

Marshall Magruder
4555 East Mayo Blvd Unit 4102
Phoenix, Arizona 85050
10 June 2024

From: Marshall Magruder

To: Kerwin S. Dewberry, Forest Supervisor, Coronado National Forest
(ATTN: Hermosa Critical Mineral Project)
300 West Congress Street
Tucson, Arizona 85701

Subject: General Issues and Other Concerns, Scoping Comment #3

References:

- (a) *Federal Register*, Notice of Intent to Prepare an Environmental Impact Statement, 10 May 2024, Vol 89, No 92, pp. 40462-64.
- (b) South32 Hermosa Inc., Critical Minerals Exploration and Mine Plan of Operation 1 Dec. 2023, revised 16 April 2024 (MPO).
- (c) Arizona Corporation Commission Order No. 79005 (28 July 2023), Power Plant and Transmission Line Siting Committee Case No. 218 (Siting Case 218).
- (d) *Santa Cruz County Comprehensive Plan*, 2016, approved and adopted, 18 May 2016 .

Background. I am a former 25-year resident of Tubac, Santa Cruz County Energy Commissioner, professional income tax preparer, retired systems engineer and naval officer who was an active participant in developing the County Comprehensive Plan. It is requested that concerns involving various additional issues be included in the analysis and studies to be accomplished during the next NEPA phase in the forthcoming Environmental Impact Statement (EIS) (ref a) for the proposed Hermosa Mine Operation Plan (ref b). This is my third Scoping Comment letter.

General Areas and Issues of Concern.

Compliance with the *Santa Cruz County Comprehensive Plan*. The *Santa Cruz County Comprehensive Plan*, ref (d), has been implemented in accordance with A.R.S. § 11-805 as the master long-term plan for the County with the purpose of guiding and accomplishing the coordinated, adjusted and harmonious development of land within the County...”

The *Santa Cruz County Comprehensive Plan 2016* (pp. 21-26), for this project transverses two “character areas” with special emphasis on Goals, Processes and Procedures. This involves A.R.S. 360.06(1) and local “existing plans” for transmission lines. Additional plan details, quoted below, are found in

<http://www.santacruzcountyaz.gov/DocumentCenter/Home/View/7400>)

- (1) **South Central Santa Cruz County Character Area** (Nogales East, Patagonia West and Patagonia-Sonoita Scenic Road [SR 82] Corridor (pp. 21-23).
State Route 82 is the main arterial highway running through the area, and it was declared the **Patagonia-Sonoita Scenic Road** in 1985, the second such designation in the state at the time. The **scenic road is a**

critical element shaping the South-Central County Character Area. Along this scenic corridor near Nogales are the **residential areas along South and North River Roads, rustic Duquesne Road**, which traverses into the Coronado National Forest, the quaint Little Red School House, and the mixed-use resort and residential development in Kino Springs (Estancia Yerba Buena). The Nogales International Airport, established in 1929, occupies 370 acres south of State Route 82 and is protected from encroachment by an Airport District Overlay Zone and the substantial amount of undeveloped land surrounding the airport property. Further northeast along SR 82, the large-lot subdivision of **Patagonia Lake Estates borders the state park, and the T4 and Circle Z Ranches run along the National Forest boundaries**. The **Sonoita Creek**, a popular birding area, runs along SR 82 between Patagonia and Lake Patagonia State Park. **Dark night skies, wildlife corridors, canyons, gently rolling hills, steep, rocky ridges, transitioning grasslands, mesquite, oak and piñon pine forests** along with numerous other types of native vegetation characterize this area and make it a **unique and spectacular place to live and visit**. The Santa Cruz River meanders north from its brief foray into Mexico crossing back into Arizona at the Buena Vista Ranch. The **sky islands** of the Patagonia and Santa Rita Mountains within the Coronado National Forest provide rich ecological potential.”

The *Country Comprehensive Plan* goals include:

Goal 4: **New Development will be designed to enhance the existing character** of the surrounding area;

Goal 18: An efficient and attractive transportation system is developed and maintained that supports the economy and meets the needs of county residents and visitors;

Goal 9: That the infrastructure is at a scale that contributes to the sustainability of the **natural and cultural resources** and the area’s **economy [ranching, tourism]**;

Goal 20: **Dark night skies are preserved and protected**; and

Goal 19: **Water supplies are protected and conserved**.

