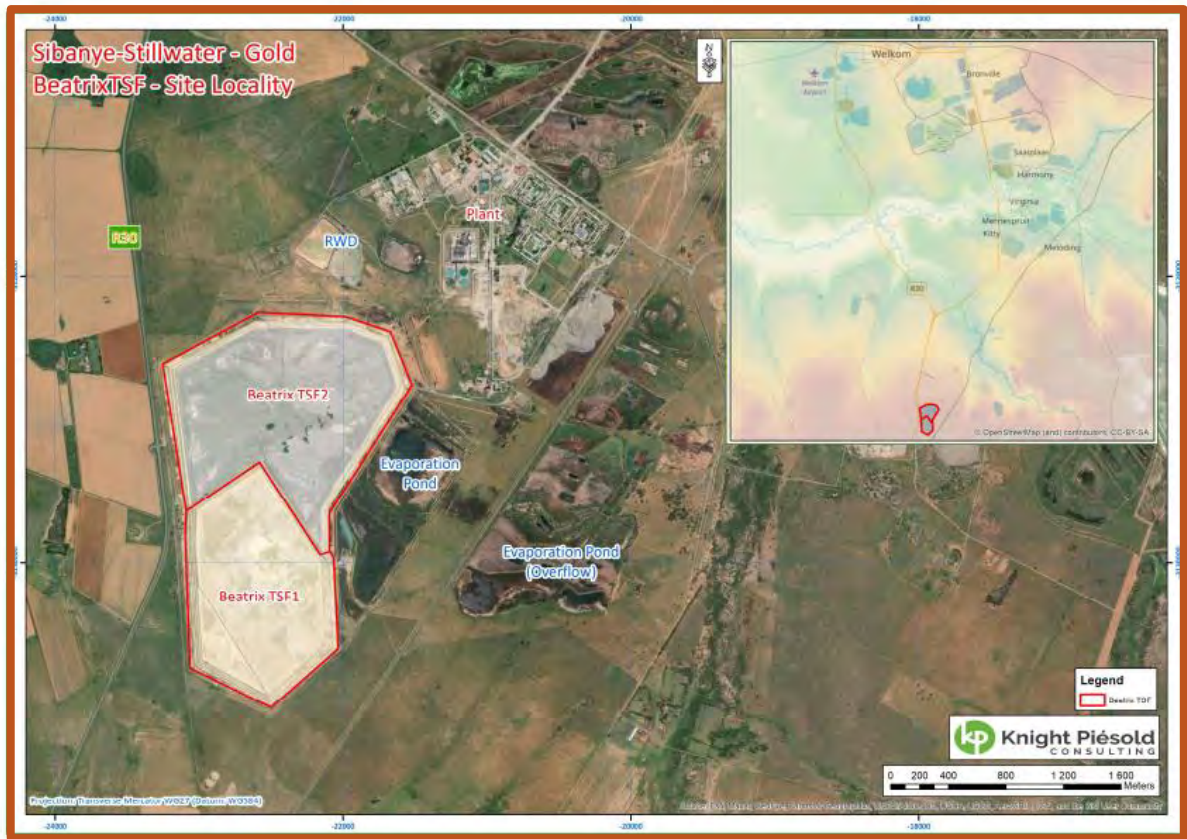


Figure 1: Layout of Beatrix Mine Complex

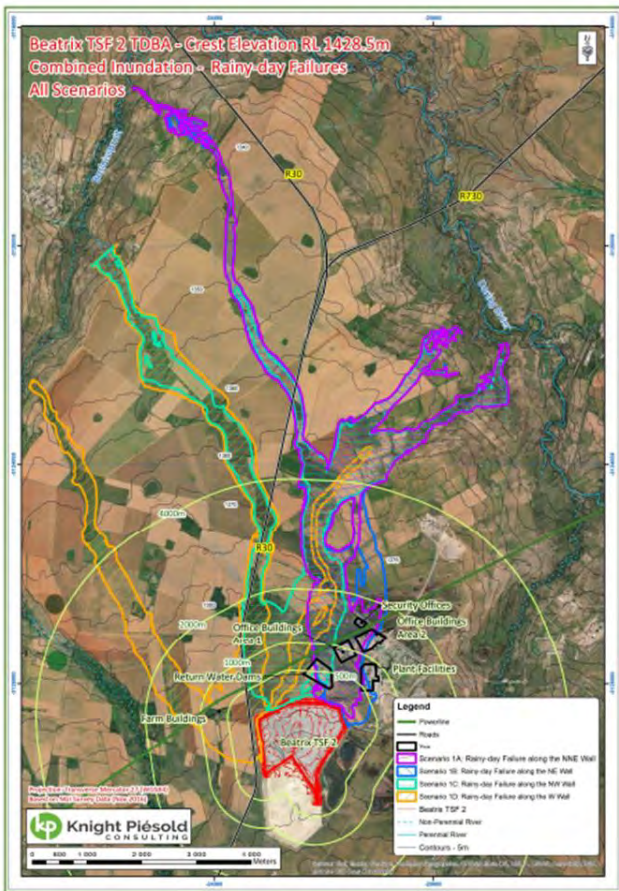


Figure 2: Consolidated view of the rainy-day failure scenario inundation boundaries

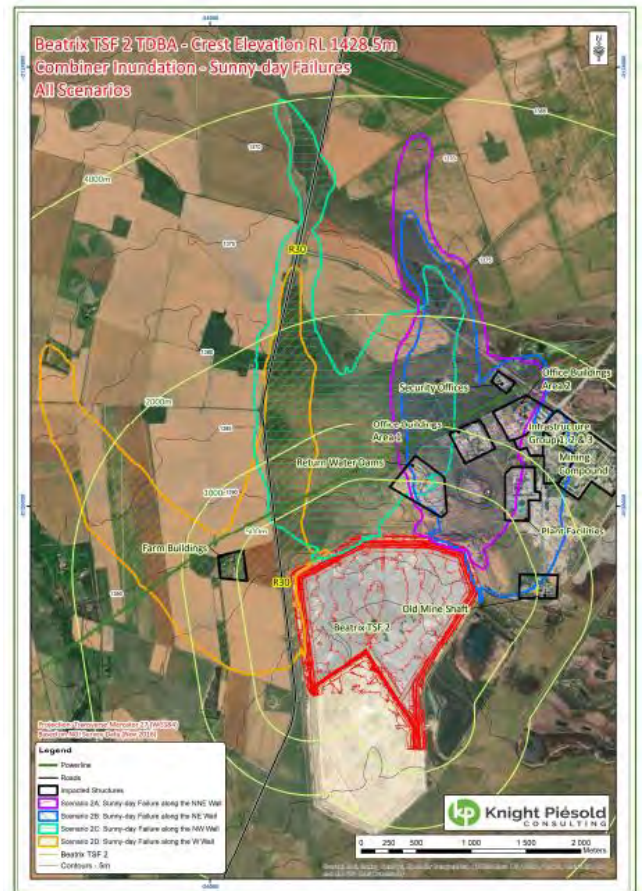


Figure 3: Consolidated view of the sunny-day failure scenario inundation boundaries