



July 2023

Hertzler Tailings Storage Facility (TSF)

DETAILS OF TAILINGS STORAGE FACILITY

Tailings Storage Facility (TSF) Name	Hertzler TSF
Operation	Stillwater Mine
Operational Status	Active – Stage 3
Operating Segment	United States Platinum Group Metals
Location	Nye, Montana USA
Latitude, Longitude (decimals)	45.45, -109.79
Ore Source	Underground
Type of Storage Facility	Impoundment (Lined Downstream dam) Stage 3 complete
Deposition Methodology	Perimeter Drops
Year of Commissioning	2002
Consequence Classification (GISTM, 2020)	Extreme
Operating Contractor	Sibanye Stillwater
Engineer of Record (EoR)	Knight Piesold
Current Maximum Height (m)	55
Final Maximum Height (m)	55
Maximum Storage Capacity (total tonnes)	2,370,000
Life of TSF (year)	2030



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TECHNICAL ASPECTS:

Adopted Factor of Safety (FoS)

Montana Metal Mine Reclamation Act (MCA) 82-5-376 (2015)

Stability Assessment and Mitigation Measures (if applicable)

An updated stability assessment was conducted in 2020.

Dam Breach Assessment

A Dam Breach Assessment was completed in 2021.

One breach location was evaluated at Hertzler TSF along the western face. The breach location was selected to maximize the consequences of the breach event, in terms of maximum tailings release volume and downstream impacts.

Area of Inundation

A Rainy-day and Sunny-day failure scenario were each analyzed as can be seen in Figures 4 and 5.

Summary of Human Exposure

There are two towns, Absarokee and Columbus, along multiple permanent homes and ranches in the 50km (33 mile) long inundation zone from the mine to the confluence of the Stillwater and Yellowstone Rivers.

Public infrastructure along the Stillwater River will be affected by flooding including bridges, and potentially water supplies and sewage systems.

For addition impact facts please refer to Figure 6 Stillwater County Vulnerability Analysis.



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DOCUMENTATION:

Site Specific OMS Manual

In place. Updated annually- latest version 2022

Dam Safety Review (DSR)

Carried out by an independent third party in 2020 with no material findings. Next DSR scheduled for 2025.

Design Basis Report (DBR)

In place. Updated as needed – latest version 2022

Environmental Management Programme (EMPr)

In place. (Locally named the Environmental Management System.)

SURVEILLANCE:

Surveillance Frequency

Ongoing via telemetry network.

Exceptions reviewed daily by the Staff. Engineer Staff review data weekly and report exceptions as needed to the EoR. EoR reviews and reports on instrument data quarterly.

Surveillance Technology/System

NavStar GeoExplorer for instrument data network and K2Fly Decipher.

Deformation Monitoring – Crest & Foundation

Automated GPS Monuments & Automated In-place Inclinometers both via telemetric network.

Phreatic Surface Levels & Pore Pressure Measurements

Automated Vibrating Wire Piezometers (VWP's) via telemetric network.



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RISK MANAGEMENT / EMERGENCY PREPAREDNESS:

Risk Assessment

2022 Annual Risk Assessment (Failure Mode Effect Analysis) completed with no untoward risks identified.

The TSF is considered Low Risk.

Risk Management

Site specific Operations, Surveillance, and Maintenance (OMS) Manual in place

Site specific Trigger Action Response Plans (TARPs) are in place. Critical controls have been established and implemented.

Site Specific Emergency Preparedness & Response Plans (EPRP)

2021 version available

Annual emergency mock drill for a catastrophic TSF failure – undertaken in 2021 with SSW employees, Local Communities Administration, and Local Emergency First Responders.

CLOSURE & POST CLOSURE:

Closure Planning

In place - report prepared by Knight Piesold.

Closure Costing

Reclamation bond of USD \$57M in place for Stillwater Mine (includes Hertzler TSF) -Bonding prepared by KC Harvey in cooperation with DEQ/US Forest Service.

Asset Insurance Cover

Yes, with third party liability cover.

INDEPENDENT REVIEWERS:

Independent Tailings Review Board (ITRB)

ITRB inspection was completed in June 2023 with no material concerns identified.

Future ITRB Review

Summer 2024

Performance Reviews

Annual (Sept 2022) and quarterly reports with inspections completed by EoR.