Character Area Challenges include “**ensuring all new growth in the area is supported by adequate and appropriate infrastructure, ensuring water quality, supply and demand are monitored closely** for all land uses; and maintaining in **integrity of the Patagonia-Sonoita [Arizona] Scenic Road** and other routes in the area.”

(2) Southeast Santa Cruz County Character Area (San Rafael Valley).

The Southeast Santa Cruz County Character Area [**San Rafael Valley**] has experienced **extremely low rates of growth**, consistent with the available infrastructure and services and the **ranching character** of the valley. Aside from the San Rafael State Park, no non-traditional land uses have been established in the area in modern times. This trend should continue with **the only exception land uses, such as dude ranches**, that enhance and **build upon the farming and ranching character**.

The *Country Comprehensive Plan* goals include:

Goal 1: **Historical, cultural, and agricultural heritage** of the San Rafael Valley are preserved through **land use** patterns and development styles;

Goal 2: **Open space and natural terrain are dominant features** of the landscape and **viewshed** values are protected;

Goal 6: Land uses contribute to the **protection of national and state parks, conservation areas, preserves and other natural resource areas**;

Goal 20: **Dark night skies are preserved and protected**; and

Character Area Challenges include “**ensuring limited residential and commercial development on private lands to locate on very large parcels** to achieve the desired objective of **preserving open space and valuable ranchland; protecting San Rafael Valley from intrusion of off-highway vehicle recreation**; protecting San Rafael Valley from **human-caused WILDFIRES**; and **protecting property and water rights** and carefully **following state and federal rules regarding land and water use** particularly as regards future development on **base ranch properties**.”

- Q50. Will the EIS study show how this project conforms with all the above character area Goals and these attributes in the County's master plan and community goals, policies, procedures and values?
- Q51. Will the EIS study show how the mine does not interfere with the T4 and Circle Z dude ranches and associated trails that run along the CNF border?
- Q52. Will the EIS study show how the mine will protect and preserve 'dark skies' in accordance with the County's implementation of the International Dark Skies program in the Patagonia Mountains? For example, will outside lights be aimed down below the horizon and not skyward?
- Q53. Will the EIS study include any wildlife corridors on its roads and access roads? If "road kill" is excessive, how will the study resolve this issue?
- Q54. Will the EIS study discuss how top soil removed for mining operations will be remediated later in the project?
- Q55. Will the EIS study show how ground and surface water will be reused and recycled to minimize potable water losses?
- Q56. Will the EIS study show how many gallons of seasonal ground and surface water are "lost", that is extracted and not returned to nature?
- Q57. Will the EIS study show mine operation impacts, including transportation roads, on viewsheds including manganese dust effects?
- Q58. Does South32 consider that the County has the same County jurisdictional oversight and responsibilities for all the 'private' land in this project?
- Fires and Emergency Response Times. Due to the limited firefighting and emergency medical support in the operational area, assistance by other agencies is critical.
- Q59. Will the EIS study verify that adequate fire hydrants, hoses and fire water and storage are available in case of a major forest fire at or near the site?
- Q60. Will the EIS study show that all buildings have fire water sprinklers and are plumed to the fire water storage tanks?
- Q61. Will the EIS study provide for coordination agreements between the mine's limited fire defense capabilities and the CNF fire agencies, local fire departments and state fire agencies? Will the mine include, as a minimum, all fire departments in Santa Cruz County in fire coordination agreements?
- Q62. Will the EIS study include an assessment the planned fire suppression and firefighting measures on site including "private property"??

Power Consumption. The Line Siting process indicated the mine requires at least 87 MW of electrical power 24 hours a day. The UNS Electric peak power demands in this County are about the same as the mine's requirements. This more than doubles the present peak power demands. This project obviously is the largest UNS Electric customer in Santa Cruz County.

Q63. Will the EIS study show any changes in required power demands during the life of the mine?

Q64. Will the EIS study include how the mine can provide power backup whenever UNS Electric loses power? How will power be provided to the mine when external power is lost to ensure miners below ground are always safe?

Q65. Will the EIS study show how the present fossil-fueled power will convert to 25%, 50%, and 100% renewable energy by what years?

Q66. Will the EIS study include when and if renewable power is planned to be generated on site?

