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# HURRICANE CLIFFS SAND & GRAVEL PLAN OF OPERATIONS

20-acres

Portions of SW1/4, SW1/4, Section 34, T42S, R13W

And NW1/4, NW1/4, Section 3, T43S, R13W, SLBM

Hurricane, Washington County, Utah

*(Southeast of Grassy Meadows Sky Ranch Airport Hurricane, Utah)*

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1	Introduction .....	1
1.1	Owner/Operator .....	1
1.2	General Location and Property Description .....	1
1.3	Legal Description .....	1
1.4	Access and Haul Roads .....	1
2	Operations Plan .....	1
2.1	Development/Production Schedules.....	2
2.2	Site Development .....	2
2.3	Extraction Methods .....	2
2.3.1	Excavation Depth and Profile.....	2
2.3.2	Eastern Boundary Terracing.....	2
2.4	Process/Recovery .....	3
2.5	Product Handling, Stockpiling Bagging and Storage.....	3
2.6	Production Transportations/Hauling.....	3
2.7	Labor Force.....	3
2.8	Contractors/Subcontractors.....	3
2.9	Control of Dust and Other Particulates .....	3
2.10	Noise Abatement .....	3
2.11	Blasting, Explosives Storage and Handling.....	4
2.12	Power Generation and Distribution.....	4
2.13	Water Supply, Storage and Use .....	4
2.14	Fuel Storage .....	4
2.15	Sanitary and Solid Waste Handling and Disposal.....	4
2.16	Hazardous Waste Handling/Water Pollutants/Spills .....	4
2.17	Site Security .....	4
2.18	Fire Protection .....	4
2.19	Cultural Resources .....	4
2.20	Wildlife/Endangered Species Protection .....	5
2.21	Protected Species Handling .....	5
2.22	Visual Impact .....	5
2.23	Emergency Response.....	5
3	Economic Conditions .....	6
4	Environmental Conditions .....	6
4.1	Geology.....	6

4.2	Recreational Use.....	6
4.3	Vegetation.....	7
4.4	Wildlife .....	7
5	Reclamation.....	7

Figure 1 – General Project Area

Figure 2 – Proposed Material Site

Figure 3 – Geologic Map

Figure 4 – Site Topography

Figure 5 – Elevation Profiles

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## PLAN OF OPERATIONS

### 1 INTRODUCTION

Interstate Rock Products, Inc. submits this Plan of Operations in request of a Non-Competitive Sales Contract under CFR Title 43 § 3601.6 for sand and gravel material from a 20-acre parcel of land managed by the Bureau of Land Management (BLM) in Washington County, Utah.

#### 1.1 OWNER/OPERATOR

Interstate Rock Products, Inc.  
42 South 850 West  
Hurricane, Utah 84737  
Utah Entity Number: 780948-0142

#### 1.2 GENERAL LOCATION AND PROPERTY DESCRIPTION

The subject site is located southeast of the Grassy Meadows Sky Ranch Airport southeast of Hurricane, Utah. The 20-acre site is found roughly 1,900-feet southeast of 4620 South 1100 West intersection (Figure 1).

#### 1.3 LEGAL DESCRIPTION

The subject site is located within a portion of the SW1/4, SW1/4, Section 34, T42S, R13W; and a portion of the NW1/4, NW1/4, Section 3, T43S, R13W, Salt Lake Base Meridian in Washington County, Utah. Roughly 20-acres.

#### 1.4 ACCESS AND HAUL ROADS

Access to the site is via 1100 West in Hurricane. This paved road transitions to improved gravel surface at the BLM Route-0421 junction (roughly 400-feet south of 4620 South junction). A user created route is roughly 2800-feet south of the 1100 West/Route-0421 junction. This route traverses east/west through the southern section of the subject area (Figure 2). The access road from 1100 West may be improved to accommodate anticipated haul traffic. This road as well as roads within the contract area will be widened and stabilized to 24-feet (Figure 2).

### 2 OPERATIONS PLAN

Interstate Rock Products, Inc. (Interstate) plans to conduct all operations with employed staff and company owned/leased equipment. All insurances, registrations, and licensing will follow Utah State Law.

Initially, the topsoil, (up to the upper 12 inches of the soil profile) of the extraction area will be stripped and stockpiled for subsequent reclamation procedures. The seed bank and micro-biotic community are resident in the native topsoil. Typically, reclaimed sites have higher species diversity and vegetative success when the native topsoil is utilized. All improvements will be temporary and will be removed when the contract is complete during site reclamation.