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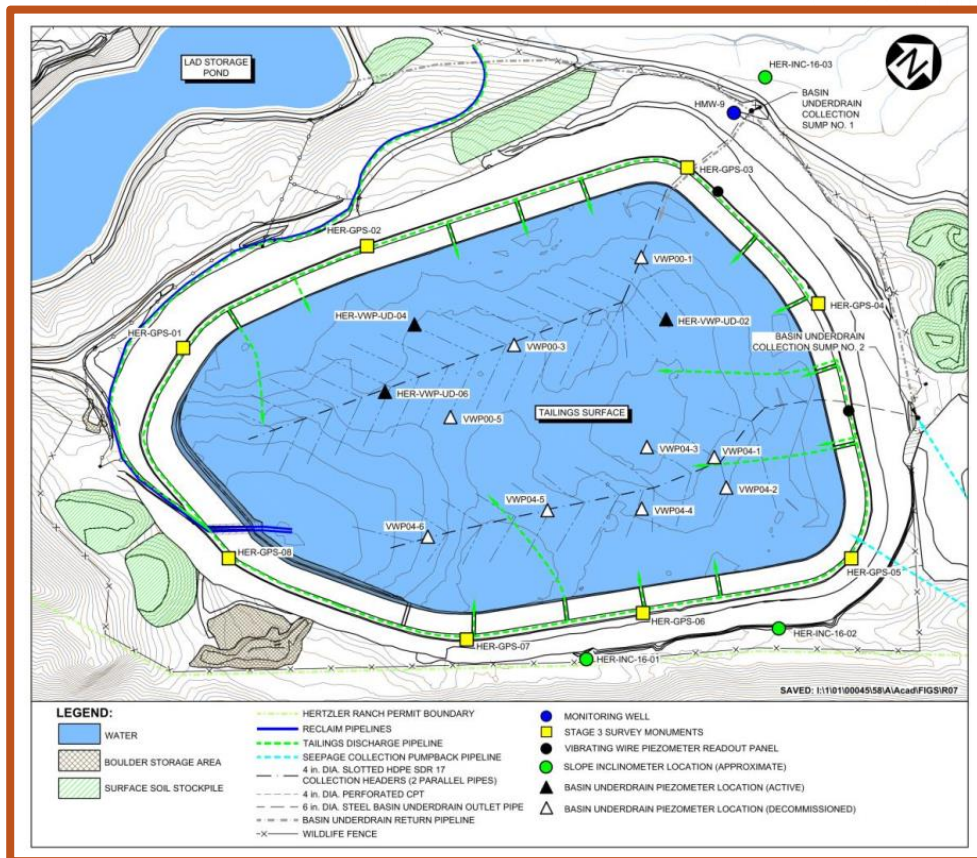