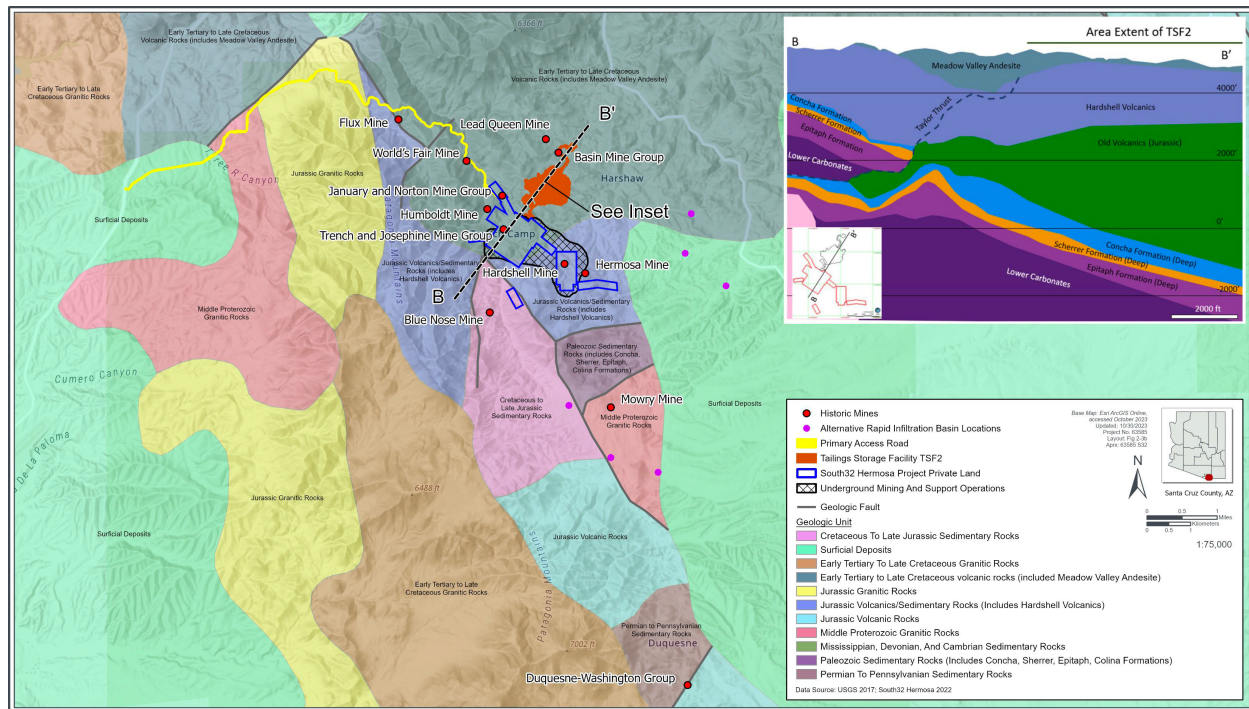
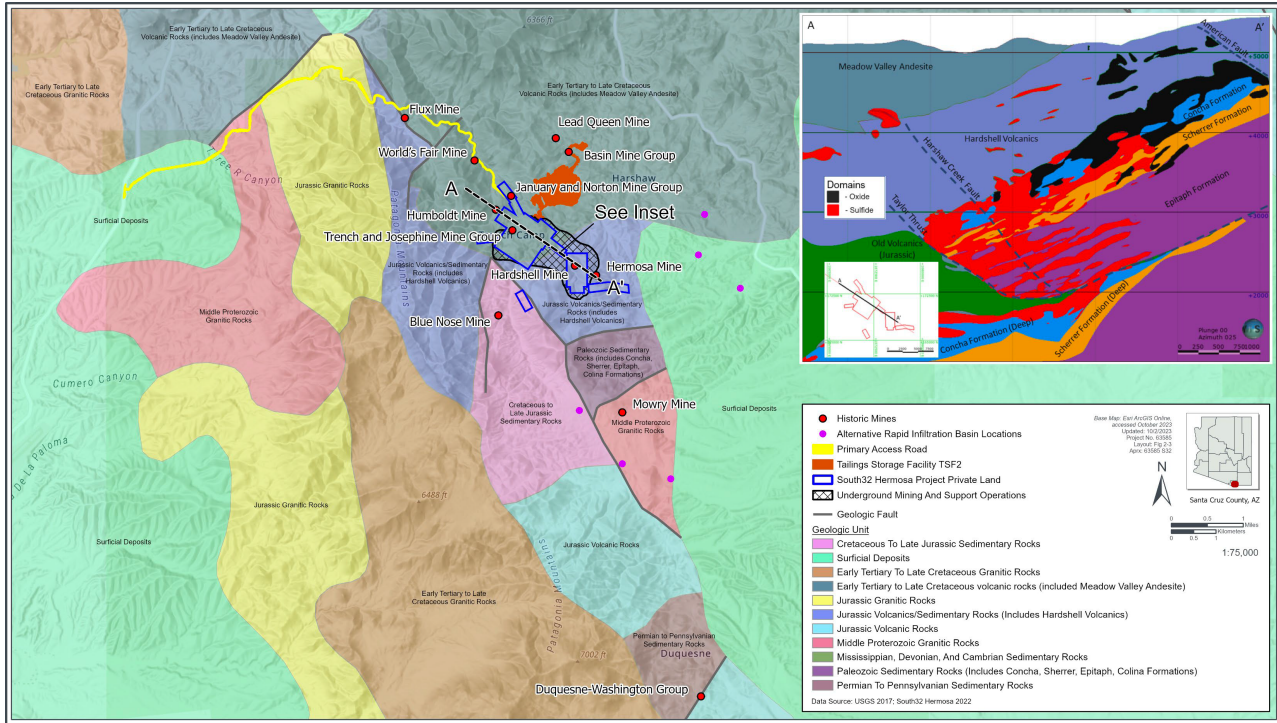
Q67. The CEC Application (p. 2, para A.4) indicates a "line switch" will be used to split the line at a location on SR82, between Rio Rico and Harshaw, if an outage occurs. Will the EIS plan indicate if this switch is a remotely controlled switch, or will a line person have to do this manually from Nogales? What is the anticipated electricity outage time when using this switch.