This site contains naturally derived colluvium eroded from the uplift of the Hurricane Cliffs (Figure 3). Raw sand and gravel will be excavated and sorted. The rock will be screened or crushed to achieve specific properties to meet the

market demand. Rock, gravels, and sand will be weighed, hauled, and sold to meet the demand for construction materials in the local area.

## 2.1 DEVELOPMENT/PRODUCTION SCHEDULES

The anticipated annual production is 10,000 to 150,000 tons per year. Production rate will be dependent upon need. The operations will run a typical workweek, 9 hours per day and 5 days per week. Operation hours will be between 7 am and 8 pm.

## 2.2 SITE DEVELOPMENT

Once all the contract sales documents, insurances, and permits are approved, the anticipated order of operations for the site development is as follows:

1. The site will be staked and flagged according to the survey plat.
2. A grader, dozer, utility trailer, portable toilets, and a water truck will be brought onto the site.
3. A security fence will be installed around the designated equipment area.
4. A haul road will be constructed within the lease area and the access road from 1100 West.
5. Ingress/egress and site drainage will be constructed according to the Storm Water Pollution Prevention Plan (SWPPP).
6. Rocks/gravels will be hauled in from an off-site source if necessary to support access and/or SWPPP requirements.
7. Topsoil will be scrapped and stockpiled for site reclamation use.
8. Crushing and Screening area will be established and leveled.
9. Water tank site will be established and leveled.
10. Material from initial site leveling will be stockpiled and processed.

## 2.3 EXTRACTION METHODS

The planned collection method is a small-scale open-pit extraction. Extraction will consist of scrape and stockpile of the topsoil and overburden, then excavation of the parent material. The parent material will be sorted, crushed, and/or screened to construction grade sand and gravel. Source material will be loaded into trucks and weighed for delivery.

The proposed material borrow area spans 20 acres and will be excavated to a depth ranging from 20 to 150 feet below the existing site topography (Figure 4). The objective is to extract high-quality sand and gravel material for construction purposes, with the final elevation of the site being approximately equal to the elevation of 1100 West (roughly 3,518' msl), which is the target grade. Since the site naturally slopes westward towards 1100 West, the excavation will be carefully designed to blend into the existing landscape to the extent possible.

### 2.3.1 EXCAVATION DEPTH AND PROFILE

- The site will be excavated in stages to a depth between 20 and 150 feet below the current ground level.
- The excavation will aim to achieve a uniform final elevation similar to 1100 West (~ 3,518 feet msl).
- The depth will vary across the 20-acre site based on the location of usable material and the underlying topography.

### 2.3.2 EASTERN BOUNDARY TERRACING

Based on aerial photography, the eastern boundary of the borrow area, where the excavation is deepest (up to 150 feet), will be terraced to avoid the formation of a steep cliff. Terraces will be constructed at intervals of 20 to 50 feet

vertically, with side slopes between terraces less than 2:1 (horizontal to vertical ratio). This creates a series of stepped, relatively flat surfaces that reduce erosion. The terraced design also helps control stormwater runoff by reducing velocity, aiding in infiltration, and reducing sheet flow that increases natural erosion (Figure 5).

No blasting is anticipated. A water truck will be used as necessary for dust abatement on the recovery site as well as the access road. Magnesium chloride or lignin sulfonate may be added to the water for dust control.

## **2.4 PROCESS/RECOVERY**

A dozer will be used to prepare recovery benches as needed. Material will be excavated from the recovery bench. It is anticipated that 40- to 45-ton end-dump trucks will be used to haul material to the crusher at a rate of 10 to 30 loads per day. The on-site foreman will monitor production. Loads will be weighed and recorded prior to trucks leaving the site. Recorded logs will be saved electronically and submitted to the BLM.

## **2.5 PRODUCT HANDLING, STOCKPILING BAGGING AND STORAGE**

Product will be loaded and shipped in 40- to 45-ton trucks. No bag storage for transport is anticipated. A normal week supply of product will be stockpiled for immediate delivery. The site foreman will be responsible for presale and anticipation of future supply need. Production rates will be adjusted accordingly.

## **2.6 PRODUCTION TRANSPORTATIONS/HAULING**

Production rates will vary according to needs. Up to a maximum of 200,000 tons of sand and gravel will be produced from this site. Normally, one week to one month worth of product will be stockpiled and stored on site.

## **2.7 LABOR FORCE**

A site foreman/manager and 2 to 4 equipment operators will be on site as necessary. The labor force will be employed by the contract holder. Insurance certificates in accordance with Utah State law will be maintained.

## **2.8 CONTRACTORS/SUBCONTRACTORS**

Contractors and subcontractors will be the responsibility of the contract holder. It is anticipated that a portable toilet and dumpster company will be hired to service the site as necessary.