Figure 1: Layout of Hertzler Tailings Storage Facility

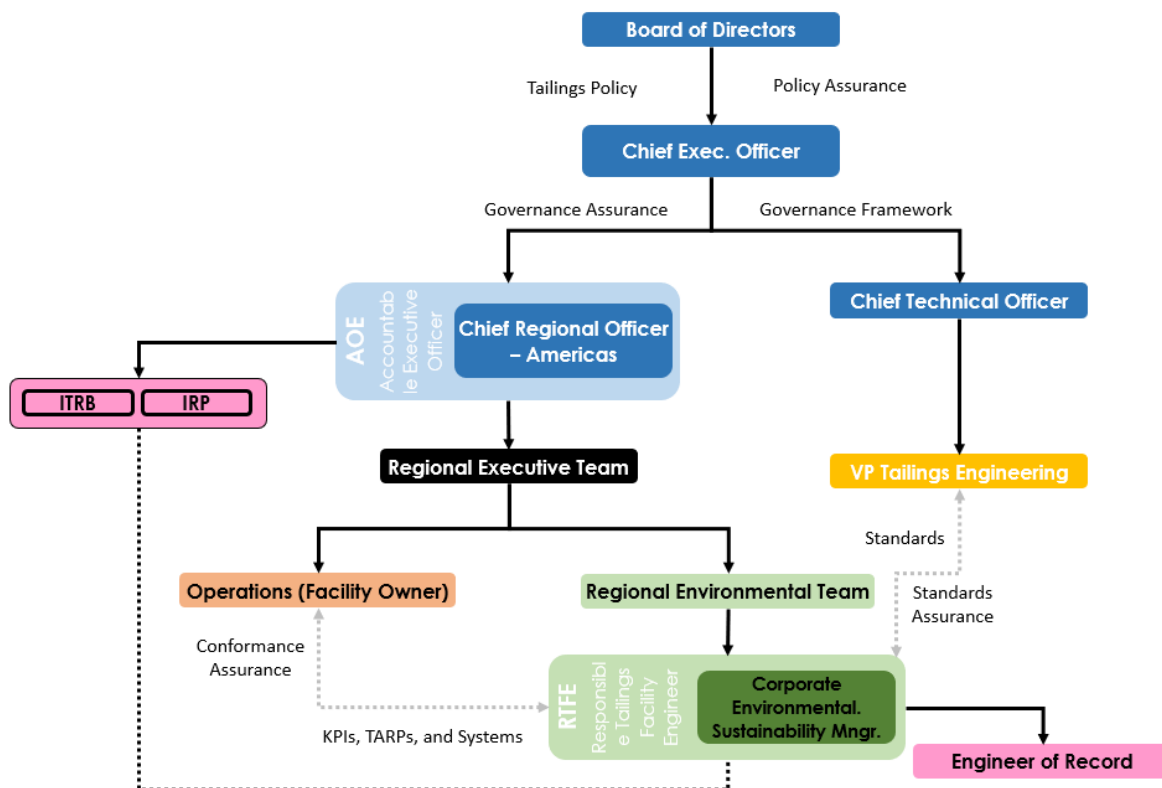


Figure 2: US Tailings