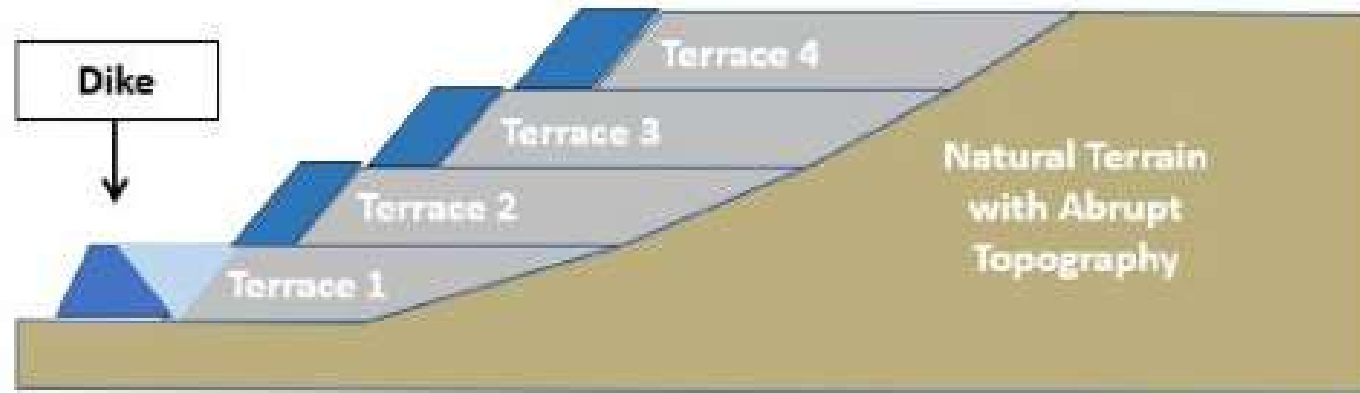


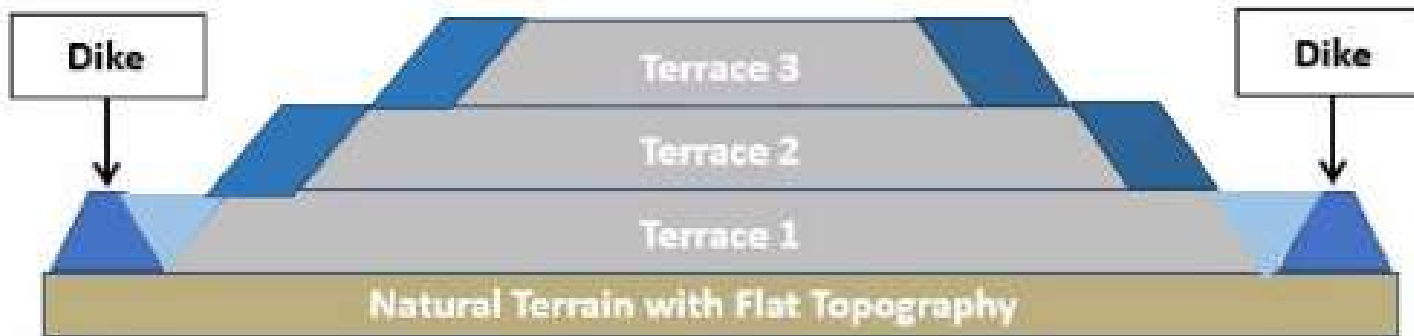
Copper Flat Project Cake Stack Tailings Facility Slope Stability Analysis

WSP Technical Memorandum, March 17, 2025

Filtered Tailings Facility Construction



← Hillside-type construction



← Dike-type construction



Co-Disposal facility failure at the Turmalina gold mine, Conceição do Pará, Minas Gerais, Brazil, December 7, 2024

- runout of 400 meters,
- the tailings slump extended for 21 times the height,
- similar to the height-runout relation for the collapse at the Pau Branco mine

Google Earth image from **June 29, 2022**. Failure of filtered tailings storage facility at the Pau Branco mine in Brazil on **January 8, 2022**, extended for 828 meters past the toe of the facility or 17.25 times the height of the filtered tailings storage facility of 48 meters (Agência Nacional de Mineração [National Mining Agency], 2025).