## **2.9 CONTROL OF DUST AND OTHER PARTICULATES**

The material operation will be actively watered for dust abatement. State air quality regulations for a gravel crush and screen operation will apply as per the contractor's general permit.

## **2.10 NOISE ABATEMENT**

Mine Safety and Health Administration (MSHA) noise exposure regulations will be applicable. Operators at the site will wear ear protection when ambient noise exceeds 89 decibels in their immediate area of operation.

The closest noise receptor is a private home which is located more than one half mile to the north. It is adjacent to the Grassy Meadow Airport Runway 35. This home is 200-feet from the runway and affected by the noise of airplanes taking off from the runway. Operation at the northern extent of the borrow area will be more than 2,770-feet from existing noise receptors.

## **2.11 BLASTING, EXPLOSIVES STORAGE AND HANDLING**

No blasting is anticipated for this operation. Explosive will not be stored or handled on site.

## **2.12 POWER GENERATION AND DISTRIBUTION**

If necessary, a 7,000-watt gas-powered generator will be used on site to supply 120/240-volt power to the operation trailer. Solar or battery power security lights may also be used on site.

## **2.13 WATER SUPPLY, STORAGE AND USE**

The site will be watered from an on-road water truck, or a 10,000-gallon water tank will be used on site as needed for dust abatement. The tanker will be filled with re-use water from the municipal water treatment plant or irrigation water from a local source.

## **2.14 FUEL STORAGE**

A 5,000-gallon diesel fuel truck will be used on site to refuel equipment as necessary. Spill prevention standards and filling procedures will apply. No fuel will be stored on site.

## **2.15 SANITARY AND SOLID WASTE HANDLING AND DISPOSAL**

A portable toilet will be leased and maintained at the mine operation site by a local company. A commercial grade dumpster with a lid will be leased and dumped as needed by a local company. Material in the dumpster will be hauled to a local landfill as provided by the waste disposal company.

## **2.16 HAZARDOUS WASTE HANDLING/WATER POLLUTANTS/SPILLS**

Used oil and lubricants will be collected and taken to an approved recycling facility. In the event of a gas or oil spill, the contaminated soil will be collected and disposed of at an approved facility. Hazardous material clean-up kits will be available on site.

## **2.17 SITE SECURITY**

The contract holder will be responsible for site security. A fence will be established around the equipment area and the perimeter of the active borrow site. If necessary to prevent vandalism, a solar or battery-operated security lighting may be used on site. A private security officer may be contracted by the leaseholder for additional security during non-operation hours.

## **2.18 FIRE PROTECTION**

The Bureau of Land Management responds to wildfire on BLM lands. If wildfire occurred on the sales contract land, the existing vegetation would burn. The BLM wildfire crews will provide fire containment measures to protect private land and infrastructure. Wildfire is of minimal concern, as the operation area will be stripped of vegetation. Fire extinguishers will be maintained on all equipment and in the operation trailer to contain any operator caused fires or equipment fires.

## **2.19 CULTURAL RESOURCES**

A state approved archaeologist will conduct a cultural resource inventory of the lease area. Any cultural resource finds will be reported to the State Historic Preservation Office and the BLM. Measures to avoid impact to cultural resources will be identified prior to site disturbance.

In the event any cultural or human remains are discovered during the mine operation all activity will be halted, and a 100-foot buffer will be established around the finds. A state approved archaeologist will be called to evaluate the site in accordance with state and federal regulations. Any finds will be handled in accordance with the Antiquities Act and Utah State Law applicable to cultural finds.

## **2.20 WILDLIFE/ENDANGERED SPECIES PROTECTION**

Prior to any new surface disturbance, the area will be pedestrian surveyed by a qualified tortoise biologist. It is unlikely that a tortoise will be discovered on the subject site. If a tortoise is discovered the Red Cliffs Desert Preserve will be notified for evaluation of origin and relocation. If burrowing owls are discovered onsite, construction will be restricted within 0.25-mile of their burrow from March 15 – August 15.

## **2.21 PROTECTED SPECIES HANDLING**

The Mojave Desert tortoise is protected under the provisions of the Endangered Species Act. On October 9<sup>th</sup> of this year, some of the material area was surveyed for suitable habitat of the Mojave Desert tortoise and signs of presence of this species. No tortoises or signs of presence were discovered within the surveyed area. The subject site lacks sufficient forage, cover, and burrow habitat to support resident tortoise population. It is possible that a vagrant or transplant tortoise could wander or be released onto the material site. Conservation measures of the Plan of Operation include handling procedures in the event a Mojave Desert tortoise is discovered on the site. Conservation measures include the following:

1. All crew members and operators will attend a tortoise awareness class taught by a certified biologist or the Red Cliffs Desert Preserve. The operator and crew members will maintain tortoise awareness certification cards. Awareness certification is good for 2-years.
2. Crew members will be instructed on what to do in the event a tortoise is discovered on the lease area. Crew members will not be allowed to touch the tortoise unless it is in harm way. Crew members will call the Red Cliffs Desert Preserve for relocation of the tortoise.