Management Governance Structure

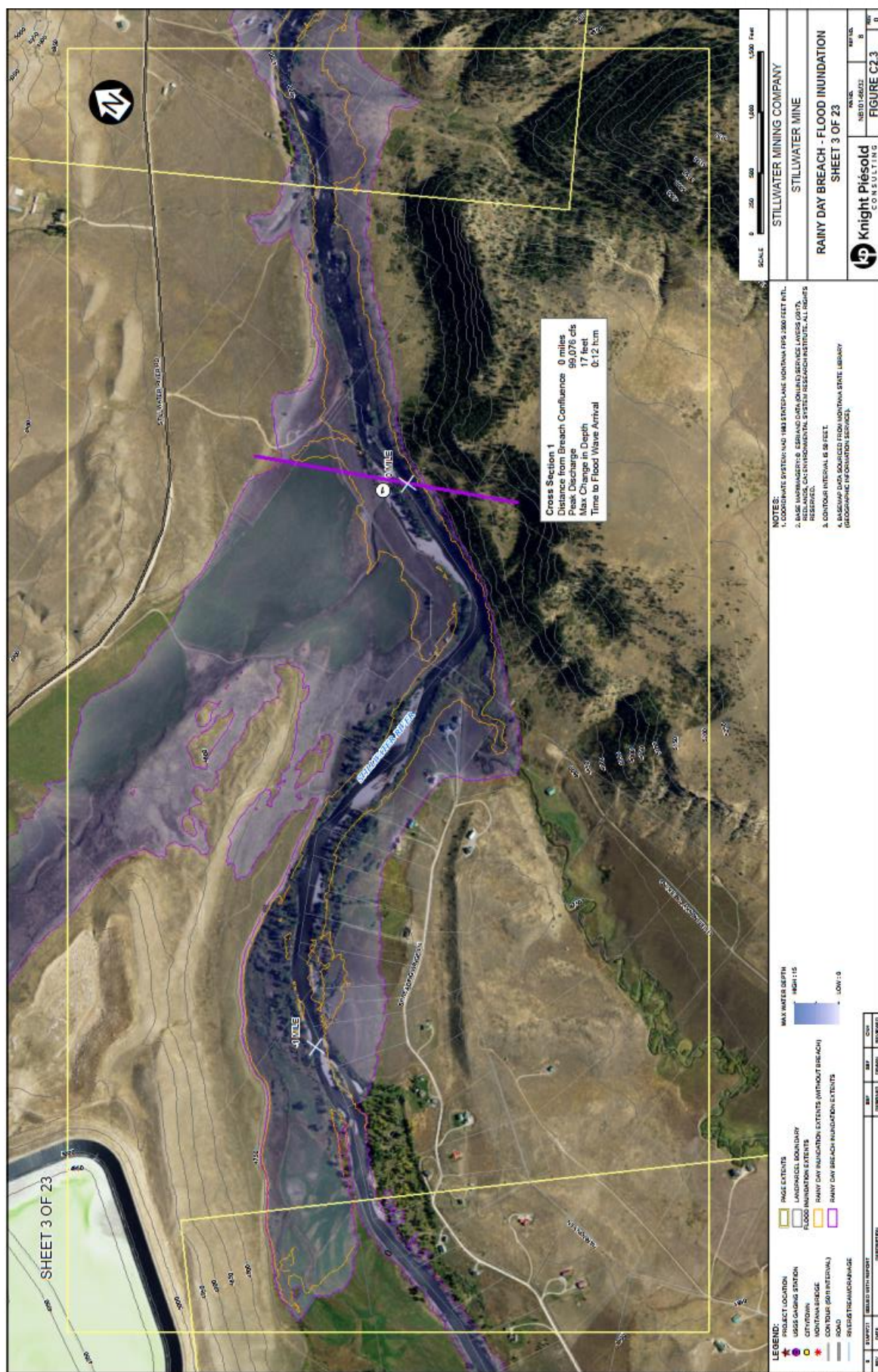
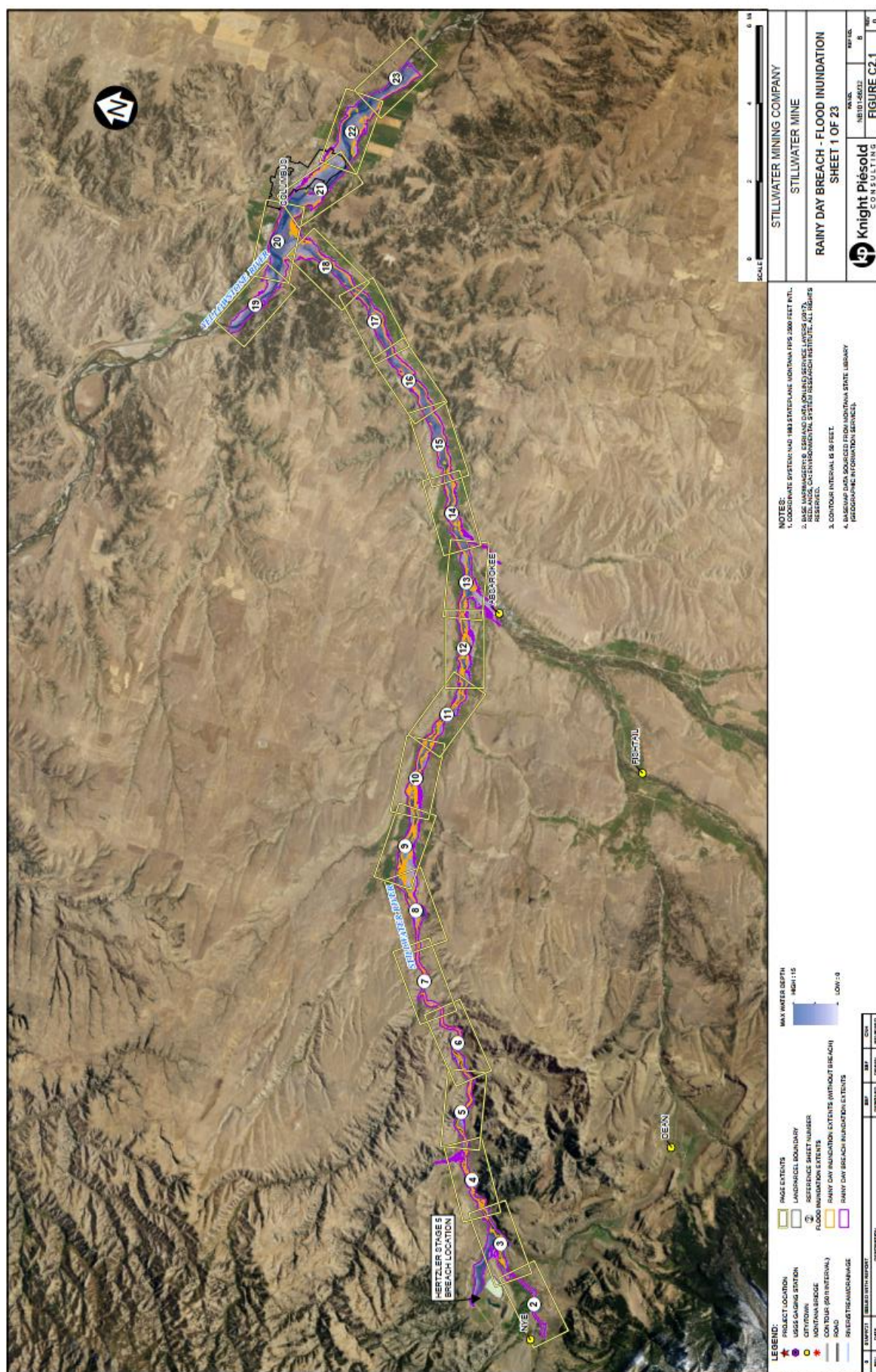