48-meter-high filtered tailings stack collapsed at the Pau Branco iron-ore mine in Brazil on January 8, 2022. Based on the highway width of 27 meters, the slump at the filtered tailings storage facility at the Pau Branco mine in Brazil on January 8, 2022, extended for 104 meters past Highway BR-40



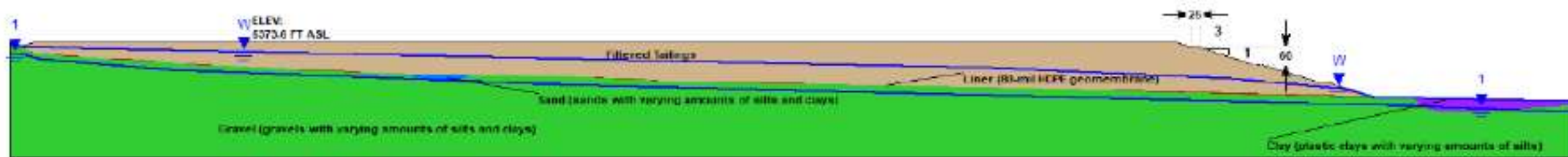


Figure 3-5: Tailings Stacking - Stage 4 – Section D-D'

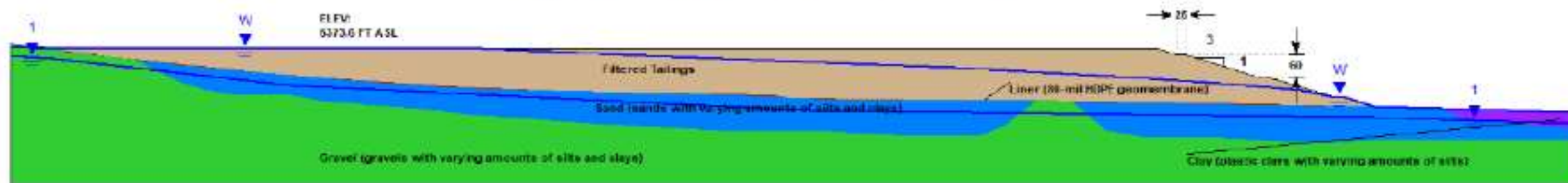


Figure 3-6: Plan Tailings Stacking-Stage 5 – Section E-E'

Tailings compaction:

- “spreading and compaction by equipment traffic” (WSP 2025, Section 4.6 Stacking Plan)
- Apparently no compaction testing

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Table 3-1: Design Criteria – Geotechnical

Description	Unit	Criteria	Source
Risk Assessment			
Consequence Classification	-	High	CDA (2019), GISTM (2020) ⁽¹⁾
Slope Stability			
Minimum Static Safety Factor Required	FoS	1.5	CDA (2019), New Mexico Administrative Code 19.25.12.11 C (12) y (13) ⁽²⁾
Minimum Pseudo-Static Safety factor required	FoS	1.1	
Seismicity PGA ⁽⁴⁾	g ⁽⁵⁾	0.11	USGS NSHM (2023) (2,475-year return period) ⁽⁶⁾
Seismic Coefficient ⁽⁷⁾	-	0.07	USACE (2016)

“No seismic hazard assessment has ever been conducted for this site. WSP recommends that a site-specific seismic hazard study be conducted.” (WSP 2025, Section 4.5 Seismic Hazard Assessment)

CONSEQUENCE
CLASSIFICATION TABLES

ANNEX 2

Table 2: Flood Design Criteria

Consequence Classification	Flood Criteria ¹ – Annual Exceedance Probability	
	Operations and Closure (Active care)	Passive-Closure (Passive Care)
Low	1/200	1/10,000
Significant	1/1,000	1/10,000
High	1/2,475	1/10,000
Very High	1/5,000	1/10,000
Extreme	1/10,000	1/10,000

The term "Maximum Probable Precipitation" (PMP) or "Probable Maximum Flood" (PMF) are terms sometimes used to denote extreme hydrological events. The concepts of PMP and PMF are acceptable for assigning flood loading if they meet, or exceed, the requirements above for Extreme Consequence Classification facilities and/or facilities at the Post-Closure (or Passive Care Closure) phase.

Table 3: Seismic Design Criteria

Consequence Classification	Seismic Criteria ^{2,3} – Annual Exceedance Probability	
	Operations and Closure (Active care)	Passive-Closure (Passive Care)
Low	1/200 ²	1/10,000 ²
Significant	1/1,000 ²	1/10,000 ²
High	1/2,475 ²	1/10,000 ²
Very High	1/5,000 ²	1/10,000 ²
Extreme	1/10,000 ²	1/10,000 ²