## **2.22 VISUAL IMPACT**

The visual impact will be a 20-acre extraction area cleared of vegetation with equipment, stockpiles, and the crushing/screening operation. This may be visible by people traveling southbound on 1100 West as they pass the site, however the land between the 1100 West and the subject site, about 225 feet, will serve as a natural visual buffer. This area is south and east of Hurricane City municipal boundaries.

The visual impact will be reduced to 10-acres, as the extraction area will be disturbed in 10-acre sections. The previously mined section will be backfilled, contoured, and reclaimed with the reserved organic topsoil. In this manner, the visual impact will be roughly half of the borrow site.

## **2.23 EMERGENCY RESPONSE**

The BLM has operating agreements with other agencies within the state to effectively dispatch fire suppression crews to all areas of the state. Wildfires and emergency response on BLM lands are responded to locally through agreements with the Washington County Sherif and Hurricane Police Department. Procedural response to wildfire

is typically containment to protect private property and infrastructure. The ecological site of the subject area is Creosote bush – white Bursage. This vegetation coverage is scattered, and wildfire risk is low.

The IHC Hurricane Hospital is roughly 6-air miles or 8.5-road miles from the lease area. Hurricane is the closest municipality.

### 3 ECONOMIC CONDITIONS

The material from the subject site will be used to support local economic development. Clean fill material from this site will be used in the surrounding cities of Hurricane, La Verkin, and Washington.

The Utah Division of Oil, Gas and Mining regulates mining operations in Utah. Sand, gravel, and rock are exempt from permitting however some operations are registered with the division. Other registered operations within Washington County include the following:

- Interstate Rock, Basalt, located near 3400 W 800 N Hurricane.
- Ash Excavating, LLC. Sand and Gravel, located by the Washington County Landfill.
- DHP Investments, Rock, located near Leeds, north of I-15.
- Southwest Stone, Limestone, located off Sheep Bridge Road in Virgin.

Material sale from this site will not have a negative economic impact on other private entities. Other known sites offer parent material of a different type.

### 4 ENVIRONMENTAL CONDITIONS

WLA personnel conducted a visual assessment of the subject site on October 8<sup>th</sup>, 2024. The site is easily accessible via passenger truck from 1100 West and the user created dirt trail at the southern extent of the site.

#### 4.1 GEOLOGY

The Hurricane Cliffs are the prominent land formation to the east of the subject site. This cliff formed by the movement of the Hurricane fault over hundreds of thousands of years. The material at the base of the cliffs derived from erosion of the cliff face consisting of stratified layers of material from the lower Permian and lower Triassic periods. Some very large boulders, remnants of rock fall from the up-lifted cliffs to the east are scattered across the site. The boulders should be evaluated for paleontological resources by a qualified paleontologist.

The mapped geologic formation of the subject site is Quaternary Alluvial-fan, younger (Qafy) deposits of the Holocene Epoch (Figure 3). This formation consists of poorly to moderately sorted, non-stratified, subangular to subrounded, boulder to clay size sediment deposited at the mouths of streams and washes; clast composition ranges widely and reflects rock types exposed in upstream drainage basins; forms both active depositional surfaces and low-level inactive surfaces incised by small streams undivided here; deposited principally as debris flows and debris floods, cut colluvium locally constitutes a significant part of the deposits; small isolated alluvial fans are typically less than a few tens of feet thick, but large, coalesced fans are as much as 200 feet thick.

#### 4.2 RECREATIONAL USE

Many OHV's were noted on 1100 West during the site review. This road provides access to the east side of Sand Hollow Special Recreation Area and Warner Valley which are popular destinations for off-road, rock crawls, and sand

dunes. The subject site has been used for target shooting. Target debris, broken glass, shell casings, and user tracks were noted.

### 4.3 VEGETATION

Vegetation is sparse and soils offer little organic matter. There are no trees on the subject site. The site is creosote/bursage vegetation community of the Mojave Desert. Creosote bush, white bursage, Virgin River brittlebush, broom snakeweed, desert trumpet, range ratany, silver cholla, prickly pear cactus, and indigo bush are the dominant shrubs. Understory consists of fluff grass, cheat grass, needle and thread, and salt grass. Some occurrences of Russian thistle were noted along 1100 West while traveling to the site.