Q68. Will the EIS study show if the mine or the utility will operate and conduct maintenance on the transmission line, the South32 substation, the line between that substation and the local distribution substation?

Q69. Will the EIS study show that the mine has applied and obtained a fiber optic line permit from the CNF to the mine using the transmission line poles?

Earthquake Resilience. In 1887, a magnitude 7.8 earth quake was centered about 30 miles south of the Mexican border that cause boulders the size of houses to roll down the streets of Tucson and church bells rang in Santa Fe (ref: Arizona Geologic Survey report on this earthquake).

Figure 6 below from the MPO (p. 3-13, Fig. 2-10) shows two faults: Taylor and Harshaw Creek Faults in Cross-Section A-A through the Hermosa Mine. The Taylor Fault is shown in Figure 7 below in Cross-Section B-B of the MPO (p. 3-14, Fig. 2-11). These faults cross the underground mine operations. Much larger faults exist on the west face of the Patagonia Mountains.



Q70. Will the EIS study include additional details for faults within 100 or so miles from the mine including known recent activities?

Q71. Will the EIS study include information that supports resistance designs and reaction plans within the underground mine to protect underground mines and to prevent cave-ins or other mine accidents from these local and other nearby earthquake faults?

Q72. Will this EIS study discuss the damage impacts for M 7.0, 6.0, 5.0, 4.0, and 3.0 earthquakes on mine underground and above ground structures?

Q73. Will the EIS study discuss the impacts of an earthquake on ground buildings and underground fuel and water tanks?

Critical Habitat and Environmental Protections. There are multiple species that are endangered and threatened in this area, including the Jaguar and Ocelot. The Fish and Wildlife Service has designated the Patagonia Mountains as a critical habitat area with three concerns that require action to protect these species. These include light, noise and highway hazards. Jaguar “**El Jaff**” **was photographed in the Patagonia Mountains several times.**

Southern Arizona has a very important astrometric industry with telescopes using the electromagnetic spectrum to uncover critical scientific information. These sensors are significantly impacted by light pollution, especially from ground light aimed or reflected into the atmosphere.

The Santa Cruz River and the Patagonia Mountains are a **major raptor migration path**, with over 4,000 sighted in March, including Gold Eagles, American Kestrels, etc. They use tall trees to “rest” at night; thus March and Sept/Oct are primary months to NOT interfere with their annual migrations. Many of these avian species have permanent nests in this area. The Patagonia Mountains are a worldwide appreciated “birding” area that brings millions of dollars to the local economy from these birders.

Q74. Will the EIS study require any measures to reduce the impacts of these three concerns? How will the traffic on the access roads reduce noise and highway hazards when a vehicle may pass by every 2.3 minutes (see Magruder Figures 2.9)?

Q75. Will the EIS study show that the mine operations can reduce light going into the atmosphere by using shields to aim light downward to prevent light pollution, as light going upward has no valid purpose?

Q76. Will the EIS study determine the anticipated lumens for the operational area, including on private land, during mining operations?