Figure 3: Breach Confluence with Stillwater River





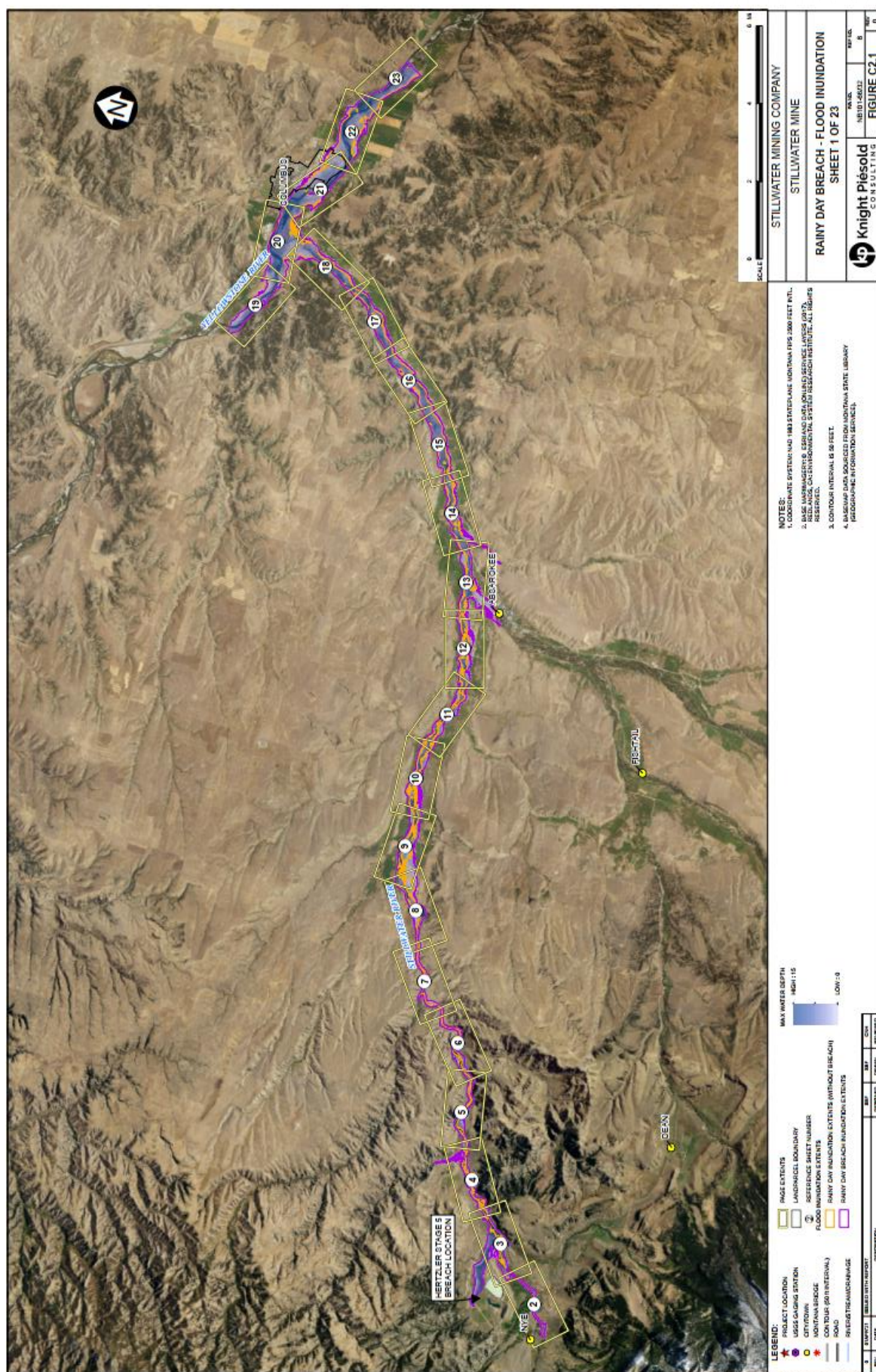


Figure 5: Consolidated view of the sunny-day failure scenario inundation boundaries.



Stillwater County Vulnerability Analysis; Dam Failure

Category	Stillwater Co. (balance)	Columbus (City)
Residential Property Exposure \$	\$123,393,808	\$3,702,475
# Residences at Risk	693	29
Commercial, Industrial & Agricultural Property Exposure \$	\$26,172,823	\$4,830,190
# Commercial, Industrial & Agricultural Properties at Risk	113	6
Critical Facilities Exposure Risk \$	\$21,488,541	\$4,923,539
# Critical Facilities at Risk	17	6
Bridge Exposure \$	\$11,931,252	\$0
# Bridges at Risk	19	0
Persons at Risk	1,690	65
Persons Under 18 at Risk	353	14
Persons Over 65 at Risk	398	15

Figure 6: Summary of Human Exposure (source: Tetra Tech October 2021 Multi-Hazard Mitigation Plan Stillwater County MT)



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