### 4.4 WILDLIFE

Washington County offers habitat for a wide variety of birds and other wildlife. Sand Hollow reservoir and golf course is roughly 3-miles northwest and the new Copper Rock Golf Course is more than 1-mile northwest of the subject site. These developments provide habitat for a wide variety of wildlife. Some of the subject site was surveyed for Mojave Desert tortoise habitat and other burrows, dens, or nests on October 9<sup>th</sup>, 2024. No signs of tortoise activity were recorded. No dens, burrows, or nests were observed on the surveyed areas. A potential fox den was scoped roughly 1,400 feet northeast of the site. A golden eagle was observed soaring over the Hurricane Cliffs to the east of the subject area. The cliffs offer potentially suitable nest sites for golden eagles. The top layers of the cliffs are more than 800 feet to the east and roughly 1,500 feet higher in elevation. Rock wren, side blotched lizard, pack rat sign, and mule deer sign were recorded during the site survey. A comprehensive biological survey of the buffered subject site will be conducted prior to disturbance.

## 5 RECLAMATION

The reclamation plan for the sand and gravel pit focuses on restoring the site to a safe, stable, and ecologically productive state after mining activities are completed. The site will be graded and shaped to integrate with the surrounding landscape to the extent possible. Areas with depressions will be filled, and the topography will be re-contoured to prevent erosion and promote stability. The reserved topsoil containing the resident micro-organisms and seedbank will be reapplied to promote vegetation growth. The site may also be re-seeded with a weed-free, native seed mix. Erosion control measures, such as retention areas, water bars, or gravel aprons will be implemented to manage surface water runoff and reduce erosion.

Reclamation efforts will be monitored to document success. Upon successful completion, a final report will be submitted to the BLM for approval and site closure.

Figure 1: General Project Location



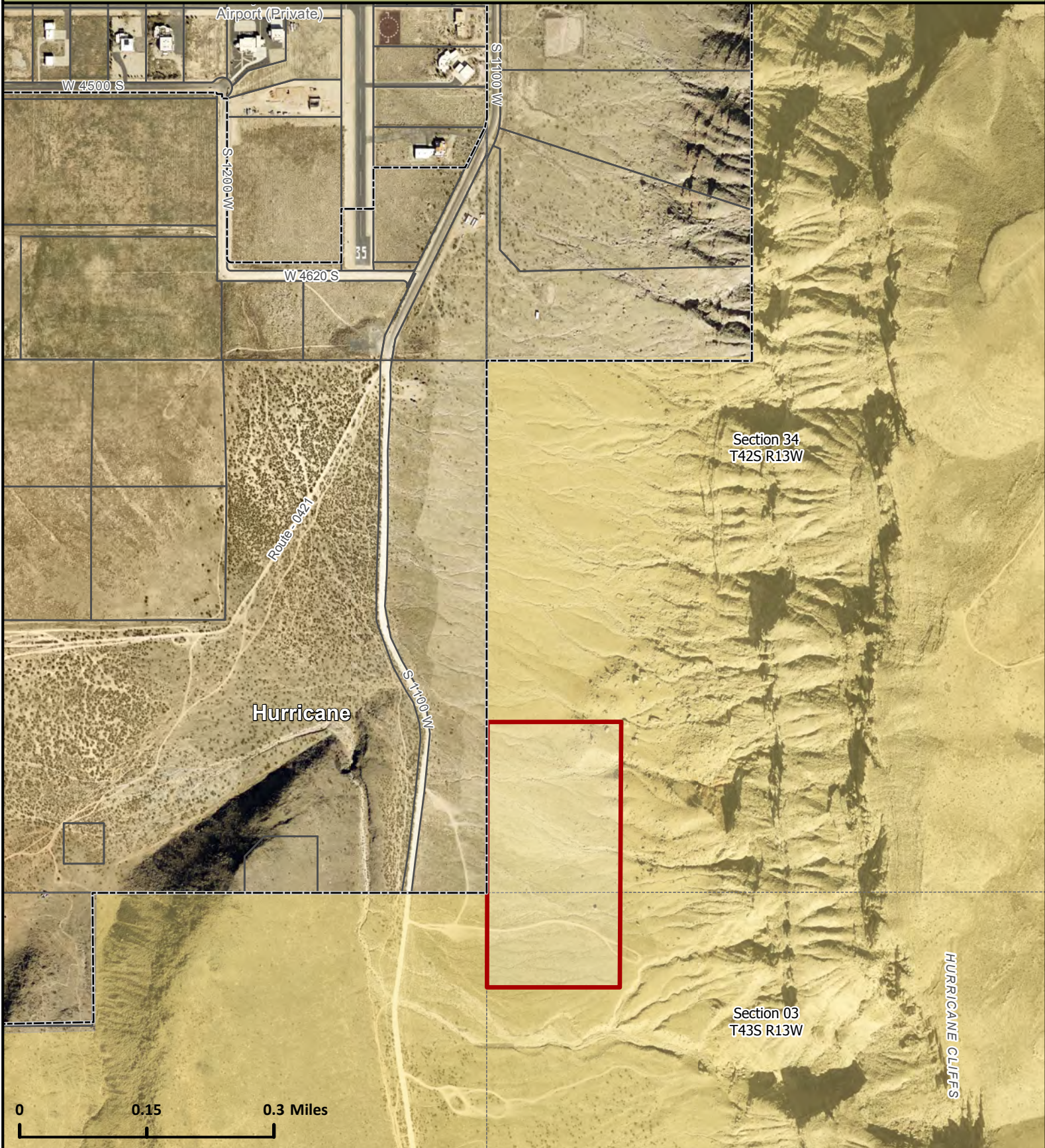
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 435-668-6089