Q77. Will the EIS study include an analysis to show the frequency of area lighting? Will this be at the frequency that causes the least amount of light that impacts astronomers in Santa Cruz County and in Southern Arizona?

Q78. Will the EIS study show the impacts of night lights and noise on migratory birds crossing this area?

Q79. Will the EIS study provide seasonal and time-of-day data when noise, lights or traffic impacts on birds should limit these impacts on mine operations and access roads. Some critical impact areas include such limits. Will the study include these limits for endangered species?

Q80. Will the EIS study include an analysis of acoustic spectrum noises from vehicles, exploratory explosions, and normal operations including the impacts of noise on endangered species in the Patagonia Mountains?

Q81. Will the EIS study provide a typical daily and seasonal schedule of exploratory and operational mine explosions and associated noise levels (frequency and intensity levels) and the effects of these explosions on local endangered species?

Q. Will the EIS study provide information that ensures no electromagnetic interference with the Army's unique Electronic Test Range?

Weather Issues. The operational area has seasonal high and low weather variations in temperature, wind, relative humidity, and rain and snow.

Q82 Will the EIS study show the variable weather extremes in the operational area and along access roads?

Q.83 Will the EIS study show when mine operations and access roads are impacted by the variable weather limits? What are the resultant restrictions for extreme temperature, wind, rain/snow and other weather impacts on mine operations and access road utilization?

Q.84 Will the EIS study show the 100-year and 500-year flood limit boundaries on a map in the vicinity of the mine operational area including substations and along access roads? What actions will be required if these flooding limits are breached? What are the impacts on mine operations and transportation will results during these conditions?

Private Property. The MOP many times discusses "private property" as not being impacted by the environmental analysis in the EIS.

Q85. Will the EIS study include comprehensive environmental impacts on both federal and "private" property equally, or will some environmental impacts not be considered for "private property"? For example, medical treatment or fire protection issues?

Q86. Will the EIS study show that all “private property” areas shown in the MPO to be under CNF or under Santa Cruz County property management rules, regulations and other jurisdictional procedures?

Reclamation. When the mine operations are complete, the area is required to be returned to its natural state, or as close to it, by the company. In general, continually reclaiming the area during mining operations, as proposed in the MOP, is beneficial and reduces cost of closing the mine. The mine is required to provide a “ Reclamation bond” in order to commence mining. The cost to “reclaim” will vary during the proposed 60-years of operation.

Q87. Since reclamation cost will vary over time, will the EIS study provide a time-series of anticipated cost, such as when commencing, after 5, 15, 30, 45 and 60 years or closing. If updated on such or similar dates, and thus the value associated with the bond should vary.

Q88. Since mining is dependent on the value of ore produced, which can vary significantly over time, will the EIS study show how the value of various ores could impact the mining operations?

Q89. Will the EIS study provide the cost of reclamation, if some urgent short-term condition, such as war, climate change, or technology changes eliminate the need for the minerals from the mine? If an unanticipated shut-down occurs, will the reclamation bond **always** be adequate to restore the area to avoid super fund site costs to be borne by the CNF or EPA or taxpayers?

Record of Decision. This is the CNF’s approval document for this project.

Q92. Will the EIS study process be fully funded by the proponent for this project, and if not, how will the CNF and its contractors be compensated for its efforts to conduct this study?

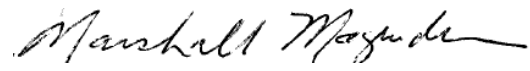
Q.93 Will the EIS study indicate that NO work can be started on CNF land until the final EIS has been reviewed and approved by the CNF Supervisor in an ROD? If any work on CNF land commence before, will the study provide that information.

Q94. Will the ROD include a requirement, due to this 60-year life of this project, that Supplemental EIS or a new EIS be completed periodically to account for environmental and climate changes, technology changes, economic conditions or other factors impacting the CNF and this project? Would EIS updates, funded by the proponent at ten-year intervals be reasonable?

Q95. Will the ROD include any CNF additional employees to oversee, manage or review actions by the proponent, and if so, will the proponent provide funding for these additional personnel?

Your review of these concerns and issues is appreciated to ensure a successful project.

Respectfully submitted,

A handwritten signature in black ink that reads "Marshall Magruder". The signature is fluid and cursive, with a long horizontal stroke at the end.

4555 E. Mayo Blvd Unit 4102

Phoenix, Arizona 85050

marshall@magruder.org

(520)471-3096