- PLSS Sections
- 20ac Material Borrow

**Legend**

- Bureau of Land Management
- State Trust Lands
- Private Land
- Municipalities

Figure 2: Proposed Material Site

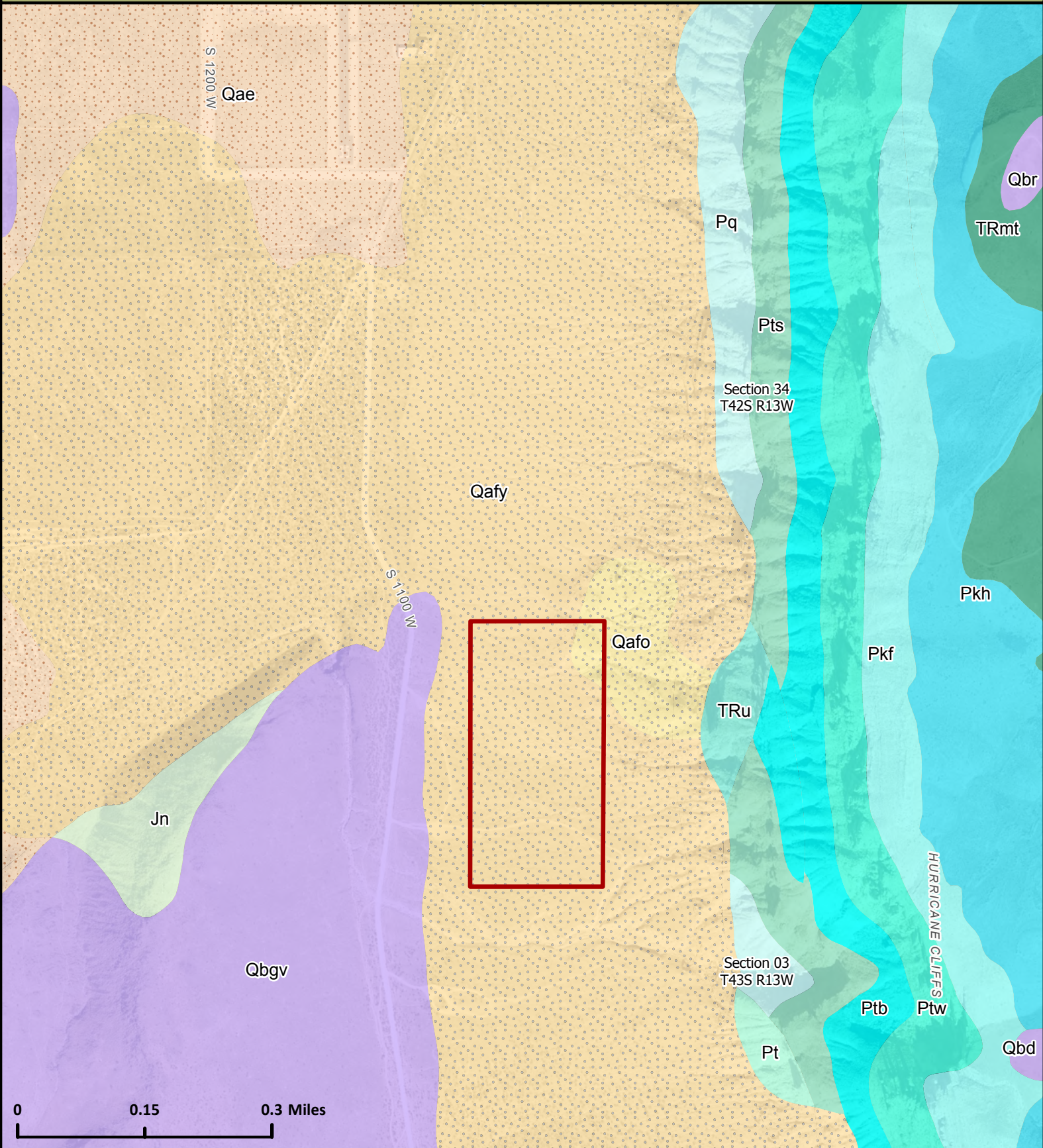


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**Legend**

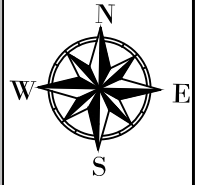
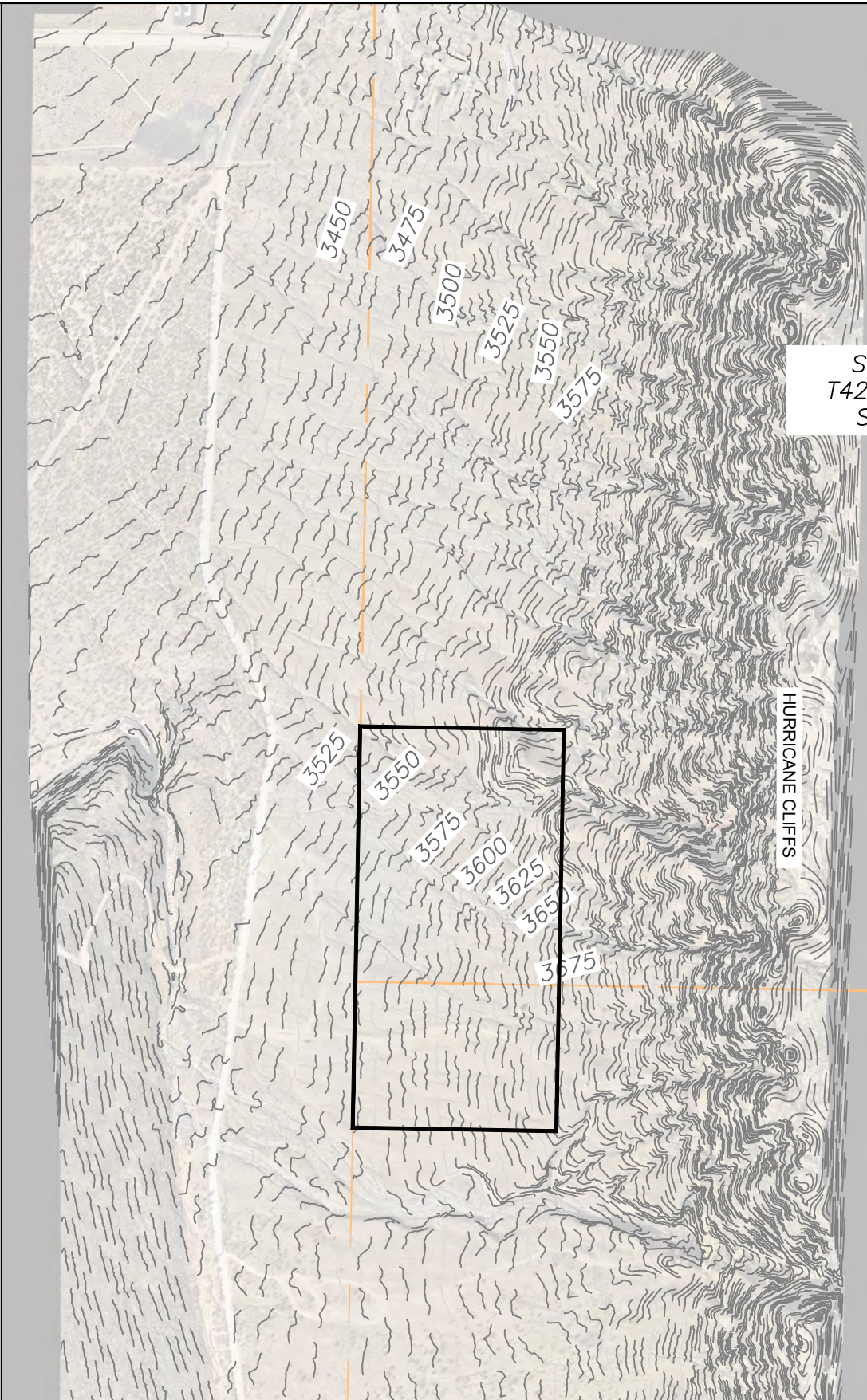
- PLSS Sections
- 20ac Material Borrow
- Bureau of Land Management
- State Trust Lands
- Private Land
- Municipalities

Figure 3: Geologic Map



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Legend			
	20ac Material Borrow		Qbd
	Qafy		Qbgv
	Qafo		Qbr
	Qae		Jn
	TRu		Pt
	TRmt		Ptw
	Pkh		Ptb
	Pkf		Pts
			Pq



LEGEND:  AREA OF CLAIM

 SECTION LINE

**Figure: 4**

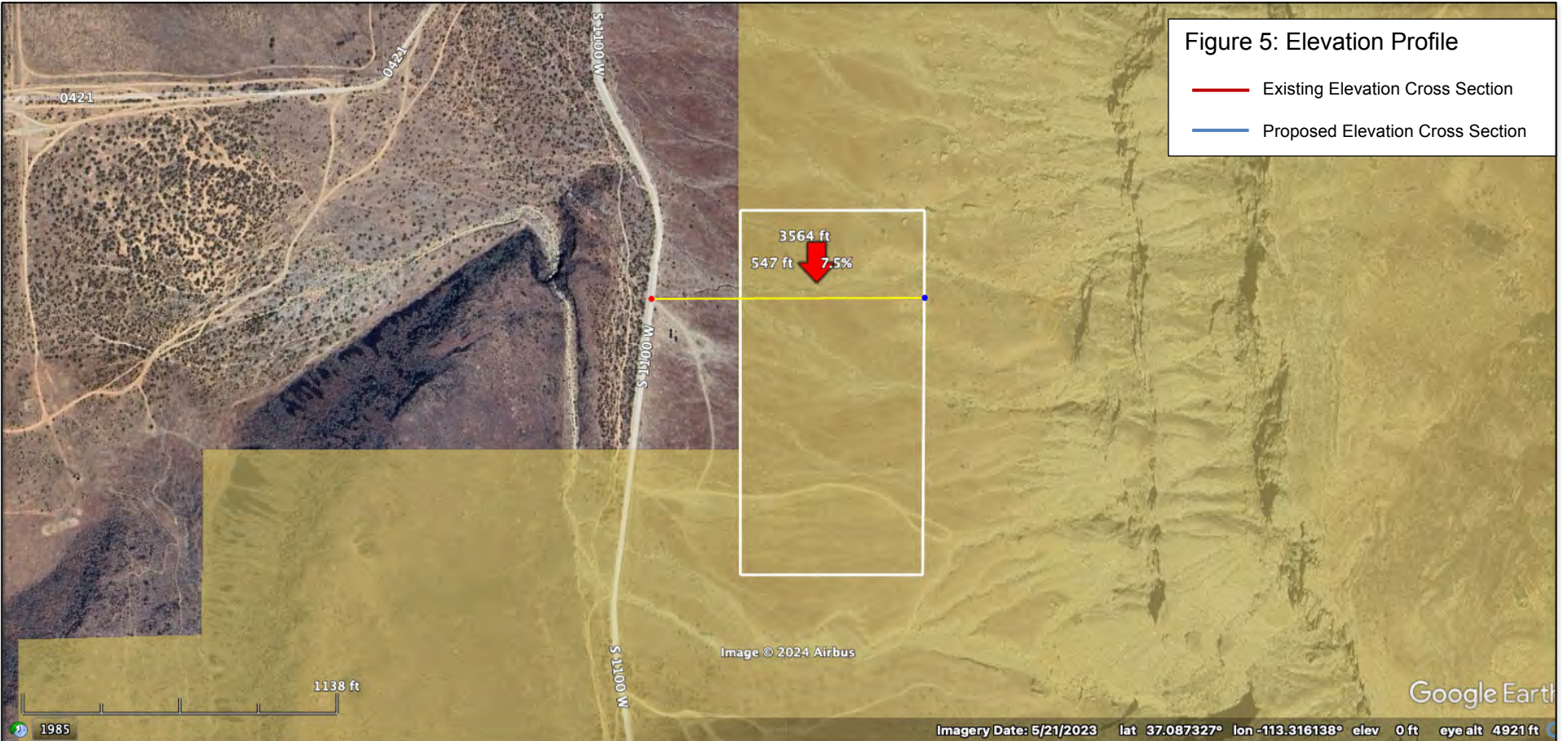
**BLM MINERAL CLAIM (20 ACRE PIT)**



**INTERSTATE ROCK**

Figure 5: Elevation Profile

- Existing Elevation Cross Section
- Proposed Elevation Cross Section



Graph: Min, Avg, Max Elevation: 3518, 3567, 3665 ft  
Range Totals: Distance: 1032 ft Elev Gain/Loss: 147 ft, -0.16 ft Max Slope: 58.7%, - Avg Slope: 13.5%, -

